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THE
BUILDER,

AN

ILLUSTRATED WEEKLY MAGAZINE,

FOR THE

DRAWING-ROOM, THE STUDIO, THE OFFICE, THE WORKSHOP,
AND THE COTTAGE.

VOLUME I.

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FOR THE

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AND THE HOUSE

VOLUME 1

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INDEX TO VOLUME I.

- ABUTMENTS, 138.**
Action for Work and Labour, 420.
Address, 1.
Adel Church, 36, 207.
Aërial Steam Carriage, 94.
Albury Church, Surrey, 435.
Alfred Life Assurance Office, 470.
Almshouses: Watermens', 216. Cambridge, 133.
Analogies of Architecture and Poetry, 213.
Ancient Seal, 31.
Angles of Brestsummers, &c., 318.
Anglo-Norman Architects, 45, 82.
Application and Intent of Various Styles of Architecture, 491, 516, 526.
Arches, strength of, 162.
Archæological Researches, 354.
Architectural College, 23.
Competitions, 28, 78, 128, 482, 544.
Draughtsmen, 274, 343, 373.
Libraries, 142.
Modelling, 189, 341.
Orders, 555.
Societies: Lichfield, 76; Oxford, 75; Yorkshire, 103, 132, 395.
Students, 23, 68, 119.
Architecture: Chinese, 68, 103; French, 104; Gothic, 22, 35, 125; Pugin's, 113; Wolsey, 277.
of Birds, 190.
Armstrong's Hydro-Electric Machine, 462.
Assessed Taxes Cases—Windows, 301, 318, 331, 343, 355, 365, 380, 403, 414, 444, 469.
Atmospheric Railway, 363.
Auction Duty, 379.
Beams Trussed by Tension, 429.
Bedford Gaol, 267.
Bentley's Porcelain Letters, 480.
Bernhardt's Stove, 103, 167.
Bielefeld's Papier Maché, 81.
Birmingham Manufactories, &c. 513.
Blackwall Railway Terminus, 435.
Blue Lias Lime, 172.
Boy's School, Plaistow, 279.
Brick and Tile Machine, 195.
Bricks and Bricklaying, 326.
Brick-carrying Machine, 298, 347.
Bridges, Wooden, 62, 299; Suspension, 174, 252.
British Architects: Wren, 126, 140; Gibbs, 203; Hawksmoor, 226; Flitcroft, 367; Chambers, 540.
Association Meeting, 345, 359.
— Museum, the, 360, 380, 405, 477, 542, 543, 549.
Buckwell's Patent Scaffolding, 533, 565, 566, 567.
Building Act, New, 38, 137, 143, 159, 183, 215, 221, 232, 246, 253, 286.
Builders' Agency, 357.
Company, 79.
Drawing School, 137, 165, 333, 353.
Foremen, 394, 504, 550.
Building Crafts, History of, 193, 245, 295.
Ground (Law Case), 481.
Materials, 421, 436.
Societies, 56, 97, 190, 262, 322, 334, 507.
Cadastre of France, 419.
Cambridge Almshouses, 133.
— Camden Society, 49, 504, 537.
Canada, 467.
Carpenters' Benevolent Institution, 114, 189, 491.
Cartoons, Exhibition of, 254, 310.
Casinos in the Parks, 350.
Cathedrals of the Rhine, 410.
Cements, 81, 198, 235, 298.
Cemeteries, 51, 104, 175.
Census (population and houses), 86.
Civil Engineers' Institution, 57.
Cladwick (Mr.) and the Surveyors, 207.
Characteristics of Pointed Architecture, 436, 445, 471.
Chartres Cathedral, 166.
Chateau D'Eau, 374.
Chatsworth, 544.
Chelmsford Gaol, 539.
Cheltenham Proprietary College, 256.
Chemical Combustion of Coal, 90.
Chimneys, 529.
Chimney-piece in the Deanery at Wells, 447.
Shafts, Hampton Court Palace, 35.
Turret, 198.
Chinese Architecture and Building, 68, 103.
Garden, 486.
Sheet Lead, 421.
Tools, 40.
Choice of a House, 562.
CHURCHES AND CHAPELS: Curry Rivel, 422; Darlington, 266; Ewyas Harrold, 513; Exhall, 71; Knowsley, Lancashire, 50; Llanbadarn, 335; Projected, at Alexandria, 50; Roman Catholic, St. George's-in-the-Fields, 227; Scotch, 267; Somerton, 231; St. John, Cirencester, 362; St. Mary's, Stafford, 278; St. Mary's Redcliffe, Bristol, 36, 106; St. Madeleine, Paris, 302; St. Marie's, Islington, 82, 99; St. Nicholas, Newcastle-on-Tyne, 229; St. Paul's, Penance, 181; St. Peter's, Leeds, 206, St. Sepulchre's, Cambridge, 46; Tickenham, 265; Trinity House, 202; Wilton, 168.
Church Architecture, 454, 472, 516.
Desecration, 546.
Design for a, 386.
of England Instruction Society, Sheffield, 168.
Doorways, 375.
Extension, 521.
Galleries, 49.
Windows, 35, 183, 202, 210, 240, 264, 275, 314, 327, 375, 435, 526.
Churches under Repair, 372.
Circular Window, St. Ouen, Rouen, 35.
Civil Engineers' Institute, 57, 550.
Clendenning Testimonial, 465.
Clergyman Blacksmith, 33.
Cockerell's (Prof.) Lectures, 27, 44, 60, 80.
Colchester Town Hall, 158.
Combustion of Coal, 91.
Comparative Plans of St. Peter's and St. Paul's, 324, 491.
Conduction of Heat, 72.
Construction of Arches, 493.
Copyright of Designs Bill, 319.
Cornice Mouldings, 79, 117, 305.
Cornish Engineering, 118.
CORRESPONDENCE.—New Building Act, 38, 73, 169, 199, 210, 221, 232, 246, 260, 438, 467; Sewers, 45, 281; Cemeteries, 45; Patent Iron Mason, 68; Conduction of Heat, 72; Wood Pavement, 74, 109, 121, 133, 391; Building Societies, 97; Warning and Ventilation, 116, 141, 167, 199, 200, 219, 247, 272, 283, 292, 311, 313, 347, 368, 376; Competition, 136, 187, 212, 415, 534, 546, 559; Strength of Arches, 162; Architectural Modelling, 198; Tudor Architecture, 216; The Cross, 222; Stone Masonry, 281, 323; British Museum, 360, 402, 415, 438, 463, 559; Small Street Houses, 361, 391, 438, 451; Window Taxes, 386; Measuring and Surveying, 391, 415, 523, 535; Detached Cottages, 402; Scagliola Columns, 403; Church Architecture, 414, 467; Sir J. Thornhill, 414; Norman Architecture, 415; Country Houses, 426; Swiss Cottage, 426, 523; Workmen's Cottages, 438; Farmstead Plan, 439; Dates of Architectural Styles, 451; Skew Arch, 523; Builders' Society, 523; Shooting and Fishing Lodge, 534; Cottage Plans, 559.
Cottages, Designs for, 178, 363, 387, 401, 411, 455, 471, 518, 519, 521, 533.
Cottage Economy, 293.
Windows, 25.
Country Builders, 390, 412.
Covenant, 413.
Curry Rivel Church, 422.
Curves of Fancy, 320, 336, 353, 383, 529.
Darlington Church, 266.
David Hamilton, the Architect, 537.
DESIGNS.—Italian Villa, 34; Church Gallery, 49; Timber-house, 58; Elizabethan Shield and Panel, 90; Elizabethan Ceiling, 102; Gate-keeper's Lodge, 119; Greenhouse, 131; Book-case, 142; School-room Fittings, 155; Portable Cottages, 178; Gothic Staircase, 191; Chimney Turret, 198; Sunday School, 204; Wooden House, 219; Entrance Lodge, 227; Farmhouse and Farmery, 242; Font, 260; Stud-framed House, 282; Cottages for the Poor, 293; Cottage, 363; Church, 386; Small Cottages, 387, 401, 411; Proposed Sussex Memorial, 397, 398; Farmsteads, 407, 485; Parsonage House, 435; Double Cottage, 455; Spiral Staircase, 467; Swiss Cottage, 471; Summer House, 482; Small Houses, 508; Four Cottages, 518; Norman Cottage, 519; Shooting and Fishing Lodge, 521, 534; Small Cottage, 533; British Museum Façade, 543; Inlaid Marble Table, 551.
Destruction of Workmen's Tools, 67.
Destructive Fires in London, 321, 345.
Dimensions of English Bridges, 34.
Distinguished Engineers: Smeaton, 502, 514.
Donaldson's Lectures, 36.
Double Spiral Staircase, 467.
Drainage Bill, 307.
Drake's Lecture, 61, 84.
Drawing Scales, 237.
Dredge's Suspension Bridges, 174.
Duration of Life among Workmen, 502, 525.
Dwellings of the Poor, 32, 235, 270.
Earlth Bridge, 267.
Ecclesiastical Commissioners, 298.
Economical Combustion and Evaporation, 479.
Egyptian Pyramids and Hindoo Temples compared, 527.
Egyptian Society, 409.
Elastic Pavement, 358.
Electricity applied to the Arts, 129.
Electro-Plating, 124.
Elizabethan Shield and Panel, 90.
Ceiling, 102.
Bookcase, 142.
Embossed Oak, 185.
Emigration, 177, 353.
Employment of Children, 42.
Encaustic Tiles, 509, 556.
Engineers, 76.
English Domestic Architecture, 431, 442, 465.
Ecclesiastical Architecture, 168.
Entrance Lodge, design for, 227.
Enthusiast, the, 20, 55.
Ewyas Harrold Church, Herefordshire, 515.
Exhall Church, Coventry, 71, 102.
Failure of Architectural Competition, 482.
Fair's, (Mr.), house, 118.
Farmhouse and Farmery, 242, 295.
Farmstead Plan, 407, 485.
Fine Arts, 33, 216.
Commission, 216, 241, 320.
Fires at Liverpool, 277.
Fire-engine Pump, 38.
Fire-grates, 59.
Fire Insurance, 250, 89, 191.
Fires, plan for prevention of, 321, 357.
Fireproof dress, 411.
Fitting of Doors, &c. 440.
Floating Island, 556.
Flint Work, 311.
Font, Fortishead Church, 479.
Brecon, 527.
Freemasons of the Church, 23, 76, 93.
Friendly Societies, 304.
French Architects, 64, 104.
Architecture, 104.
Railways, 106.
FreSCO Painting, 154, 180, 370, 373, 441.
Funeral Rites of the Greeks, 435.
Furniture (ancient and modern), 420.
Galvanized Iron, 77, 520.
Gem of the Norman Era, 277.
Geo-Chorions, 63.
Geometrical Exercises, 56, 78, 90.
Gibbs, the Architect, 203.
Gibbons, Grinling, 163.
Glass, ornamental, 308.
Glass-making, 395, 430.

- Gothic Arching, 110.
 — Ceiling, 389.
 — Staircase, 191.
 Grainers' Work, 342.
 Granite, 477, 517, 557.
 Grecian Temples, 520.
 Greenhouse, 131.
 Groining, 236.
 Growing Taste for Architecture, 238.
 Gypsography, 520.
 Habitations of Industrious Classes, 65.
 Hanbury Church, 39.
 Health of Towns, 444.
 Hinge, Wells Cathedral, 371.
 Historical Notes on Architecture, 529.
 Hogarth's Pictures, 375.
 Horse-shoe for Wood Pavements, 492.
 Hosking's (Prof.) Lecture, 37.
 Houses, iron, 171; mud, 269; wooden, 58, 70, 119, 219; old English, 239.
 House Painting, 529, 557.
 Houses of Parliament, 160, 206, 362, 412.
 House Repairs, 414.
 Hungerford Suspension Bridge, 605.
 Huntingdon Literary Institution, 95, 115.
 Hutchinson's Manual Saw Frames, 534.
 Hydro-Electric Machine, 462.
 Important Case for Builders, 489.
 Infant Orphan Asylum, 459.
 Inigo Jones, Mill erected by, 255.
 Institute of British Architects, 39, 70, 101, 312, 558.
 Institution of Civil Engineers, 57, 550.
 Interior Arrangements of Domestic Buildings, 423.
 Iron Beacon for the Goodwin Sands, 450.
 — Mason, Patent, 54, 68.
 — Palace of King Eymabou, 28, 170.
 Islington New Catholic Church, 98.
 Italian Villa, 34.
 Jucke's Patent Furnace, 63.
 Keeping a House in Repair, 414.
 Keene's Marble Cement, 253.
 Knife-Cleaner, 75.
 King's College Chapel, Cambridge, 530.
 Kingston Church, Hants, 395.
 Labourers' Cottages, 43.
 Lady Owen's School, 338.
 Lake of Moeris, 529.
 Landlord and Tenant, 348, 385.
 Law Cases, 228, 396, 413, 469, 481, 489.
 Leamington Church, 543, 558.
 Lectures on Architecture and Antiquities, 280, 303, 317, 339, 448, 460, 483, 494.
 Leeds New Prison, 166.
 Lias Lime, 546.
 Life Assurance, 59, 66, 258, 297, 309.
 Lightning Conductors, 122, 334, 367.
 Limestone, 186, 241.
 Lime Manufacture, new process, 205.
 Lincoln's Inn New Hall, 39.
 Lichfield Architectural Society, 76.
 LITERATURE: Barwell's Notes on Church Architecture, 4, 47; Pritchard's English Patents, 5, 116; London's Supplement to Encyclopedia of Cottage Architecture, 22; Martin Chuzzlewit, 26; Donaldson's Lectures, 36; Hosking's Lecture, 37; Drake's Lecture, 46; Metropolitan Building Act, 48; Pugin's Present State of Ecclesiastical Architecture in England, 69, 98; Gutch's Literary and Scientific Register, 69; Lord Manners' Plea for National Holidays, 107; Guide to Hayling Island, 108; the Gardener's Gazette, 108; Handbooks to Hampton Court Palace, 116; Quarterly Journal of Meteorology, 116; Lewin's Historical Account of the Churches of Lincoln, 140; Archaeological Magazine, 209; Students' Guide to the Practice of Measuring Artificers' Work, 217; Handbook for Life Assurers, 259; Projection and Artistic Drawing, 276; Suggestions for Improvement of Towns and Houses, 276; History of Ancient America, 291; The Rhine, 291; Quin's Steam Voyages, 306; De l'Art en Allemagne, 316; Villa Rustica, 367; Aunt Elinor's Lectures on Architecture, 400; Principles and Practice of Land Engineering, &c., 413; Weale's Quarterly Papers on Architecture, 445; Ecclesiastical Architecture, 473; Church of St. John, East-over, 473; Loudon's Gardener's Magazine, 496; Companion to the Almanac, 1844, 532; Wood Pavement, its Origin and Progress, 532; Building Societies, 532.
 Lichotint Process, 66.
 Liverpool Docks, 492.
 Looking Glasses, 294.
 Loudon, Mr., 552.
 Lych-gate, 314.
 Manchester Collegiate Church, 554.
 Margary's Patent for Preserving Timber, 320.
 Marquetry, 87, 431, 450.
 Martin's Cement, 198.
 Masons' Benevolent Institution, 495.
 — Marks, 365, 424.
 — Provident Institution, 382.
 Masonry work, 323.
 Master Carpenters' Society, 181, 183.
 Materials used in Architecture, 204.
 Measuring Inaccessible Distances, 474, 481.
 Mechanical Arts in Persia, 499.
 — Trussing of Buildings, 122.
 Memorials of the Dead, 493.
 Merchants' House, Glasgow, 383.
 Metal Works, 19.
 Metallic Cement, 406.
 — Shatters, 67.
 Meteorological Society, 87, 132, 182.
 Metropolitan Architecture, 432.
 — Fountains, 163.
 — Improvements, 45.
 — Sea-water Baths, 92.
 — Survey, 120, 129.
 Milan Public Buildings, 108.
 Military Chapel, St. James, 410.
 Models, 317.
 Modern Buildings, 382.
 Monumental Sculpture, 299.
 Morewood's Galvanized Tin Plates, 537.
 Mosaic Manufacture, 348.
 Mouldings for Cornices, 79, 117.
 Moving Houses, 556.
 Moffatt's (Mr.) Sea-water Baths in London, 92.
 Motley's (Mr.) Suspension Bridge, 252.
 Museum, St. Petersburg, 379.
 National Education, 201.
 — Monuments, 324.
 — Scotch Church, Bow-street, 267.
 Naval School, Royal, 218.
 Necropolis Company, 407.
 Nelson Column, 446; Scaffolding, 522.
 Nene Estuary Embankment, 505.
 New Churches, 437, 466, 480, 504, 508, 517, 525, 527, 541, 558.
 — Light, 469.
 — Motive Power, 433, 452.
 Norman Architecture, 377.
 — Porch, 140.
 — Tower, Bury St. Edmunds, 553.
 Notes of an Inquirer: Pugin's Architecture, 113.
 Nottingham Churches, 518.
 Old English and Modern Furniture, 420.
 Origin and Progress of Church Architecture, 454, 472.
 Ornamental Uses of Brick, &c., 447.
 Orpheioides, 250.
 Oxford Architectural Society, 49, 75.
 Palladio, 256.
 Pandionian, Interior View, 254.
 Panel Puzzle, 522, 539.
 Parsonage House Design, 435.
 Paper preserved from damp, &c., 105.
 Paper-hanging Patterns, 75.
 Papier Maché Manufacture, 81.
 Parisian Improvements, 106.
 Passing Thoughts, 325.
 Patents, New, 117, 157, 224, 296, 331, 344, 355, 380, 391, 403, 426, 510.
 Philosophy of Architecture, 176, 234.
 Piscina, Peterborough Cathedral, 481.
 Plan for Drawing Cornices, 305.
 Plane Metallic Surfaces, 371.
 Plank Roads, 403, 433.
 Plaster Work, 131.
 Pointed Arch, the, 505.
 — Architecture, 436, 445, 471.
 Polytechnic Institution, 72, 130.
 Porches, 207.
 Porcelain Letters, 480.
 Portable Bookstand, 56.
 — Cottages, 178.
 — Music-stand, 128.
 Porticoes of St. Martin's-in-the-Fields, and St. George, Hanover-square, compared, 523.
 Potato Paint, 420.
 Preservation of Timber, 158, 268, 320.
 Properties of Triangles, 134.
 Prosser's Wooden Railway, 490.
 Problems, 27, 42, 56, 66, 78, 90.
 Public Baths, 513, 550.
 — Buildings of Milan, 108.
 — Health, 429.
 — Improvements, 196.
 — Works, 466, 480, 508, 527, 541, 558.
 Railways, 466, 474, 481, 508, 546, 558.
 Railway Hotel, Colchester, 350.
 Railways in France, 106.
 Recent Public Buildings, 437, 470.
 Rectory-house, 216.
 Relative Proportions of St. Paul's and St. Peter's, 491.
 Reward and Service, 153.
 Roe's Anti-friction Pump, 255.
 Roman Catholic Church, St. George's-road, 227.
 — Villa described, 564.
 Rotherham Church, 383.
 Roofing, 269.
 Round Church, Cambridge, 46, 434.
 Royal Academy, the, 128, 558.
 — Exchange, 71, 447.
 Rudston Monolith, 303.
 Savoy Chapel, 438.
 Saw, the, 395.
 Scaffolding: Nelson Column, 522; Buckwell's, 533.
 School Building, 553.
 — for Sons of the Clergy, 83.
 Schools, 480, 517.
 Sculpture and Architecture, 87.
 Seeking Employment, 83.
 Sermon, our, 3, 31.
 Sewers, 281, 444.
 Sir J. Soane, 44.
 Skew Arches, 413, 463, 497, 544, 545, 547.
 Shooting Lodge, design for, 522.
 Shoreham Church, 39.
 Shutters, 439.
 Silvering Cast Iron, 424.
 Sleight's Sea Barrier, 171.
 Small Street Houses, 361, 391, 419, 423, 508.
 Smeaton, the Engineer, 502.
 Smith's Improved Steam Generator, 479.
 Smoke Nuisance, the, 346, 364, 378, 408.
 Society of Arts, 533, 538.
 Somerton Church, 231.
 — Market Cross, 326.
 South-Eastern Railway, 251.
 Spalding Almshouses, 111, 159.
 Sphinx of Ghizeh, 495.
 St. Andrew's Church, Windsor, 387.
 St. George's Church, 154.
 St. Madeleine, Paris, 303.
 St. Mary's, Redcliffe, Bristol, 106.
 — Stafford, 278.
 St. Peter's, Rome, 194, 273.
 St. Paul's Chapel, Penzance, 181.
 St. Peter's Church, Leeds, 206.
 St. Nicholas, Newcastle-on-Tyne, 229.
 Staffordshire Iron Trade, 285.
 Stained Glass, 38.
 Staircase, double spiral, 467.
 Staples Inn Chambers, 171.
 Statistics, 83.
 Street Paving and Cleansing, 418, 505.
 Street-sweeping Machine, 21.
 Stone-cutting Machine, 41.
 Stonehenge, 303.
 Stuccos, 298, 427.
 Subsoil Paint, 323, 333.
 Stub-Sewers as an Auxiliary to the present Sewers, 444.
 Substitute for Glass in Greenhouses, 541.
 Summer House, design for, 482.
 Sunday School, Church Town, 204.
 Supply of Water to London, 501.
 — New York, 25, 120, 129.
 Survey of London, 167, 207.
 Suspension Rope, 20.
 Sussex Memorial, 263, 393, 453.
 Swiss Cottage, design for, 471.
 Temple of Latopolis, 483.
 — at Tentyra, 494.
 Tell-Tale Apparatus, 395.
 Thames Tunnel, 443.
 Thornhill, Sir J., 274.
 Timber Houses, 58, 119, 219.
 Travellers' Club, the, 361.
 Treatment of Workpeople, 4.
 Trentham Church, Staffordshire, 433.
 Triangular Drawing Instruments, 282.
 Triangles, properties of, 134.
 Triumphal Arches, 531.
 Tudor Architecture, 227, 245, 259.
 Tumuli in Cleveland, 529.
 Tunnels, 241.
 Tussaud's Exhibition of Wax Figures, 268.
 Use and Occupation (Law Case) 396.
 Valencia Slate, 480.
 Vanbrugh, J., 173.
 Varnishing, 324, 352.
 Versailles Palace, 250.
 Victoria Building Company, 257.
 Walhalla, the, 228.
 Warming and Ventilation, 116, 283, 311, 313, 347, 349, 366, 376, 478.
 Washington Memorial, 501, 506.
 Water passing through leaden pipes, 69.
 Watermen's Almshouses, 216.
 Water Pressure Engine, 358.
 Weigh Bridge, 385.
 Wedge, the, 104.
 Wesleyan Centenary Hall, 437, 446.
 Westminster Bridge, 226, 477.
 William of Wykeham, 2.
 Windows, 428.
 Window Tax, 386.
 Wood Pavement, 50, 58, 74, 109, 127, 382, 384, 403.
 Wooden Bridges, 62.
 — Railways, 474, 490.
 Workhouses, 525, 537.
 Working Classes, 32, 263.
 Worth's Rotary Pump, 185.
 Xanthian Marbles, 224.
 Yorkshire Architectural Society, 103, 132, 395.

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ADDRESS.

UPON the occasion of addressing, for the first time, a particular class, and that too through the medium of a decidedly class-paper, it seems to us that the views and intentions of its conductor should be unreservedly stated. We commence, then, in the spirit that will characterize our future advocacy of the varied interests enumerated in another page. It is avowed that we enter upon this portion of the wide field of literature and science as our legitimate province, inasmuch as we were brought up, educated, and have long wrought in it; mere qualification for any undertaking is, however, but one amongst the elements of success, and unless combined with well-timed efforts, frequently disappoints the possessor:—we invite the reader to judge of the timeliness of our own by the following incident, the explanations it gives rise to, and of the result in the publication before him.

Conversing a few months since with a leading bookseller and publisher in this metropolis, we had occasion to remark upon the costly, not to say exorbitant, price of Architectural books; this fact was not disputed, and the cause at once ascribed to the smallness of the number of readers, which made it impossible it should be otherwise. We almost held up our hands in astonishment, as we repeated his words "smallness of the number of readers!" Call you five hundred thousand a small number? Can a class of half a million male adults, whom we may emphatically term all readers, and members of reading families; a class of half a million of the pick of British Artisans; a class of the highest intelligence, and (measured by their wages and numbers) highest in wealth: can we talk of the smallness of the number of readers, and assume to know any thing of this large and influential body? It was in this strain that we interrogated our friend the bookseller; it was a burst of somewhat indignant feeling, for we had long thought on the subject, and felt convinced that the fault lay, not with the reader, but rather with the writer and publisher. We have since put the case in a familiar way to other parties, as we will now proceed to do to our readers.

Suppose the Grocers, whose business it is to supply the commodities of their shops in a way suited to the daily wants of customers, were to act upon the principle of refusing to parcel out their tea and sugar, or to dispose of it in less quantities than a chest of the former, or a hundred weight of the latter; or, bringing the parallel nearer, suppose the Bakers, in dispensing the "staff of life," were to set themselves above the standard of purveying the quartern, and half-quartern loaf; or again, that the Butcher should sell his meat in nothing less than the carcass; or that these tradesmen were to study only the palate and appetite of dainty and refined stomachs; what, let us ask, would be the condition of men of moderate means, and homely requirements? Why, just that which in regard to the food of the mind is the condition of the Working Builder.

There are in England, Scotland, and Wales, one hundred and twenty thousand Carpenters, of full age, and we may assume for Ireland (the

compiled accounts not assisting us here) thirty thousand more, making a total of one hundred and fifty thousand, exclusive of apprentices, in this trade alone, who, in common with the other co-operating Building Artificers, require to read and study (and in some instances to abstruseness) on all subjects connected with their craft. For these hundreds of thousands there has hitherto been no retailing of proper food for the mind; no books at moderate prices, and in suitable parcels; and if we except the issue in parts and numbers of works such as those of Mr. Peter Nicholson, the large sale of which confirms the truth of our convictions, nothing in the shape of a trade instructor, or magazine, adapted to their several pursuits has yet been offered to this immense body. The "Architectural Magazine," by Mr. London, indeed, did wonders in its way; and other journals which have followed in its track are, no doubt, well adapted to the particular departments whose cause they espouse, and promote; * but what is there, we ask again, for the work-shop, and for the fire-side circle of the Building Artisan?

Examine our PROSPECTUS, and contemplate the numbers forming an array of what we have advisedly termed "the pick of British Artisans." Be it remembered, however, that we do not use these words in an invidious sense, or in disparagement of other bodies of the industrious citizens of the empire; but, considering the standard of perfection, in body and mind, required for the proper practising of the Building Arts, and considering also the healthful nature of their occupations, it will not be deemed arrogant in us to speak thus of the class to which we have the honour to belong; in addition, we have the influence which numbers, intelligence, and wealth, if united, must ever secure to us. With all these advantages present to literary eyes and ears, in an age of professed catering, printing, and publishing, is it not one of the greatest marvels—a huge paradox—that there is no such thing as a *Builder's Newspaper and Magazine*?

We have just said Newspaper and Magazine, for it has occurred to us (rather happily, we opine and trust), to combine them; that is to say, the particular features which distinguish either. We would relieve the Working Builder from a double charge for matter less available to him in practice, as well as from the still greater evil, in many instances, of a dry magazine at home, and a well moistened newspaper at a public-house. We have an eye to the superior household and domestic economy which prevails, and which we would have still more constant in the Builder's Circle. We would give him a book on his trade, worth preserving, and a newspaper for the reading of his wife and family, as well as for himself; and, finally, we would make the weekly pence set apart from his earnings, for the gratification of a common feeling of curiosity, not begrudged by the partner of his cares on the one hand, or to be regretted by the most thrifty economist on the other, since, even the news will be the vehicle of trade knowledge, and consequently of the means of trade, with its advantages and profits.

In designating our paper, we use the word

* We would instance the Civil Engineer and Architect.

"Builder" in its most extended sense—instancing a house, or other edifice, we regard it from the procurement and preparation of the materials, to the fixing upon its site, and to its full completion for the residence, use, and enjoyment of man, and which includes the making of the design or plan, "breaking" ground, as it is termed; the erection, or building up; decorating, fitting, and furnishing; the supply of water and drainage; and even the laying out of the garden, pleasure grounds, and park. This is the whole art of building, or, in other words, of providing and perfecting human habitations. To all, therefore, who are engaged in the Art so defined, we address ourselves without distinction, and without preference; the interests of all will, to the best of our power, be consulted, promoted, and advocated.

It now becomes us to say a few words as to how far this step (that is, the issuing of the "PRECURSOR NUMBER") is to be considered on our part as an experiment; for, without being clear and explicit, we should, in case of failure, or rather abandonment, of our enterprise (for failure there can be none, where provision is made against that result), incur the blame of not having given our friends, the Building Classes, a clear view of the part which we humbly conceive it is their duty and interest to take in the business.

The "Precursor" is a *trial number*; and we make the avowal plainly and distinctly. Our part of the affair is to make every effort to supply what we consider a useful and most desirable public object. The part of the building fraternity, to whom it is particularly addressed, and the part of those who regard as a duty all the exertions they are making in the cause of public education; and also of those who pursue the arts out of a pure love and liking, is to support our humble efforts if they deem them worthy of appreciation. The less the sacrifice called for on either side the better. Let the covenants between us be of an equitable nature, and as we start upon the principle of discomfiting, as far as practicable, all lottery and riskful speculation (of which we will say more presently), so in the basis of this compact with our friends and readers, we would remove all unnecessary hazard, or complexion of adventure. We give our best exertion in what appears to us a work of common good; if our friends think well and approvingly of these exertions, and that work, let them contribute their part, were it alone for economy and fairness sake.

We do not not rely upon the levianthian power of capital for our success; but we purpose building it up by an honest and diligent pursuit of the objects defined, aided by a fair share of judgment, and other necessary qualifications; and we anticipate it in the cheerful and generous response of our countrymen: and this Precursor Number, as its name implies, has its office in searching out the way, and exploring the track which its successor "THE BUILDER" is designed to follow. If the Precursor finds a ready passport, and a significant welcome, of which we have no doubt, it will be promptly followed by that of which it will have been the harbinger.

We invite, therefore, an active dispersion of the Precursor amongst our friends; but, above all, we respectfully invite communications from the

many distinguished patrons and favourers of works of this class. We invite also the Architect, Engineer, Landscape Gardener, Master Builder, Manufacturers in ornamental processes, and proprietors generally, Clerks of Works, Foremen, and Workmen, to avail themselves of the ready means of the penny-postage, to aid us by their supporting voices, and by any suggestions they can commit to paper. A Supplement will be issued with a subsequent impression of the Precursor (without increase of price), and in that Supplement our correspondence, and additional advertisements will appear; we, therefore, scarcely need say that the more promptly our friends reply to the invitation the better.

It now remains for us to say something of the peculiar character proposed to be given to the "Builder." The Prospectus, which serves as the basis of this exposition, sets forth that the trade essays and descriptions will be accompanied by illustrations and diagrams: that is, we shall supply drawings, to render clearer the accounts we may give of mechanical inventions and processes; drawings of ornament, or enrichment in Plaster-work, Painting, Sculpture, Carving, Iron, and other metals; drawings of Mouldings, and Moulded work, for the Carpenter, Mason, and Bricklayer; drawings of construction, in roofs, floors, trusses, and framing, hand-railing, &c., centering of arches and groining; drawings of Buildings, both ancient and modern; plans, elevations, sections, and details: drawings of Architectural orders and styles; drawings for instruction in perspective, geometry, and the like; and, occasionally, coloured printing, in such matters as pertain to painting and staining.

We shall also give patterns for the paper-hanger and upholsterer, and designs for furniture; and a comprehensive range of constructive and ornamental design suited to that immense territory of British pre-eminence, the Iron-foundry and its workshops: as connected with these, we come to that creative and directing science, Civil Engineering, and here drawings of constructed works, of Engines and Machinery, will have a prominent place, accompanying the descriptive treatises and essays.

From this enumeration it must be evident that a large space will be devoted to the sciences in the nature of connected and consecutive essays; another part to the record of progress in the Building Art; and a third to news relating to Building and Builders.

Reviews and notices of publications intended for or likely to be useful to Builders, will also be given, and biographical sketches of eminent men connected with science and the arts. These separate heads, together with correspondence and inquiries, will constitute the peculiarities of our Journal, and the remaining space will assume the aspect of the general weekly press—home and foreign news; digest of Parliamentary reports; political opinions of the leading Journals; dramatic notices; general literary reviews; police and law reports; markets, and advertisements.

So ample is the field before us, that there can be no lack of matter or subjects; our business will be to cull the choicest for the literary banquet of our friends. Much that is valuable we hope and look for in the shape of correspondence; one of the chief merits of "THE BUILDER" being, that it is a direct and fitting medium for conveying instruction from the liberal and enlightened of every department—a free exchange of knowledge—which we anticipate may result in mutual good service to all.

WILLIAM OF WYKEHAM.

We have selected the portraiture of this illustrious man, whose fame lives in national works, as the first wherewith to embellish our GALLERY OF ARCHITECTS—a man who was eminent, not only as an architect, but as a liberal patron of the arts—not only as a builder of colleges, but as a

munificent donor to the cause of education, and whose institutions still flourish among the proudest in the land. "Many there are," says Bishop Lowth, in his Life of Wykeham, "who have felt the influence of his liberality, or who are actually partakers of his bounty."

It is rarely that instances approaching in interest to that of our subject present themselves; of successful talent we have many, but they are limited to its mere exercise for ordinary reward; others, where ambition and ostentation, as in the case of Wolsey, stimulated to a patronage of great works, while in that of Wykeham we have a memorable example of true nobility of mind, soaring from humble origin to the most elevated stations in church and state, and fulfilling its duties by an active exercise of all the kindred virtues.

William of Wykeham was born at the village of that name in Hampshire, in the year 1324, of reputable but poor parents, whose deficiency of means to afford him education was supplied by the generous intervention of Nicholas Uvedale, lord of the manor of Wykeham, and constable of Winchester Castle, then one of the great offices of the kingdom. After going through the course of study afforded by the school at Winchester, we find him officiating as secretary to Uvedale, and subsequently executing commissions of trust as attorney for Edyngdon, Bishop of Winchester, his immediate predecessor in that see, in whose service he appears at that time to have been engaged.

The piety, diligence, and early acquisitions of Wykeham had recommended him to the notice of many patrons, both lay and ecclesiastical, and paved the way for his introduction to that of the reigning monarch, Edward III., and of his son, the renowned Black Prince; he had already entered the subordinate ranks of the clergy, and the fitness of his choice was confirmed in after times by the dignities he attained to; that elevation was, however, preceded by the execution of works which have stamped his fame as an Architect.

It is natural that we should ask, how was this talent in architecture acquired? We find no account of the preparation or training, beyond that of the general knowledge he had gained at the school of Winchester, aided by the intuitive genius and taste proper to comprehensive intellectual powers. No record exists of his having studied at either of the universities, and if it had been so, the regard and confidence of the King must be attributed to acquisitions very superior to those at that time current at Oxford or Cambridge, where theological controversy was the leading and absorbing theme. We are told, indeed, that Wykeham had studied "arithmetic, mathematics, divinity, and, above all, the canon and civil law;" and we see no reason to the contrary. The school of Winchester, a city then second to none in the kingdom in splendour and opulence, would scarcely be deficient of teachers in these courses of study; in the mode, and according to the then understanding of their relative uses and value.

It is, upon the whole, probable that Wykeham gave the first proofs of skill as an Architect in the extension and reparation of Winchester Castle, during his employment by Nicholas Uvedale. That it was a fortress of considerable extent and consequence, history abundantly proves; and it continued so down to the period of the civil strife between the adherents of Charles I. and the Parliamentary armies; but whatever may have been the extent or description of building previously executed by him, it led to his appointment, by patent, dated May 10th, 1356, of Clerk of all the King's works in the manors of Henley and Yesthamstead; and by a second patent, under date 30th October of the same year, he was made Surveyor of all the King's works at the Castle and Park of Windsor; and subsequently of all the royal castles south of Trent.

In these capacities he was furnished with extensive powers; such as directing the issue of the King's writ to the sheriffs of counties, requiring them to impress workmen, who were compelled to labour at fixed wages; to purvey and apply all material fitted for building; to hold courts for pleas of trespass and misdemeanours; and to inquire of the King's liberties and rights within his demesne lands. The prelude to the erection of Windsor Castle was the assembling of 360 impressed workmen, by forties, from nine adjoining counties, in addition to those voluntarily engaged; the original Norman building was levelled, and on its site, under the eye of a warlike monarch who delighted in embattled towers and gorgeous halls fitted for the display of chivalric institutions, was reared this far-famed fortress and palace of our kings.

Windsor Castle occupied from ten to twelve years of continued labour, and comprised the King's palace; the great hall of St. George; buildings for various purposes, on the east and south sides of the upper ward; the keep, or tower;

the chapel of St. George; the residences of the custos and canons, in the lower ward, with the whole circumference of the walls, towers, and gates. Many parts of the original building remain, but the lapse of nearly five hundred years required repairs, the enlargements and alterations to meet the conveniences or tastes of successive kings, most of whom have expended immense sums in real or fancied improvement here, in a great degree, obliterated a plan and style which was, in Castellated Architecture, the perfection of the fourteenth century.

His second work was the Castle of Queenborough in the Isle of Sheppey, which, from the lowness of the site, and nature of the foundations, required unusual skill in the Architect. It was commenced in 1361, and completed in about six years, when the King, holding his court there, made the town a free borough, naming it Queenborough, in honour of his Queen Philippa. Of this structure no part remains; but its position and extent as ascertained by the moat which surrounded it. There can be no doubt this was one of the principal castles of the kingdom, designed both as means of defence against invasion, and as a point for the assembling of fleets and armies for offensive purposes. We are told of this building, that it was "large, strong, and magnificent;" a fitting residence for royalty, and one of the strongholds of the realm; and its importance may be estimated by the rank of its constables, who were, in the reign of Edward III., John of Gaunt, Duke of Lancaster; Richard II., Robert de Vere, Earl of Oxford; Henry IV., John Cornwall, Baron Fauconberg; Henry VII., Humphry Stafford, Duke of Buckingham; Edward IV., George, Duke of Clarence, &c. The last repairs were done in the reign of Henry VIII., 1536.

Pending these works, Wykeham grew into high favour with his royal master, and church preferment was heaped upon him with a lavish hand; he filled also in succession the offices of Secretary of State, Keeper of the Privy Seal, and Chancellor of England; and upon the death of Edyngdon, Bishop of Winchester, in 1366, he succeeded to that see, one of the richest and most influential in the kingdom. With his career as a prelate, a statesman, we can have little to do in this sketch; but we may be permitted to notice that it was replete with great and disinterested actions. Prosperity so brilliant had, however, its hour of adversity, but which only served to place in bolder relief the virtues of the Christian and the dignity of the man. In the dotage of Edward III., charged with malversation, in the execution of his high office were preferred against the Bishop of Winchester at the instigation of John of Gaunt, Duke of Lancaster, who had always manifested an irreconcilable jealousy of his influence with the king. This proceeding was followed by an arbitrary sequestration of the temporalities of the bishop, and he retired to the monastery of Merton, and subsequently to the Abbey of Waverley, near Farnham, amid the universal regrets of the nation. The aspersions of a character so singularly exempt from the besetting sin of avarice, and its twin vices, peculation and sensualism, could not, however, be long sustained; and at the end of seven months he was happily restored to the means of carrying forward magnificent designs for the benefit of posterity.

From this period Wykeham seems, as much as possible, to have relieved himself from the burthen of secular affairs, although we find him again Chancellor in the unsettled reign of Richard II., but which office he took the earliest occasion to resign. Long and faithful services to the state had entitled him to repose; but there was no cessation in the activity of a mind fraught with benevolent purposes. Possessed of great wealth, he seems to have considered himself but as a steward intrusted with a useful application of it, and he devised, with as much judgment as human foresight is permitted to exercise, the establishments we are now to mention.

With the year 1373 began the formation of a school at Oxford, that of Winchester having much earlier been taken under his especial care; and each, masters were provided, and scholars, to the number of seventy, lodged and boarded at his sole charge. These were, however, but preliminary steps to the great and original plans contemplated, namely, the founding of colleges at Oxford and Winchester, with buildings, masters, and suitable appointments, and a perpetual maintenance for two hundred scholars, who, while receiving the advantage of liberal support, were trained from elementary learning through the whole circle of the sciences. So costly was this undertaking, that no individual, with a single exception, has had the means or generosity to emulate the example. This occurred in the person of King Henry VI., whose colleges at Eton and Cambridge were founded

upon principles scarcely varying from these models.

Wykeham was now fifty-five years old, and, in realizing his plans, found full scope for the display of matured genius. Neither the cares of state which he had encountered, nor the personal ease which so frequently inclines even great minds to passive inaction, could obliterate his predilections for architecture. Under this master of his art were perfected improvements in Gothic style which have procured for examples of this period the distinction of the *pure or decorated English*. These consist in increased boldness, highly wrought and varied sculpture, and enriched vaultings, with exterior ornaments of statuary, niched or canopied, upon the western or great entrance fronts of ecclesiastical buildings. With the taste to dictate and the wealth to execute such magnificent designs, he entered upon his tasks, and, in 1379, personally laid the first stone of the college familiarly termed New College, Oxford, but by himself "Sainte Marie College of Winchester in Oxenford," which was completed and its establishment inducted with much ceremony in 1386.

We may here be permitted to observe, that with every disposition to dwell upon the details and beauties of this and his succeeding works, want of space compels us, for the moment, to relinquish an intention to do so; but, as subjects of national interest, we shall recur to them, aided by illustrations calculated to render many peculiarities of this style available in modern practice.

But to resume our brief notices. Scarcely a year elapsed before the second, or St. Mary's College, at Winchester, was in progress, and in six years fitted for the reception of its professors and students. In extent and style this edifice bears the strong impress of its founder, whose memory lives freshly in the veneration of his children, for such we may term those who are here nurtured and taught, and from amongst whom have stood forth many worthies of the church, and others of the highest attainments in science.

The next, and last, work of this eminent and excellent prelate, the construction of the western front, and the nave and aisles of his cathedral at Winchester, was commenced in 1391, and the 70th of his age; and in this instance the unimpaired vigour of his conceptions, and the extreme liberality with which he appropriated his resources, are equally subjects for lasting admiration. It was built by Walklyn, the first Norman bishop after the conquest; and in its governing features, *extent and massiveness*, is in the style so called. We have before mentioned the western front as the work of Wykeham, which, though mutilated by barbarian fanaticism, retains much of its splendour, and is a marked example of his manner. Entering by this door-way, we are at once upon the scene of his mightiest achievement;—the eye becomes fixed for a moment by the gorgeous colouring of the eastern window, then wanders upwards amidst the infinite tracery and adornment of the vault, and, having scanned the vastness of the pile, seeks repose in a more leisure examination of the isolated, but not less beautiful, objects of sculpture below.

Apart from associations and impressions induced by the aspect of Gothic temples upon the great scale, we here find the elements of solidity, propriety, and uniformity carefully preserved, and the enrichments distributed with a masterly hand; the groining of the roof springs from single shafts rising from octangular bases; the capitals are highly embellished with busts and foliage, and the frieze charged with bold and finely-sculptured bosses; in fact, we have here before us an *era in the Gothic style*, and a perfect adaptation of its capabilities, carried out with all the originality that distinguished the genius of the architect.

The various writers who have treated on the antiquities of Winchester agree that the effect produced by the columnar vista of the nave, in combination with the group of chantries and screens, is not surpassed by any spot in England, or in Europe. In minute Gothic, or shrine-work, it is also unrivalled. The tomb of Wykeham, executed, according to the practice of the middle ages, under his own direction, is the purest of all authorities in this style: it is placed within the mortuary chapel, or chantry, occupying the fifth arch from the west end, and is rich in canopies and tabernacle work; the latter originally contained statues of saints, particularly that of the Virgin, which stood against the same pillar, when in his youth he had worshipped here; but these have long since been destroyed, and the tomb despoiled also of the enchaîned scutcheons which adorned it. The marble figure represents the prelate as possessing full features, and a placid, benign, and intelligent countenance; it is clothed in full episcopal costume, the head resting upon a pillow supported by angels, and at the feet are

three figures of one of the religious orders, in the attitude of prayer.

The life so usefully spent closed in the year 1404, leaving more durable and splendid memorials than it has been the lot of any other individual to rear. Having, for nearly half a century, held the highest stations, and possessed almost unbounded influence, we find it to have been exerted in a spirit far in advance of his times; and personal aggrandizement grew upon him as a consequence of undeviating integrity and universal benevolence; these great and marked qualities were evinced in pure and unabated loyalty to his prince, courtesies and services to his equals of the church and the nobles of the land; and, above all, in the kindness, forbearance, and mercy which he caused to be exercised towards the people of a yet unenlightened age.

William of Wykeham expired at his manor house, or palace, of Waltham, Hants, A.D. 1404, in the eightieth year of his age, and his remains rest under the tomb we have described. His life affords, perhaps, the most brilliant example on record of the combined power of industry and genius; the industry to acquire knowledge, and the genius to apply it in advance of preceding theories. His earliest employments seem to have been merely such as a tolerably well-educated man of the fourteenth century would find little difficulty in obtaining. Architecture was his diverging point from the monotony of ordinary life towards the greatness he achieved, his first essays appearing to have resulted from opportunities which casually fell in his way, but embraced with an alacrity inspired by self-confidence. Having once engaged in it, his fondness for the science knew no abatement, for however lofty his position in the state, or onerous his duties as a churchman, he found leisure to cultivate it; and having engrained new and more impressive features upon the style he delighted in, may be said to have died in the exercise of this profession, just before the completion of his cathedral at Winchester.

So exalted were the stations and so extensive the influence he possessed, that the spirit of benevolence by which he was actuated had full scope for exertion. While serving his prince with unswerving loyalty, he found means to protect the people from oppression and exactions, and by numerous courtesies and services to the nobility, won them to a milder exercise of their territorial privileges; while in the relations of private intercourse, we are told that he was "the kindest and most generous of patrons, and the most constant and affectionate friend, rarely changing his officers or domestics, none leaving, or being deserted by him, and all receiving in their turn testimonies of his favour."

By his hand the revenues of the church were disbursed in her service and to her honour, and, to use the words of Lowth, the whole period from the meridian of life to the end of his days was employed "in one continued series of generous actions and great designs, for the good of his friends, of the poor, and of his country."

OUR SERMON.

In adopting this heading for a series of articles, which will be continued as occasion offers, we are very far from intending to startle our readers with a rush of theological disquisition. In proof of our sincerity, and as an earnest of the gist of our discourses, we have chosen as a standing text, or motto, the golden rule of "peace and goodwill to all men;" but while we leave intact the functions of the divine, it is our business, as we conceive it to be our duty, to sermonize on the morals of trade, the social relations of every-day life, and even the proprieties which enhance every species of domestic enjoyment.

A right understanding of the relative duties of master and man, or of employer and the employed, yields to no subject in importance; peculiar incidents, induced by a rapidly increasing population, the tendency of commercial wealth to accumulate in masses, and its employment under the familiar term "capital," through the agency of individuals, in the construction of great works, constitutes, however, an era in the Building trade to which former periods bear no very strict analogy. In offering our humble opinions upon actuating causes and their effects, be the subject what it may, we will never lose sight of our text; we shall make use neither of angry words nor denunciations; peace is too lovely to our minds, and charity too imperative to be abandoned; we would dispel the darker and sterner passions, giving every brother full credit for good intentions, and assign occasional deviations from the path of right rather to misfortune than intention. Whatever the class of men addressed or dealt with, this, we are convinced, is the best and only true policy. It may be very well for any one to talk of their anger

being aroused, or their indignation excited, and so on, and under such pleas to vent abuse, imprecate a thousand vengeance, and the like, but, depend upon it, fear is less to be relied on than love; we would win a child to our love, not deter it by frowns and coercion;—we would have a thousand friends rather than a single enemy.

Who has not heard of the tale of the traveller, upon whom the sun and wind essayed their power? These elements, as the fable puts it, were at issue as to which was superior, and agreed to rest the decision upon the effect they should produce upon the first wayfarer. Well, first the wind fell to work, and blew with all his might, to compel the subject of their experiment to throw off his cloak, but the more vehemently the man was assailed, the closer he wrapped the garment about him; in turn the sun made trial of his power, and genial warmth soon accomplished what the bluster of the ruder element had made more and more difficult. So in human policy the kindly glow excited by generous sentiments and actions will succeed where threats, force, and even punishments have failed. The human heart has no such obdurances but that charity will overcome them.

It is a part of our present purpose to refer to practical benevolence of this nature, and it will be found in an extract from the *Leeds Mercury*, given in another part of our paper, on the subject of the treatment of workpeople, by Sir John Guest, at Merthyr Tydvil, and the Messrs. Marshall, of Leeds. These, thank God, and for the honour of our country, are not solitary instances. These gentlemen stand not alone in the practice of that soundest principle of Christian political economy which instructs the rich to dispense of their abundance for the benefit of their poorer brethren. We have Master Builders in every department, proprietors of large works and establishments, whose names we could hold up to the admiration of their craft and country, but we will not do this violence to their unobtrusive merit, neither will we invite invidious comparisons by such selections; we would rather hold up these Christian duties for common emulation, and call upon all to "go and do likewise."

We open, then, our exhortations to MASTERS, because we know that the first impulse of benignant power must originate with them; kindness from them may be likened to the sun in its influence, and most surely will it be returned with unvarious interest "into their basket and their store."

Who ever saw the good father of a family putting firm faith in virtue and honour, and regulating his household by their dictates, failing to raise up virtuous, amiable, and honourable citizens? or, to put the case stronger, who ever knew the man that acted upon opposite principles succeed in sowing any thing but vice and discord? Depend upon it, then, the same principles and rules apply in business, from the overseer of the smallest undertaking to the governor of a nation. Fatherly solicitude for those under our care, or for whom we bear any responsibility, is as solemn and sacred a duty as the fulfilment of contracts or engagements; nay, it is the first of duties between man and man.

On the other hand, as to the workman,—fidelity—and more, the same generous kindness towards his master is required, as that he would receive; in fact, "to do unto others as you would be done by," is the great and universal secret of social happiness.

It is with this view of relative duties that we deem it of as much importance to engage ourselves in giving good counsel to our craft, as in enlightening them on principles of science pertaining to their several callings; for of what avail will it be to a man to possess all the knowledge of his art, if his heart be corrupt, or continue under vicious influences? Away with, as dross, all the ability of the engineer, architect, master builder, or workman, if the man be not endowed with moral excellence. What are beautiful designs, imposing structures, mechanical skill, or ingenious artifice in workmanship, without a mind and heart in harmony with the superior inspirations which virtue alone bestows? This, this indeed must come first as the base of the pyramid. In any other case the pyramid may be there, but it topples, leans, or lies on its side; the same inherent beauty may exist, but its position and action are superadded elements of deformity. Oh, how beautiful the human mind when lit up and guided by the impulses of virtue! how terrible and loathsome when passion and gaunt sensuality have their sway!

Guard, my beloved countrymen, against avarice, envy, malice; avoid contentions; be moderate in the desire of gain; repine not at another's success in life, or the distinctions he may attain to; cast all rancorous suggestions far from your heart; contend not in any unholy spirit of craving com-

petition; "live, and let live," is a maxim which we conjure you at all times to observe.

In times of commercial depression, aggravate not your own or another's suffering; these, like seasons of sickness and malady, must and will have their recurrences, and they will recur more frequently, and press more grievously, where brotherly love and charity, the great preventative and remedy of human ills, are neglected. Let none imagine it his privilege to be exempt from these obligations; let us not, because we see a neighbour unmindful of his duties in any of the multifarious walks of life, think ourselves justified in departing from our superior policy; neither must we judge and condemn; inflict, if you will, pains and penalties on yourself, but you have no right to do so on another.

Pardon us, good brothers of our building fraternity, and you who do us the favour to lend an ear to our counselings, if we thus seek to engage your attention, and offer our well-meant importunings. Should your approving suffrages incite a continuance of our vocation, it will be our ambition to discuss the relative duties of the stations you respectively fill—master, apprentice, or workman; father, brother, son, or husband; neighbour or friend; and to do as we have now done, namely, try to improve each and all, and in doing so, promote, in some degree, the cause of human happiness.

TREATMENT OF WORK-PEOPLE BY THEIR EMPLOYERS.

In an article under this head it was mentioned that the parliamentary inquiry into the payment of wages in goods had shewn, that there are persons extensively engaged in manufactures of various kinds, who feel that the employment of bodies of workpeople involves a degree of responsibility to care for their general well-being, and who act on that conviction in a manner highly creditable to themselves, and conducive to the excellent object they have in view. These employers are of opinion that to regard as a machine a man whose skill or industry assists them to maintain their own families in respectability, is altogether unchristian, and that by viewing workpeople in such a light, they would deprive themselves of some of the finest opportunities of usefulness, and of cementing the bonds of society.

Of course, the intention in moving for a committee of the House of Commons was to expose grievances, it was not likely that any examples of conduct distinguished for its humanity would be found in the pages of the report. As we remarked, however, when formerly writing on the subject, illustrations of this kind might be obtained by any one from our own neighbourhood. We had only last week the pleasure of visiting an extensive range of school buildings just erected on the best principles, in connection with Messrs. Marshall's mill at Holbeck. In that suite of rooms there are between 300 and 400 children under daily instruction, independent of about 160 boys, who work half-time at the factory, and are at school either in the morning or afternoon of every day; the same gentlemen have also instituted girls' and infant schools (which are situated elsewhere), and a night school, attended by young men and women from the mill, whose improvement in conduct as well as attainments, in consequence of this arrangement, is spoken of as highly gratifying. In the several schools every thing seems to be done to promote the comfort of the young, and to cultivate habits of cleanliness and decorum, as well as to impart an excellent plain education. Plans for affording the means of recreation to the adult workpeople have also been devised in connection with these buildings; and all manifests that a sincere interest is felt by the members of the firm in the welfare of every class in their employ.

The principal example of attention to the interests of workpeople which came under the notice of the parliamentary committee, was that of Sir John Guest and Co., at their iron and coal works, Dowlais. These works, which were established from thirty to forty years since, "in an isolated place on the top of a hill," in Glamorganshire, have now a town around them (Merthyr Tydvil), and nearly 5,000 persons are employed by this firm alone. In the first instance, great difficulty was experienced by the workpeople in procuring the means of lodging, but in the course of time this was removed by the erection of a large number of cottages at the expense of the company, and by the people being encouraged to build dwellings for themselves. The cottages belonging to the firm are stated to be low-rented, conven-

nient, well built, well drained, and the taking of them is quite optional with the workpeople; while the granting of loans to steady men to build cottages for themselves has been pursued to a considerable extent, and has been found to attach them to the place, to keep them from the alehouse, and to produce and confirm in them a feeling of independence.

The amount of each individual's wages at this extensive establishment is settled every Friday evening, and the whole of the hands are paid on the morning of Saturday; shewing that a large number of workpeople is no barrier to the early payment of wages if employers are determined to adopt that highly beneficial practice.

Nearly twenty-four years ago, Sir John Guest and his partners recognised the responsibility which attached to them as employers by erecting large schools, near the works at Dowlais, chiefly for the education of the children of their workmen, but (like Messrs. Marshall) not confined to them. There are at present about 220 girls and 250 boys under instruction, the children being admitted at the age of six, and usually remaining until thirteen years old. The teachers are well paid, and the whole expenses of the schools are defrayed by the workpeople and employers together, in the following manner:—Twopence in the pound is stopped every week "for the doctor" from the wages of every one in the works, of which 1½d. is appropriated to provide medical attendance for the families of the workmen, and the remainder goes towards the support of the schools. Each child is also expected to pay one penny a week, and whatever is wanting to make up the amount incurred in maintaining the educational establishments is contributed by the company. In connection with the schools, it is worthy of notice that Mr. Evans, the manager at Dowlais (from whose evidence our facts are drawn), expressed before the committee a strong conviction, as the result both of his own observation for above twenty years, and of the statements of colliers themselves, that for a collier to put his child to work in the pits very young is decidedly bad economy; instead of gaining, the family loses by it in the long run, while the unfortunate victim of error or cupidity becomes decrepit and unfit for work when individuals of the same age are in possession of mature strength. Very few of the children taught in the schools at Dowlais become colliers, the greater number being qualified for employment as carpenters, smiths, and, in some instances, even book-keepers. "We derive very great advantage," says Mr. Evans, "from having children in the works who have been educated there; they are of great use to us." Here, then, is a proof to masters who have not yet exerted themselves for the elevation of the families dependent on them, but are disposed to do so, that such a course is not only beneficial to others, but brings a reward to every one who adopts it. The medical attendance on the workpeople at Dowlais consist of three regular surgeons and a dispenser, whose services are remunerated chiefly by the money stopped from the wages. In 1827 a fund for the relief of the sick and aged was formed, one penny in the pound being stopped every week to furnish the necessary supply for the wants of those who are thus unable to provide for themselves; this fund is at the disposal of a committee, elected yearly by all the contributors.

From the peculiar circumstances of the district, when the works of Sir John Guest and Co. were established, and for many years after, it was desirable and even needful that the firm should afford their workpeople the means of obtaining the necessities of life by maintaining a shop on the premises. In 1823, however, they closed it, but once again opened it at the request of the men in 1828. On the act against truck shops being passed in 1831, the workmen were called together and desired to state whether they wished the store belonging to the firm still to be continued. The votes were taken by ballot, and thirteen only were given for the discontinuance; but as there was not perfect unanimity, the company thought it best that the shop should be finally closed at that time; and the increase of population having had the usual effect of attracting private individuals to supply the wants of the community, the only result of this step was to shut up an establishment where the labouring classes were always sure of buying good articles at a moderate price. The accommodation being no longer necessary, we think the company's decision was a wise one.

It is gratifying to find that no loss whatever has been entailed on Sir John Guest and Co. by all the beneficial regulations adopted by them on behalf of their workpeople. On the contrary, "by the education of the people," Mr. Evans states, "we have gained more than we have spent upon them." And this gentleman expressed himself as

feeling certain that if a similar system were extended over the manufacturing and mining districts of the whole country, it would prove the cheapest and most effectual mode of benefiting both the working classes and employers, and consequently society at large. Of course, the details of the system at Dowlais, or at any other establishment of which an account is before the public, are not essential to its being adopted with advantage in other parts of the country, though the success which has attended those plans gives them a title to careful consideration; the thing to be desired is, that each employer should ask himself how far he can adopt the principle, and then carry into operation the dictates of his own judgment and conscience.—*Leeds Mercury*.

Reviews.

Temples, Ancient and Modern, or Notes on Church Architecture. By WILLIAM BARDWELL, Architect. London: Fraser & Co., and Williams.

MR. BARDWELL, in the Preface to this work, states his object to be—

"To endeavour to excite among architects a spirit of inquiry such as cannot fail to prevent a repetition of those improprieties the existence of which in our public edifices has so long afforded subject for complaint and matter for criticism;" and "to put an end to that inconsistency which is the cause of error, namely, the tyranny of custom and the caprice of fashion: which, while they compel the modern architect to copy in title and with manner materials the sublime works of revered antiquity, indulge a laugh at his expense, because his reproduction fails to excite those sensations of pleasure and admiration which are inseparable from a contemplation of the original."

Passing over the first three chapters of the work, which, although they contain much excellent matter of opinion, to which all may subscribe, do nevertheless open a door to controversy, and this it is our desire to avoid,—we come to Chapter IV. This is headed "*Errors in the details of late-erected Churches, a connected series of critical observations*;" and has for its object, by stringing together a number of critiques from the *Gentleman's Magazine* and other sources, to call attention to the prevalent errors of past design, and to enunciate correct principles for future practice. We quite agree with Mr. Bardwell, that "notwithstanding the querulous tone in which the writers have occasionally indulged, the extracts contain many hints that may be permanently useful;" and would wish that the spirit of a following paragraph could be always borne in mind by the critic and reviewer. "The legitimate object of criticism," says our author, "is to improve the future, rather than to cast ill-natured censure upon the past." However, we cannot take exception to Mr. Bardwell's discharge of his duty. He has most appositely given these extracts through a whole chapter, and placed them in admirable order for study and profitable reflection. No one can read through this chapter attentively without being impressed with a desire to contribute his part to the rectification of such errors as are therein pointed out—it will awaken many to an active investigation where other modes of expression or remonstrance would probably fail.

In Chapter V. Mr. Bardwell enters into the great question that awaits us at every approach to a comprehensive study in architecture—THE ORIGIN. Speculation on this point is in its nature endless; but it is highly gratifying to feel occasionally that we are thrown in the way of facts, and such it is the province of this chapter to treat us to. With a little prefatory matter in the way of an assault upon the hitherto deposed orthodox authorities on such subjects, and upon the principle of adherence to rule and precedent, and upon the little fables of an inventive tradition, assigning to this accident or that the origin of this or that feature, plan, and style, we come to the "burden of the" book,—TEMPLES; and have a most interesting dissertation on those of ancient character, or on what we may more aptly term sacred edifices, memorials, or monuments.

"An altar of turf or of stones, stones of memorial, such as that set up at the grave of Jacob's beloved Rachel, the great stone near the oak at Shechem, Absalom's Pillar, Jacob's Bethel, SAMUEL'S Ebenezer, the Gila, or circle of stones, of JOSUA; a heap of unhewn stones, the Pandoo Koolies, of Hindostan, the numerous pillars set up by the Phœnician merchants, on the shores of the Mediterranean, in France, in Sweden; and in Great Britain, circles and rows of huge stones, like those of Stonehenge, Abury, &c., cromlechs and logan stones, a portable ark, or tabernacle, were the first sacred monuments. Next came the pyramid, a cylinder, whether a cippus or a column; a cubical block, with a particular member superadded to the regularity of mathematical proportions. A sphere and a tetrahedron; and last succeeded a vase covered with a flat lid, and adorned with various sculptures from the vegetable and marine world."

Thus Mr. Bardwell connects with religion the

* The ventilation of the new school-rooms appears to be remarkably effective—a point of great importance where so many individuals are for three hours at a time congregated together. The playground also is being extremely well laid out.

first memorable and permanent efforts of Building Art—sacrifice he shows to have been associated with, and to have guided the workings of, the first builders, from the “primeval altar of little more than a raised hearth, built generally of unheven stones,” to the “column or stone pillar of mystic character.” And Jacob rose up early in the morning, and took the stone that he had put for his pillow, and set it up for a pillar, and poured oil upon the top of it; and he called the name of that place Beth-El.” “The Greeks also erected pillars which they called *Bautnia*, evidently derived from Beth-El, involving the same mystery, and both supposed to be symbols of the Divine Presence.”

Chapter VI. increases in interest, and is devoted to the Temple of AMMON.

“The Temple of Ammon, the remains of which archaeologists, for many powerful reasons, agree are extant in the enormous pile known as the Temple of Karnak, is by far the most extensive, as well as the most ancient, of the Theban edifices; properly belonging to the whole period of the monarchy, and may with propriety be termed the Temple of the Pharaohs, the majority of whom, in succession, more particularly such as are celebrated in history, contributed their efforts to its enlargement and adornment. From numerous authorities it seems clear that HAM, the son of NOAH, the AMUN, AMMON, or OSIRIS of the Egyptians, must be considered as the original founder of Thebes, or the city of Ammon, as his son MIZRAIM, MISOR, or MENES, was by common consent the founder of Memphis; so that the temple of Ammon or Ham was, in all probability, originally named from its founder, like the Temple of Solomon at Jerusalem.”

We cannot take our readers along with us as we would by quoting largely from this interesting chapter, nor will we presume to dispose of the work by this brief and imperfect notice; it deserves much more at our hands; it is written with an enlarged feeling, and a genuine spirit of devotion to the sublime art upon which it treats; it is crude, and occasionally profound; but we must take our leave of it for the present, concluding with another extract from the same chapter.

“The remains of Karnak are about 2,500 feet from the banks of the Nile, on an artificial elevation, surrounded by a brick wall, about 6,300 yards in circuit. The chief front of the temple (the western) is turned towards the river, with which it was connected by an alley of colossal crio-sphinxes, leading down to the bank of the river. Here the devotee would land who came from a distance to the shrine of Ammon, and with amazement and a feeling of religious awe slowly walk along between the majestic and tranquil sphinxes to the still more magnificent propyle of the building. This colossal entrance is about 360 feet long and 145 high; the great door in the middle is 64 feet high. Passing through this doorway, he would enter a long court, occupied by a row of pillars on the north and south sides, and a double row of taller pillars running down the middle. These pillars terminated opposite to two colossal statues in front of a second propylon, through which, after ascending a flight of twenty-seven steps, we enter the great hypostyle hall, which had a flat stone roof, supported by one hundred and thirty-four colossal pillars, some of which are twenty-six feet in circumference, and others thirty-four. The width of this magnificent hall for the entrance is in the middle of the west side is about 338 feet, and the length or depth 170 feet. The centre column supported a clerestory, in which were small windows. Four beautiful obelisks mark the entrance to the adytum, which consists of three apartments entirely of granite. The centre or principal room is 20 feet long, 16 wide, and 13 feet high. Three blocks of granite form the roof, which is painted with clusters of gilt flowers on a blue ground. Beyond this are other porticoes and galleries, which have been continued to another propylon at the distance of 2,000 feet from that at the western extremity of the temple.”

English Patents for 1841. By ANDREW PUGH-CHARD, M.R.I., &c. Whitaker and Co., London. 2s. 6d.

We had commenced the selection of a list of patents from this excellent compendium, with the intention of laying before our readers all those pertaining to the Building Art, but found that we should have to reprint nearly the whole of the book; so comprehensive is the range we have chosen, and so ingenious the class we have the honour to serve. Of 441 patents herein entered, by far the largest proportion are as we have stated; and we can only, therefore, refer to the work itself. Besides the above list of patent, there is appended a copy of Letters Patent, an abstract of the Registration of Designs Act, and a notice respecting its operation, concluding with a useful Index, which shews at one glance what you would refer to. The value of such a work as this is not to be estimated. All persons intending to take out patents should look over its pages, as it may save much trouble and expense. We know of many who would have been great gainers had they had such a guide at their elbows.

MISCELLANEOUS.

There is a consideration which entitles architecture to a decided pre-eminence amongst the other arts. It is itself the parent of many separate professions, and requires a combination of

talents and an extent of knowledge for which other professions have not the smallest occasion. An acquaintance with the sciences of geometry and mechanical philosophy, with the arts of sculpture and design, and other abstruse and elegant branches of knowledge, are indispensable requisites in the education of a good architect, and raise his art to a vast height above those professions which practice alone can render familiar, and which consist in the mere exertion of muscular force. From these considerations it appears there is some foundation in the very nature of architecture for those extraordinary privileges to which masons have always laid claim, and which they have almost always possessed—privileges which no other artists could have confidence to ask, or liberty to enjoy.—*Ency. Brit., Vol. XIV., p. 280.*

ALISON ON FRENCH ARCHITECTURE.—In France we find that public works have been reared at an expense not exceeding that of edifices of little or no excellence in our own country, even although the charges of building are not materially different in the two countries. So true it is, that the most essential elements in architectural beauty—genius and taste in the architect, are beyond the power of mere wealth to command—that it is not money to construct beautiful edifices, but the mind to conceive them, which is generally wanting. It would seem, therefore, that it is the pure taste and noble conceptions of the artists of Southern Europe, rather than in any great excellence in the materials at their command, or the wealth of which they have the disposal, to which we must ascribe their remarkable superiority to those of this country.

DEVONSHIRE HOUSE, PICCADILLY.—The additions and alterations which are being made to this fine old mansion, the residence of His Grace the Duke of Devonshire, are proceeding rapidly, and will add considerably to the extent as well as to its internal arrangements. Mr. Decimus Burton is the architect, and Messrs. Woolcott and Son are the contractors, for these works, which will yet take many months to complete. The Duke is for the present staying at his princely abode, Chatsworth.

CHURCH EXTENSION.—There are now twelve new churches building, or about to be commenced, in various parts of the metropolis; one in the Kent-road, in the parish of St. George, Southwark; one in the parish of Paddington; another on the site of the Old Broadway Chapel, Westminster; a large church, with a lofty Gothic tower, in which a musical peal of bells is to be placed, in Wilton-square, Knightsbridge; three in Bethnal-green parish, and a church in St. Pancras parish. Sites have been chosen for a new church in the Waterloo-road district of Lambeth parish; another in St. Botolph Without, Aldgate, in the county of Middlesex; and a third in St. George's-in-the-East. The new parish church of St. Giles's, Camberwell, building on the site of the old edifice, which was destroyed by fire, is progressing rapidly, and will be a noble and spacious edifice. The new church at Paddington will be a great ornament to that neighbourhood. The University of Durham has granted 400l. towards the erection of a new church at South Shields. It is intended to build a new Roman Catholic Church in the eastern part of the metropolis. The site chosen is a large piece of ground on the south side of the Commercial-road, and it is expected that the total cost of the edifice and the purchase of the ground will not fall short of 30,000l.

NOTICES.

TO ADVERTISERS.—This first impression of Five Thousand is reserved for sale in London and the large Provincial Towns. The next impression of five thousand will be stamped, so as to pass post-free, and will be circulated gratuitously on the 7th of January, 1843, amongst that number of the nobility, gentry, clergy, professional men, and principal tradesmen, all over the United Kingdom, according to a list which has most generously been placed at our disposal for that purpose by a friend. It is important, therefore, to advertisers that they should seize the opportunity thus afforded them of a special and select notification of their business among a class of such importance. It may be affirmed, indeed, that a circulation of this character and amount is superior to one of four times the number of copies dispersed at random, in the ordinary way of sale. Additional advertisements, therefore (if sufficient in number) will be inserted in a Supplement to accompany this gratuitous circulation,

as well as the future sale, and should be sent to the Office at latest, on Thursday, the 5th of January. The charge for advertisements in the Supplement will be 15s. per quarter column, 11. 10s. per half column, and so on; smaller advertisements according to agreement. To insure more attention to the Supplement, as well as to secure an additional circulation for it, it will contain matter of interest as to the progress of the first impression, correspondence, and the like. Our prospects hitherto have been so far gratifying as to give us confidence that the whole number of 20,000 copies of the Precursor will be disposed of!

TO OUR READERS.—As we do not choose to trust our own judgment on a subject in which so many are interested besides ourselves, and as it is so easy to obtain an opinion by which we may be guided, we think it right in this place to invite attention to our views on the subject of the future character of “THE BUILDER.” Before a month shall have elapsed, at least 20,000 numbers of this paper will, in all probability, have been circulated, and will have passed under the review of twenty times that number of readers. They, and in particular our Building Friends, will have made up their minds as to whether “THE BUILDER” is a work to be encouraged—it certainly is not our desire to attempt to force the point, although we would use a little “gentle violence” to develop the evidence—and this we may be supposed to be doing now. We have said that there are two parties to this, as to every other question—the public and ourselves. It is not for us to tell the public that they know nothing of their own wants, and to attempt to force them into the belief that such a paper as “THE BUILDER” is absolutely necessary, but unless we had taken this step on our own responsibility, the question would have remained undetermined. What we would ask of the Building public then is—Do you wish to have a periodical devoted to your interests, as we propose? and whether would you have it a Magazine and Advertiser simply, or as a Newspaper conjoined? In the former case it might be weekly or monthly, in the latter it must necessarily be weekly. As to the price and size: If a Magazine and Advertiser of twelve pages of the size of our present number, we should say 3d. the number, stamped Ad.: if a Newspaper of sixteen pages, we do not think it could be less than 6d. Every body has seen the Illustrated London News, and allowing for difference in the character of the illustrations (those in “THE BUILDER” being devoted entirely to art and science), you will be able to judge of the appearance which the latter will present. We are only anxious to undertake no more, or no less, than can reasonably be expected to be carried out. If it should appear from experience of the working that more can be accomplished, we shall most gladly acknowledge and act upon it, by either enlarging the paper, or reducing the price. But we still think that to conjoin the character of a Magazine and Newspaper, and at the cost of one to give the advantages of both, will be to study the true economy of our cause.

The readers, therefore, have much of the settlement of the question in their own hands—even to the influencing of the advertisers. All advertisers look for papers of large circulation, and as advertisements are a great means of support to a newspaper, it is evident that the more “THE BUILDER” is supported by the mere reader, by so much the more does it stand a chance of support from advertisers. We venture, therefore, to speak in this business as though we were ourselves less concerned in its issue than we really feel to be—and we urge upon our honoured fellow-craftsmen to make this paper their own. Let it be a sign or standard of union.

We do not ask to have subscriptions forwarded, but we would respectfully request to be favoured by an immediate intimation from all parties as to their willingness to subscribe, and which they would prefer, a Magazine alone, or Magazine and Newspaper.

We trust it will be considered that we are pursuing a straightforward and ingenious course, willing to be guided by circumstances, rather than to seek to force or control them, or to stake upon our own presumptuous judgment that which a prudent and discreet man would say should be left to the decision of the common voice and experience.

Pardon us if we once more urge you to rally round “THE BUILDER.”

ADVERTISEMENTS.

BAZAAR PANCLIBANON, 29, BAKER-STREET, PORTMAN-SQUARE, KITCHEN-FURNISHING-IRONMONGERY.—The stock of this vast establishment has been renewed, with an extensive selection of every description of domestic furniture, usually found in the roomier department. Every requisite for the Kitchen, in Copper, Iron, or Tin, of first quality, the prices being marked in plain figures for **READY MONEY.** Kitchen ranges and cooking apparatus upon stoves, and including useful and modern improvements. The higher class of goods comprises an enlarged assortment of register and stove grates, in steel and black metal, with fenders and fire-irons to correspond, suitable to drawing and dining rooms, libraries, halls, and chambers, in various styles of ornamental embellishment now in vogue, and of improved modes of construction, calculated to insure safety with economy.

A very large assortment of baths, of sound make, and adapted to all purposes of health and comfort; comprehending shower, plunge, and vapour baths; those proper to the nursery, with hip, foot, and knee baths, and peculiar shapes convenient for embrocation; among these enumerated, are varieties fitted with practical improvements for the ready application of this valuable resource to the invalid, or in cases of sudden indisposition.

A commodious saloon has been added to receive a new stock containing Appendages to the tea table, including paper mache and iron tea trays of great beauty of design, and tasteful display of ornament. Tea and coffee urns and coffee machines of the best quality, of London make, comprising every useful improvement in those articles.

Tea services in Britannia metal, of superior quality, and in considerable variety of shape and pattern. A costly display of plain and enriched British plate of peculiar elegance of design and execution, comprising silver models, together with suites of spoons, tongs, and caddies, knives and forks en suite, to which may be added table and gravy spoons, soup ladles, fish knives, slicers, with the more consequential objects proper to the dining table. Turbans, cushion dishes and covers; square, round, and oval corner dishes; epergnes, cruet stands, &c. &c.

The stock of wire-work is the largest in the kingdom, and comprises every variety requisite for the hall or verandah, conservatory, terrace, or garden. Trellis work, grainers, baskets, arches, temples, and alcoves, of new and beautiful designs, and of first class workmanship.

Every article is plainly exhibited, with the ready-money price affixed, and warrant of the best make.

BAZAAR.—SINGULARLY BEAUTIFUL HISTORICAL ROYAL COAT OF ARMOUR.—The splendid Royal Coat of which is the Prince of Wales with the Princess Royal of England. The King of Prussia. Commissioner Lin and his Consort, modelled by the artist, Canton, expressly for this exhibition; the gorgeous robes in which they are represented were actually worn by them at the period of their sad catastrophe. George the Fourth in his splendid Coronation robes, designed by himself and executed by eminent artists, at an expense of 10,000. This dazzling spectacle is seen in a spacious hall of costly architecture, elaborately wrought in carvings and gold, from one lately existing in the Palace of Carlton House, and is acknowledged to be the most splendid sight ever offered to the British public. Admission, and from Seven until Ten.

Madame Tussaud and Sons' Bazaar, Baker-street, Portman-square.

BAZAAR CARRIAGE DEPARTMENT, BAKER-STREET, PORTMAN-SQUARE.—An immense variety of every description of new and second-hand Carriages are constantly on sale, in the spacious galleries of the Establishment, at very reduced prices; most of the new Carriages being warranted for twelve months. Purchasers may place the greatest reliance upon their being of the best materials and workmanship, by highly respectable builders. Carriages are sold by auction on the first Friday in the month, during the season.

BAZAAR SADDLERY DEPARTMENT, 29, BAKER-STREET, PORTMAN-SQUARE, KITCHEN-FURNISHING-IRONMONGERY, AND HORSE CLOTHING.—Every article manufactured in this establishment, being sold at the lowest price, consistent with the best quality of materials and workmanship, will be found to be 25 per cent. under the usual trade charges.

PRESERVATION FROM COLD AND WET. HALL & CO. invite attention to their invaluable INDIA-RUBBER GLOVES, which most effectually preserve the Feet from Cold and Damp, and are warmer, more durable, and cheaper than the most superior Golaoh or Clog ever before offered.

COMFORT AND EASE FOR THE FEET. Are secured by their Patent Pannus-Corruum or Leather Cloth Boots and Shoes, as being the softest, easiest, lightest, most elastic, and comfortable for Tender Feet, arising from whatever cause. These qualities they retain to the last. They are also adapted to all climates, and are as durable and cheap as those made of any other material.

Also their elastic India-rubber Spring Boots entirely supersede the use of buttons, straps, ties, laces, or other fastenings, and afford the most complete security and support to the ankle.

PROTECTION FROM THE STORM. Is afforded by their Portable Waterproof Dressing. The Gentleman's Dress, comprising Cape, Leggings, and Hood, may be conveniently deposited in the coat-pocket. The Ladies' Mantau Cardinal effectually shelters the person and head, and is so effectually protected, that it may be deposited in the reticule. These dresses never retain moisture, and are impervious to rain, snow, or hail. Gentlemen's complete Suit, One Guinea.

Mantau Cardinal for Ladies, 18s. HALL & CO., Patentees, Wellington-street, Strand, London.

PATENT GAS AND LAMP CHIMNEY.—COGAN'S ECONOMIC ELONGATOIL, secured by her Majesty's Letters Patent, is superior to any hitherto introduced to the public, produces a most brilliant light, and so effectually prevents smoke, that Gas may now be introduced into the best-furnished apartments, without fear or injury to its ornaments. Lace-merchants, show-loucheusemen, and others, will find it worthy their adoption. Common Lamps, with this simple chimney, though burning inferior oil, will give light equal to the Solar, and without smell.

Proprietors of gas-fitters, gas-fitters, gas-dealers, and others, desirous of becoming acquainted with the same, will please to make early application to B. COGAN, 48, Leicester-square, where the trade may be supplied with lamp and gas glasses, together with clock and figure shades of every description, cheaper than any house in London. Printed lists of nearly 100 engraved patterns of gas glasses will be sent to any part of the kingdom by forwarding the address.

French and English fancy glass, alabaster ornaments, China shades, &c.

BUILDERS' COLLEGE, LONDON.—TO PARENTS AND GUARDIANS.—Mr. HANSOM, Architect of the Birmingham Town Hall, &c. &c., has associated with his practice an Institution to give enlarged facilities to students in Architecture and Architectural Engineering; and to form a superior class of Architectural Sculptors, Carvers, Modellers, &c., to be engaged in his own office and works until competent to practise a liberal and lucrative profession.

It has been Mr. Hansom's study to lay down a plan for the instruction of architectural decorators and furnishers, which shall combine the advantages of the school, the office, and the workshop; so that general education, professional training, and handicraft skill may be acquired and perfected together—that the benefits of college discipline, and residence of systematic tuition under proficient masters, of lectures and examinations, and of constant familiarity with books, models, and works may be united in one establishment.

Pupils are eligible at the age of fourteen and upwards, and are articulated in the usual manner as apprentices. The terms are moderate, and with other particulars, may be known on application at the office, 27, Foley-place, London.

The importance of a system of education as above proposed, it is scarcely necessary to point out. While other callings and professions are crowded, those to which this Institution principally refers are but rarely, and in many instances, imperfectly practised, and the demand for proficients is every day wonderfully on the increase. In proof of this, we need only advert to the evidences of the growing public taste, and to note the tone and temper of the professors and patrons of architecture. Witness also the ornamented character of our public and private edifices, the restoration of ecclesiastical structures, and the building of new ones, on a magnificent scale; the late fearful ravages of fire, causing the necessity of a large amount of rebuilding, and leading, most probably, to the remodelling of most of the large cities of Europe. All these circumstances tell how important it is that a school should be founded, and a body of professors formed to fill up the vacancy in that section of art which lies between the mere constructor of buildings, and the architect and engineer who gives the plan of the structure.

In fact, it is only in obedience to that law of general movement which characterizes these times, that the institution in question has had its birth—the universal voice calls for advance—the arts of design are to be revived, and the debasement of centuries cast off. Schools are being established under government patronage, and mechanics' institutes were but a phase of progress—the thirst for knowledge has been stimulated, but not gratified. There remains, then, to be formed an institution wherein the theory and practice of art may accompany each other; and this is proposed by the Builders' College.

Thus, while the pupil will be made familiar with the best examples of ancient and modern decoration by means of books, drawings, models, and the inspection of buildings; while he will be instructed in the principles of design, and in the science of construction upon which they depend; while he will be made a skilful draughtsman and colourist, he will be trained in the handicraft arts, so as to be able to produce the works themselves, the objects of his study and investigation.

But in addition to all this, it is necessary that he learn so much of practical mechanics, mathematics, and of experimental and natural philosophy, as to be guided in his art by the rationale which these supply. Mechanical laws and mechanical powers have a wide range of influence in the arts of design; for how shall a man embellish his work appropriately who knows not the former, or how economize in the use and application of machinery, without being conversant with the latter? Mathematical science, in particular as to the properties of figures and of numbers, is essential to him—and as to sound, light, and heat—as to the ventilation of buildings, supply of water, and drainage—as to chemical constituents and processes affecting the preparation, combination, and preservation of his materials—as to the natural fitness of metals and minerals, of vegetable and even animal products to be used in building—as to the vast suggestive sources of construction and of ornament that exist in the whole arcana of nature—how, in all these respects, shall the pupil make efficient or rational progress; or how acquire a mastery of his art, unless he study and be made acquainted with the sciences and laws that bear upon and illustrate its several elements?

History, and, indeed, general literature, as bearing upon the subject of his inquiries, will demand a share of his attention. It is not, however, to be supposed that the pupil can be critically or curiously learned in all these, nor, on the other hand, that a superficial knowledge will avail; but it is considered that by confining attention to the matter of each that strictly pertains to architecture,

and by combining as far as possible, in one establishment, the means of pursuing an unbroken scheme of instruction, that the evils of a too general and desultory system of study, and of widely-scattered sources of information, will be largely remedied.

The bringing together of a number of youths and their associate teachers, probably from all quarters of the world (as already promises to be the case); the contact of various minds, influenced by various national peculiarities, but all bent upon one comprehensive enterprise of attainment; the working together in the various practical development of progress, under practical instructors, and for practical and intelligible ends—these, and a number of other circumstances of a favouring character, must conduce to a rapid progress and an extensive and sound proficiency.

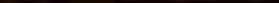
And not least in the assumed merits of this Institution are the features pertaining to ordinary or general school education; the neglect of early youth may be repaired here, or the acquisitions of that period secured, and directed to practical purposes; arithmetic, mensuration, book-keeping, classic literature, and the French, German, and Italian languages, which are almost essential to the education of an artist, will be taught in their due routine, and the facility for acquiring them considerably enlarged by association with students and tutors speaking the respective languages of their own countries.

By uniting, therefore, the pursuit of knowledge to a strict system of supervision and instruction—of regular and fixed hours of employment and recreation, and of constant practical tendencies, engaging the students in the designing, fabricating, and applying objects of art, confiding to them at proper opportunities and periods the superintendence of works and workmen, and giving them at the same time the benefits of social converse with their fellows and tutors, whether in study, work, recreation, or recreation; paying a strict attention to their morals, habits, and health; in fine, by aiming at the best practical union of the home, the school, the workshop, and the studio, it is hoped that a fine class of men may be produced, fitted to the exigencies of the times, and calculated to advance the arts, and do honour to their country. Neither is this attempt so novel or so extraordinary as it may seem; the history of art in former times, and the practice of contemporary professors abroad, give sanction to the scheme. It is not with every man a gift or a passion to apply himself to teaching in conjunction with the practice of his art, but some of the greatest names of antiquity and of this present age are associated with schools and styles, and indeed it is an important question to be put, as to whether the business of education, paramount as it is above all other business, should not be conducted by and confided to practical men.

Let the groundwork be well laid in the minds of the ardent and generous of our young countrymen. Let their ambition to excel be honestly encouraged and directed. Open to them the pages of past history, as to the glorious and sublime achievements of the architects and associate artists of old, and point out to them the path of equal, or it may be greater distinction (for who shall say what mechanical and chemical science, allied to the inspiration of genius, may produce); and we shall no more hear of the complaints of inferiority, or of the want of original talent in the Fine Arts among our countrymen.

It may be urged by many that this is a gigantic work, and should be left to the government, or a company. A moment's reflection, however, will check the thought of the former in an English breast, and the interference of companies with objects of private enterprise, is, perhaps, as much to be deprecated. That this is a legitimate object of private enterprise, may be inferred from what has been already said as to ancient and contemporary practice. And in a matter where so much depends upon the bias of the heart—where fatherly care, as much as artistic sentiment is needed, to guide and form the student—where every interest of the superior is bound up with that of the pupil, associating the success of the former in his practice, with the probity and proficiency of the latter—where an intelligent conception of interest and duty reigns in the mind of the principal—these, it is presumed, offer the strongest guarantees of success, when other arrangements, through companies or co-partnerships, under boards of directors and managers, would be likely to fail.

All that can be done in this respect has probably been done in the London University and King's College, by appointing professors, instituting classes, and giving a course of lectures in Architecture and Engineering; or by taking the matter a step further as is being tried at the College of Civil Engineers, Putney. The rest must be accomplished in the office or the atelier of the professor, and in works and buildings conducted by him. The pupil in this case takes part in practical operations with an intelligible aim, and a tangible end. He is identified with, or interested in, their progress, and imbues knowledge of a most profitable kind through grateful and agreeable channels.



Loudon's Advertisements continued.



Fig. 1. *Cytisus Weldenii*.

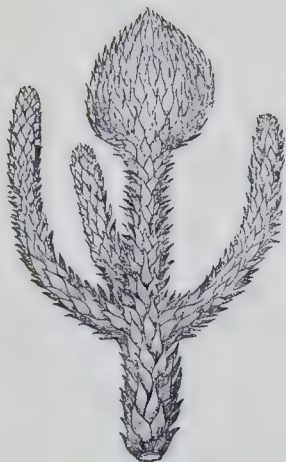


Fig. 3. *Araucaria imbricata*.

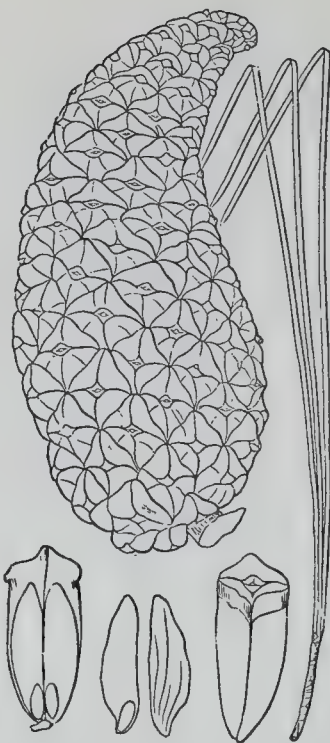


Fig. 2. *Pinus Teocote*.



Fig. 4. *The Cypress of Misra (Cupressus horizontalis)*.

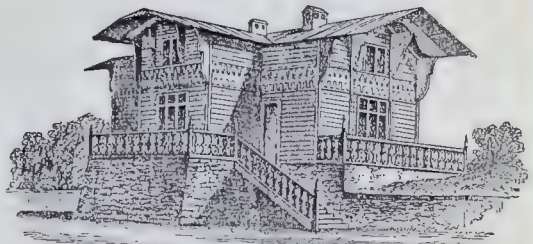
Loudon's Advertisements continued.



Fig. 5. Singular inoculation of the common beech (*Fagus sylvatica*.)



A Road-side Public-house, from a design by J. W. Wild, Esq., in the Supplement to the Encyclopedia.



A Gate Lodge, by R. Varden, Esq., also from the Supplement.

Just published, in royal 4to., price 17. 15s. bound,
RUSTIC ARCHITECTURE.—Picturesque
Decorations of Rural Buildings in the Use of Rough
Wood, Thatch, &c. Illustrated by Forty-two Drawings; con-
sisting of Plans, Elevations, Sections, and Perspective Views;
the Doors, Windows, Chimney shafts, &c., drawn Geometrically
to a large scale; with Descriptions and estimated Costs.

By T. J. RICAUTI, Architect.

"We have repeatedly and strongly recommended this elegant
and useful work, and can safely say, that we think no gentleman
who purchases it will be disappointed."—*Loudon's Gardener's*
Magazine.

James Carpenter, Old Bond-street.

**LAWRENCE & CO., 55, PARLIAMENT-
STREET, WESTMINSTER, and 10, YORK-PLACE,
LAMBETH,** Successors to the Patentees and Manufacturers in
Zinc to her Majesty the Queen Dowager. Original makers of
Malleable Zinc Drawers, of Tubes, and Sash-bars. Perforated
Zinc for Larders, Safes, and Blinds. Roofs and Verandahs
covered with Zinc Rain Pipes, Chimney Pipes, Cocks, &c.
Gutters, Ridges, and Sash Lights. Baths and Zinc Door-plates.
N.B. The Trade supplied.

KEENE'S PATENT MARBLE CEMENT.

—This cement, which exceeds every other in hardness,
is intended for interior uses, where strength and despatch in
execution are required. From the smoothness of its surface, it
is an advantageous substitute for wood in its application to
skirtings, architraves, mouldings, &c., as it resists the action of
fire, and keeps back vermin.

The coarse qualities form a paving not distinguishable from
stone in colour and hardness, but of one-third the price. The
best white quality takes a brilliant polish, and the scagliola made
from this cement has a peculiar richness of colouring. The imi-
tations produced in it of Florentine and other Mosaics, encaustic
tiles, &c., for ornamental purposes, are unequalled in their effect
and moderate cost.

Keene's Cement has been applied with success for the altars of
Catholic and other churches, both in England and Ireland; and
to its use in the royal palaces and government buildings, besides
numerous and private works, the patentees can refer with con-
fidence.

Patentees and Sole Manufacturers, J. B. White and Sons,
Milbank-street, Westminster.
Agents for its sale are appointed in the principal cities of the
United Kingdom.

**WESTMINSTER MARBLE FACTORY,
EARL STREET, HORSEFERRY ROAD,
WESTMINSTER.**

The Trade Supplied on advantageous Terms
with Slabs and Chimney-Pieces, and a large assortment
always kept on view in their extensive Show-Rooms.



ESTABLISHED
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The public is respectfully informed that the Proprietors of the
Westminster Marble Factory have made considerably more ex-
tensive and most important improvements in the Working and
Polishing Marble by Steam Power at the above Factory, so that
every variety of Marble Work is executed in a superior style,
hitherto unprecedented in this country, and at such reduced
prices as greatly facilitate its use in the decoration of public and
private buildings for the following useful and ornamental pur-
poses:—

Marble Staircases, Door Jambs, Linings for Rooms, Columns,
Chimney Pieces, Wash-hand Tables, Monuments, Tablets, Mor-
tars, Tombs, Door-plates, Baths, Pavements, Slabs for Dairies, &c.
They respectfully solicit a trial from those whose consumption
is considerable, as they will realize an immense saving by
forwarding their orders to this Establishment. Much attention
will be devoted to the interests of Architects, Builders, and
Cabinet Makers, to execute their orders in a style entirely un-
equalled. An unlimited zeal will be maintained to continue the
patronage so liberally bestowed by men of business.

Caution.—It having been recently discovered that orders in-
tended for this Company have been surreptitiously obtained, and
executed by others at a higher price than they charge, it is par-
ticularly requested that future orders be addressed to the Westmin-
ster Marble Company's Factory, Earl-street, Horseferry-road,
Milbank, Westminster.

**TO BUILDERS, PAINTERS, GLAZIERS,
and OTHERS.**—The cheapest House for Crown and Sheet
Window Glass, Milled Lead, Colours, &c.

Best Lead .. 24s. per cwt. Linseed Oil .. 3s. per gal.
Sheet Lead .. 21s. Turps .. 3s.
Complete lists of glass, colours, lead, &c., priced, will be forwarded
to any part of the United Kingdom, by applying to R. COGAN, at
the Western Glass, Lead, and Colour Warehouse, 5, Princes-
street, Leicester-square, London. R. C. begs at the same time
to assure his numerous friends in the country, as well as in town,
that his trade being exclusively for cash, he is enabled to supply
goods in most cases 20 per cent. lower than charged by other
houses. An inquiry by post will be immediately answered, and a
one pound order, accompanied by a Post-office cheque for the
amount, will receive equal attention, and be executed with the
same despatch as one of a wholesale description.

**TO NOBLEMEN, GENTLEMEN, AND
OTHERS.**—R. TURNER and Co. beg to lay before the
Public in general their newly-invented Apparatuses for heating
purposes, where artificial heat is required, by steam, hot water,
or hot air. Also ironing-stoves, hot plates, and portable stoves
of various sizes, for general purposes; at the very lowest price
possible, for cash only. All goods sent out from their establish-
ment are warranted.

164, Strand.
Your obedient servants,
R. TURNER and Co.

**TO ARCHITECTS, BUILDERS, DECORATORS, AND
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PAPIER MACHE ENRICHMENTS,
adapted to every Style for Architectural and Ornamental
Purposes; comprising Centre Flowers for Ceilings and Venti-
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Gothic Bosses, Corbels, Tracery, &c., in great variety, to be had
at Bredefeld's Papier Mache Works, 15, Wellington-street North,
Strand.

Tea Trays in every variety of elegant designs.

ENVELOPES, from the best Paper, and well
made, 6d. the 100. Envelope Cases in great variety, plain
and illuminated, from 6s. each. Blotting Books, from 1s. each.
An extensive assortment of Albums, in plain and elegant bind-
ings. A Box to hold Miscellaneous Music, elegantly bound, for
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inches, 16s. 6d.; 14 inches, 18s. Writing Papers, plain and gilt,
4d., 6d., 8d., 10d., and 1s. the quire. Note Papers, at 3d., 4d.,
and 6d. the quire, at LAMBIRD'S STATIONERY and MUSIC
WAREHOUSE, 143, Strand, opposite Catherine Street, near
Somerset House.

GILLOTT'S PENS.

Steel Pen Manufacturer in Ordinary to Her Majesty.



JOSEPH GILLOTT'S very superior **PATENT** and other **METALLIC PENS** may be had of all Stationers, Booksellers, and other Dealers in Pens throughout the United Kingdom.

The great superiority of these Pens, and the Public's approbation, is attested by the continually increasing demand for them, and their entire adoption at the Bank of England, and Her Majesty's Public Offices, where, it is known, the best articles only are admitted.

NUMBER OF PENS MANUFACTURED AT THE WORKS OF

JOSEPH GILLOTT.

FROM OCT. 1837, to OCT. 1838,	FROM OCT. 1838, to OCT. 1839,	FROM DEC. 1840, to DEC. 1841,
was 35,808,452	was 44,654,702	was 62,126,928
or 2,984,037 dozen	or 3,721,225 dozen	or 5,177,244 dozen
or 228,669 gross	or 310,102 gross	or 431,437 gross

These Pens are made in every variety, suitable for the **MEDICAL** and **LEGAL** PROFESSIONS, **BANKING**, **MERCANTILE**, and **GENERAL PURPOSES**, and for **SCHOOLS**.

It is requisite to state, as a general **"CAUTION,"** that the name, **"JOSEPH GILLOTT"** is marked in full on **EVERY GENUINE PEN**, and Vendors are desired to note that his Cards of Pens are made up in Packets of One Dozen each, and have a label outside, with a fac-simile of his Signature.

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The Genuine **GILLOTT'S PENS** may usually be obtained at the regular dealers' shops at as low prices as are generally demanded by itinerant dealers, and others, for those very inferior articles which are frequently palmed upon the Public as the real **GILLOTT'S PENS**.

At the request of Persons extensively engaged in Tuition, J. G. has introduced his **WARRANTED SCHOOL PENS**, which are especially adapted to their use, being of different degrees of flexibility, and with **FINE**, **MEDIUM**, and **BROAD POINTS**.

WHOLESALE AND FOR EXPORTATION AT THE
WAREHOUSE, 95, NEW-STREET, BIRMINGHAM,
ALSO AT

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Under the Management of Mr. **FOX**, from the Manufactory, or from any of the **WHOLESALE STATIONERS** and **MERCHANTS** in London, &c.

The great superiority of these Pens has induced their entire adoption in the Bank of England and Her Majesty's Public Offices, where it is known none but the best articles are admitted: such as the Home and Foreign Offices, the Admiralty and other Public Boards, the Offices of the India Board, the various Offices at Somerset House, the British Museum Library, &c. the General Post-Office, and others; as well as by a large number of Bankers, Merchants, and Manufacturers, throughout the Country, and many Public and Private Schools.

CAUTION TO FAMILIES.

The high reputation of, and consequent great demand for the undermentioned Preparations, have excited the cupidity of some **SHOPKEEPERS** of apparent respectability, but destitute alike of honour and of talent, who, for the sake of gaining a trifle more profit, basely attempt to impose their pernicious compounds upon the public as the real **"MACASSAR OIL"** for the Hair, and **"KALYDOR"** for the Complexion; they copy the bills and labels of the original articles, substituting either a **PICTITIOUS NAME** or the word **"GENUINE"** in the place of **"ROWLAND'S."**

To frustrate such imposition—it is necessary on purchasing either article, to see that the word **"ROWLAND'S"** is on the wrapper, as follows, without which None are Genuine.

ROWLAND'S MACASSAR OIL,

for the Growth, and for Beautifying the Human Hair.

Price 3s. 6d.; 7s.; or Family Bottles (equal to four small), 10s. 6d.; and double that size, 21s. per bottle.

ROWLAND'S KALYDOR,

for the Skin and Complexion.—Price 4s. 6d. and 5s. 6d. per bottle.

ROWLAND'S ODONTO,

Or **PEARL DENTRIFIC,**

renders the Teeth beautifully White, and preserves the Gums.

Price 2s. 9d. per box, duty included.

A. ROWLAND & SON, 20, HATTON GARDEN, LONDON,

is written in red on the wrappers of the **MACASSAR OIL** and **KALYDOR**, and engraven on the Government Stamp affixed on the **KALYDOR** and the **ODONTO**.

Be sure to ask for **"ROWLAND'S"** Articles.

Sold by them and by respectable Chemists and Perfumers.

COMPOSITION FOR WRITING WITH STEEL PENS.

STEPHENS' WRITING FLUID.

THESE COMPOSITIONS, which have so remarkably extended the use of the **STEEL PEN**, are brought to very great perfection, being more easy to write with, more durable, and in every respect preferable to the ordinary Ink. In warm climates they have become essential—they consist of:—

A **BLUE FLUID**, changing to an intense Black colour.

A **PATENT UNCHANGABLE BLUE FLUIDS**, remaining a deep Blue colour.

A **SUPERIOR BLACK INK**, of the common character, but more fluid.

A **SUPERIOR CARBINE RED** for Contrast Writing.

A **CARBONACEOUS RECORD INK**, unchangeable by any Chemical Agent.

Also a new kind of **MARKING INK** for Linen: and Inkholders adapted for preserving Ink from Evaporation or Dust.

Bottles at 3d. each, convenient for writing from are prepared, which will enable those who may wish to try either of these articles to do so at a small expense.

Prepared by **HENRY STEPHENS**, the Inventor, 54, Stamford-street, Blackfriars-road, London, and sold by Stationers and Booksellers.

N.B. These unchangeable Blue Fluids are Patent articles; the Public are therefore cautioned against imitations, which are infringements: to sell or use which is illegal.

STEPHENS' SELECT STEEL PENS.

The utmost possible care having been bestowed upon the manufacture of these articles, so as to procure the highest finish, they can be confidently recommended both for flexibility and durability.

DAGUERRETYPE OR PHOTOGRAPHIC PORTRAITS.

PORTRAITS by Mr. **CLAUDET'S INSTANTANEOUS PROCESS**, under the Patronage of Her Majesty, are taken daily at the **ADELAIDE GALLERY, LOWTHER ARCADE, STRAND**. The Sitting generally occupies less than One Second, by which faithful and pleasing Likenesses are obtained, with backgrounds, the patented invention of Mr. Claudet, representing Landscapes, the Interior of a Library, &c. &c. Price of a Single Portrait, usual size, One Guinea. Portraits and Groups are also taken on Plates of an enlarged size, and for Lockets or Brooches as small as may be required.

PATENT PLATE GLASS.

The Patent Plate Glass is equal in appearance to the British Glass, and at about one-half its cost.

SHEET WINDOW GLASS,

For Conservatories, Dwelling Houses, &c.

THE **SHEET WINDOW GLASS** is particularly recommended for Conservatories, Garden Frames, Skylights, and all purposes where strength is required. Lights may be glazed with panes from twenty to fifty inches in length, without liability of breakage from hail or trivial accidents.

length, without liability of breakage from hail or trivial accidents.

PAINTED GLASS,

In the ancient or modern style, from the most simple to the richest designs. Ruby and other Coloured Glass equal to the ancient.

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Round, Oval, or Square, for the preservation of Clocks, Alabaster Ornaments, Minerals, &c. &c.

Sold, Wholesale and Retail, by **CLAUDET & HOUGHTON**, at their **PLATE, CROWN, SHEET, FLUTED, and PAINTED WINDOW GLASS and GLASS SHADE WAREHOUSE, 89, HIGH HOLBORN**, where Lists of Prices may be had.



CORY'S POWDERS FOR CHILDREN

Are recommended to mothers and nurses, not only as a remedy, but as a preventative in all cases of teething, measles, scarlet fever, hooping-cough, small-pox, convulsions from worms and teething, wasting of the limbs, jaundice, fits, diarrhoea, chicken-pox, thrush, &c. The above complaints are invariably preceded by a pettishness of temper, accompanied by costiveness, and a greater or less degree of fever. To these little ailments attention should be particularly directed, for it is in this stage that these powders will commonly prevent further progress of disorder, by promoting healthy secretion of the skin, liver, stomach, and bowels.

PREPARED AND SOLD BY

W. M. H. CORY,

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And may be had of most respectable Medicine Vendors throughout the Kingdom, in packets at 1s. 18d., 2s. 6d., 4s. 6d., and in tin cases for exportation, 11. 1s. duty included. Each packet has the signature of **Wm. H. Cory** on the Government stamp, without which none are genuine.

Orders by post attended to.

PLATOW'S PATENT



AUTOMATON COFFEE URN.

Sold by **PLATOW & CO., 145, High Holborn.**

THIS invention makes

Coffee of the finest quality, preserving that delicate aroma which is scarcely known to English Coffee-drinkers, owing to the imperfect methods of making the beverage practised in this country. By a simple self-acting process, which cannot err, the Automaton enables the most inexperienced person to produce Coffee as excellent in flavour as the most skillful can prepare. Sold in all metals and of all sizes, so as to be used either for private Families or Hotels, and either with a Lamp or on the fire.

LEFT-OFF CLOTHES, REGIMENTALS,

1 Rec. WANTED.—**PEARSON'S** established warehouse, 2, Lamb's Conduit-street. Gentlemen having any quantity, large or small, of left-off wearing apparel, military, naval, theatrical, and costume of any nation, the utmost value in ready money given, or new clothes made in exchange. Apply personally, or by letter, to Stephen Pearson, 2, Lamb's Conduit-street. Distance no object. Ladies' apparel purchased. Books taken on the same terms.

Officers and gentlemen arriving from India will find this an excellent mode of disposing of their equipments for ready money, or clothes in exchange.

Theatrical dresses made to order.

OROPHOLITHES is a composition, which

being impervious to wet, and proof against atmospheric action, is peculiarly adapted for roofs and floors. It is also a substitute for oil-cloth, a covering for terraces, for wainscoting, and from its portability, for emigrants' houses. It is light, durable, and very considerably cheaper than any material such as zinc, lead, or oil-cloth, for which it may be substituted with great advantage. A temporary small house and other specimen may be seen at the Manufactory, 1, Gough-street North, near Calthorpe-street, Gray's-Inn Road.

THE LONDON MARBLE AND STONE

WORKING COMPANY, Esher-street, Hollywell-street, Millbank, Westminster (established 1821), are enabled, with their Patent Machinery, to execute Chimney-pieces, Monuments, Tablets, Slabs for Furniture, and every description of such work, with an accuracy, rapidity of execution, beauty and durability of polish, and reduction of cost, which cannot be obtained elsewhere. The public are invited to inspect their extensive Show-rooms, containing the largest stock in this country. The trade supplied with every description of Roman Slab Blocks or Scantlings; or Blocks sent to the works cut to order.

Please to be accurate in copying the address, to prevent imposition, the Company having no connection with any other establishment but that in Esher-street.

By Her Majesty's Royal Letters Patent.



THE PATENT RAMONEUR ASSOCIATION, FOR PROMOTING THE SWEEPING OF CHIMNEYS BY MACHINERY.—CENTRAL OFFICE, 34, FOLLY-PLACE, PORTLAND-PLACE.

In consequence of an Act passed August 7, 1840, intitled, "An Act for the Regulation of Chimney-sweepers and Chimneys," by which it is enacted, "That from and after the first of July, 1842, any person who shall compel or knowingly allow any child or young person, under the age of twenty-one years, to ascend or descend a chimney or enter a fire for the purpose of sweeping, cleaning, or coring the same, or for extinguishing a fire therein, shall be liable to a penalty of not more than ten pounds, or less than five pounds;—all chimneys from henceforth must be cleaned and swept by machinery."

This Association of gentlemen has its origin in an earnest desire to promote a cause which has long occupied the attention of the warmest friends of humanity, and to give decided and practical effect to the provisions of the above-mentioned Act of Parliament.

In responding to the call of humanity, by the entire abolition of the uncleanly and polluting practice of cleansing chimneys by the direct agency of the Living Infant Sweeper, the authority of

* From the French verb "Ramoner," to sweep.

the Legislature has been exercised to confer a public benefit, in the abatement of an evil of great magnitude, and a fruitful source of lasting misery. It only remains that the detail of minor arrangements be carried out in the way that may seem the best adapted to perfecting the working of the Act, and accomplishing the requisite changes, consistently with the public sense of fitness and propriety.

This Association, therefore, brings before the country an efficacious means of obviating, for the future, the necessity or any approach to the evils of the old system, in accordance with the general feeling and opinion on the subject, and in strict and active furtherance of the law as it now stands.

The considerations which the Association desire to lay before the public arrange themselves under the following general heads:—

The well-known and acknowledged difficulty and danger of the old process, and the dangerous exposure and risk to property, in large masses, from the imperfect performance of former methods.

The harsh, not to say hard and cruel, treatment of the infant sweeper, from a necessity (in a certain degree, perhaps) inseparable from the nature of the old process, and the effects of prescriptive custom, as exercised by unenlightened masters.

The unerring and perfect performance of the Association's new Machinery, coupled with its simplicity of construction, its great effective power, and its ease of management. The great importance of its certain effect in the immediate extinction of accidental fire in chimneys.

The great practical economy effected to the public through the perfect operation of the Machine, and the consequent incalculable increase of convenience in the domestic arrangements,—as all the chimneys of a house can be perfectly swept at a visit, in much less time than is now required; with a guaranteed security, for the due performance of the specific duty undertaken, and against injury or loss from carelessness, mismanagement, or depredation.

The Association has also in view the very important objects of affording complete relief to the entire class of sweeping adults and children, by elevating them from their present

degraded and enslaved condition to the rank of well-ordered, decently-appointed, and justly-paid workmen.

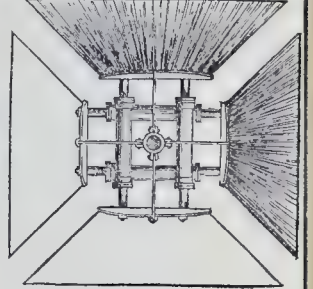
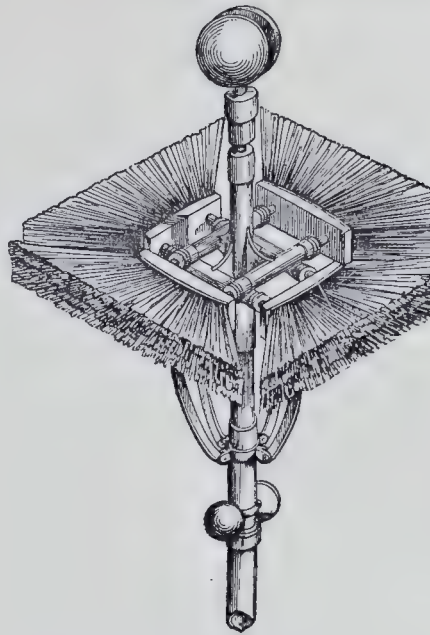
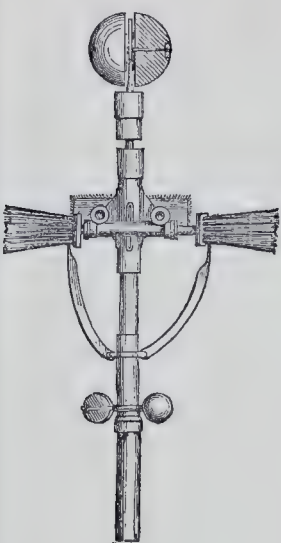
The date of each application for sweeping chimneys in a house, and of the execution of the order, with the names of the workmen employed, will be entered in the books of the Association, at their principal office, 34, Folly-place: thus affording satisfactory proof, in cases of fire, of the chimneys having been properly swept, where the cause of fire may be the subject of legal controversy; and preventing any disposition, on the part of the labourer to commit petty offences, from the absolute certainty of immediate detection.

The PATENT RAMONEUR ASSOCIATION, to carry out these great objects, have appointed respectable persons as Agents to receive orders; and will employ workmen of known good character, provided with suitable dresses to carry on the operation; giving them thus a cleaner and more decent appearance, when not absolutely employed at work, than is at present witnessed; and who, in lieu of the scanty and precarious pittance hitherto allowed them, will receive wages of sufficient amount to afford them the comforts and secure to them the self-respect enjoyed by other mechanical labourers.

The Association beg to inform the Nobility, Gentry, and Public, that, under these arrangements, on application being made at the Central Office, a workman and assistant will attend with the Machine, and, if necessary at the first trial, the Superintendent will himself be present at the operation. The usual rate charged for each chimney, under the old system of Machinery, will not be exceeded; and should it be desired, houses may be contracted for by the year, on the same terms as heretofore; no extra charge being made for machinery, or for the greater convenience, cleanliness, and security of property, afforded by the arrangements of the Association.

W. S. TROTTER, Secretary.
Superintendent, Mr. W. Speller, 30, Berkeley-street West, Edgware-road.

* In connexion with this establishment, the Association has introduced a Patent Chimney-pot, which effectually cures the smoke, and prevents the escape of the "coveys," which cannot escape fracture by the Machinery employed in sweeping the chimneys.



COMMERCIAL AND GENERAL LIFE ASSURANCE, ANNUITY, ENDOWMENT, AND LOAN ASSOCIATION.

Capital 500,000, in shares of 50l. each. Deposit 2l. per share.

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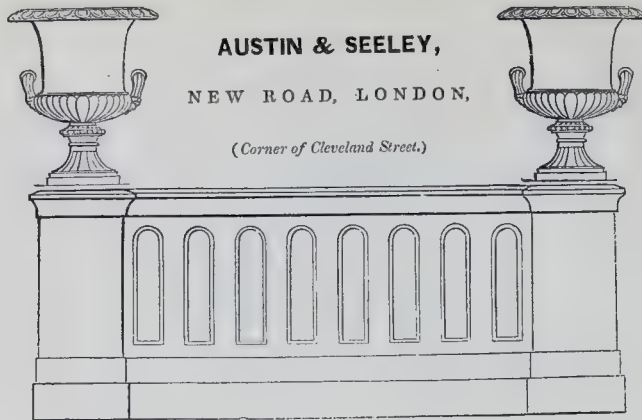
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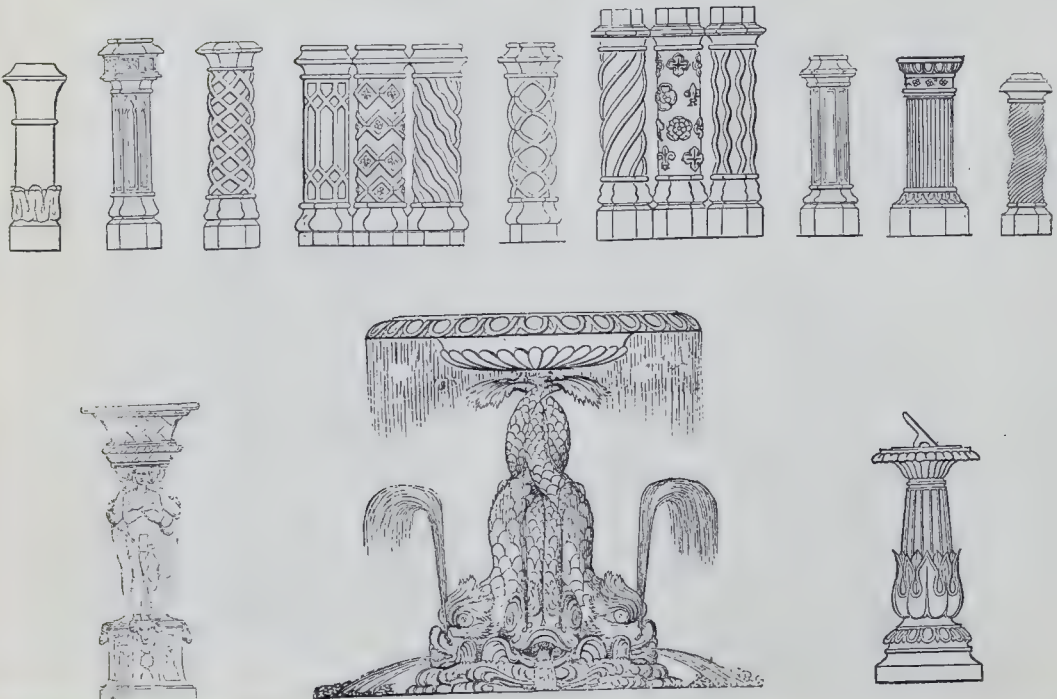
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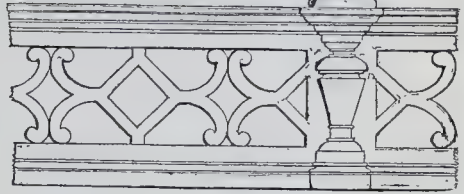
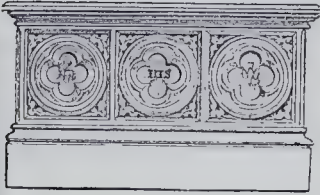
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Slaters	4,539
Turners	5,305
Upholsters	2,932
Undertakers	1,121

314,502

To which, if we add for Ireland, for apprentices and increase of population, we shall have a number probably far exceeding half a million!

That this description of paper has been long a desideratum, is evinced by the history and character of the associations of years past. The struggles on the part of masters and men, and the attitude taken by the public towards both, required an interlocutor of this nature to promote a good understanding, and to secure equity and justice to all. With such an auxiliary, what waste of time and funds had been avoided—what noble projects carried out—what petty strife suppressed—what distractions kept down. Our dignity would have been maintained, and our cause ennobled.

But more than this. How many of the claims of humble merit have slept in this interval for the want of a friendly expositor, or a common vehicle of publicity? And how many valuable inventions have languished wanting encouragement, or died still-born in the obscurity of their birth? How many toilsome wanderings of the artisan in search of employment might have been avoided?—how many common benefits have been withheld?—How frequently the hand of brotherly charity undirected, and the worthy object frustrated of its aid? In the glut of work in one quarter and its scarcity in another, how promptly would

"THE BUILDER"

have adjusted the balance? Its columns at all times open to inquiries, and the office for reference, would have solved many difficulties, and facilitated many purposes of good.

But "better late than never." The present effort will be under the chief conduct of one who, from his experience and practice, has derived means and opportunities of knowing the wants, and understanding the interests, of the class to whom he has the honour to belong. And it will be the object at all times to enlist in behalf of this enterprise the talent and services of all superior minds and zealous hearts in the various kindred professions.

The paper will be of a convenient size for being bound as a book, and so that the essays and illustrations may be separated and preserved. As before stated in respect of the political department, the Editor will endeavour to steer clear of partisanship. But times may arise when a fearless advocacy of trade interests will require him to oppose or support the party in power; on such occasions he will claim for himself the right to assert his views, and those of his class, in a manly and temperate manner.

The illustrations will consist of views, plans, elevations, and sections of ancient and modern buildings, and of parts of buildings, so as effectually to describe their peculiar excellencies;—of working drawings and diagrams for the carpenter, mason, cabinet-maker, &c. &c.;—designs of manufactured articles and implements used in building;—of improved associations and architectural arrangements, whether in the cottage or the mansion, the villa or the palace, in the farm, the village, and the city; in short, there will be no subject in art or science connected with building and the furnishing of buildings that will not be sought after to be introduced here.

As a medium of Advertisements, its merits will be obvious: the list already given, comprehends a large number of those to whom such a paper as this offers always the only proper vehicle. But there are many besides to whom it will be a welcome organ. In the matter of contracts for building, of business to be disposed of or sought after, of workmen wanted or seeking employment, and in all such pertaining to the class of builders and cabinet makers, it will at once form a perfect scheme of publicity, thereby encouraging many to advertise, in the certainty of their advertisements being read, and many to read in the same certainty of finding an answer to their wants.

All communications to be addressed to the Editor of "THE BUILDER," No. 2, York-street, Covent Garden.

TESSELLATED PAVEMENT.—WYATT, PARKER, and CO. respectfully call the attention of the Public to their Specimens of Tessellated Pavement which may be seen at Abion Wharf, Holland-street, Surrey Foot of Blackfriars-bridge.

The Tessere for forming this Pavement or Flooring, being composed of similar tiles to that used in the manufacture of porcelain, and highly vitrified, are imperishable. They can be had of any size and form, from cubes of a quarter of an inch, and with the colours burnt throughout the entire body. If required, they may be gilt, similar to those on the tomb of Edward the Confessor and Henry the Third. They are prepared to execute designs for these floors, or to dispose of the small Quarries or Tessere by the gross, to suit persons as may wish to erect their own floors. These Tessere may be united on the floor with Roman Cement, Lime, and Pozzolano, Plaster of Paris, or most of the Cements now in use; or prepared in slabs, and laid with the same facility as Portland Stone paving.

ENCAUSTIC OR INLAID ORNAMENTAL
—At Tiles, for paving churches, halls, corridors, &c.—WYATT, PARKER, and CO. beg to acquaint the public that they are now prepared to execute PAVEMENTS with these beautiful tiles, manufactured in imitation of the best ancient examples from the Chantry-house, Westminster, Winchester Cathedral, Ramey Church, Great Malvern, &c. Being made of the famous red Staffordshire clay, they are of a less porous body than the ancient tiles, consequently are more durable, and will bear the roughest usage to which a foot-pavement can be subject, and are therefore more economical than any of the marbles and stones now in use for similar purposes. V. F. and Co. also have a great variety of other tiles of various colours for flooring, and white glazed tiles for the sides of stoves, dairies, baths, &c. Specimens may be seen at Wyatt, Parker, and Co.'s wharf, Holland-street, Surrey Foot of Blackfriars-bridge.

ARTISTS, PRINTER, SELLERS, and Others
are respectfully informed that C. F. Breidfeld has formed a large Collection of new and elegant Designs for Picture Frames in the Improved Papier Maché. The superiority of these Frames consists in their having all the effect of old carved work; many patterns represent exactly the carvings of the fine 17th century. The small parts are far less liable to injury than putty work. Papier Maché frames are remarkably tough and hard substance, it never shrinks, and takes gilding very freely. The frames are not wetted on the outside, and the weight of the glass is below that usually charged.

Many specimens are now on view at C. F. Breidfeld's Papier Maché Works, 10, Abion Wharf, Strand, London.

Pattern Books may be had, price 14s., consisting of a variety of Patterns of Picture and Glass Frames and Window Cornices, already executed, and on sale.
—**PICTURE FRAMES.** We direct the especial attention of all persons interested in this subject to the frames for pictures manufactured by Mr. Breidfeld; they are of Papier Maché, and the advantage of this process over the ordinary composition frames is so strong and so numerous, that they must inevitably be brought into general use. They look exceedingly attractive, and are in reality as much so as if they had been carved through the hands of the carver. They are produced at about ten times the expense. The gilding tells with very brilliant effect; and no matter how elaborate the pattern may be, they have a clearness and sharpness that have seldom or never seen obtained in composition.

—Art Union.

TO CIVIL ENGINEERS, ARCHITECTS, BUILDERS, and

THOMAS PEAKES TERRO-METALLIC

MANUFACTURES, Tunstall, near Newcastle, Staffordshire. Depot, Abion Wharf, Holland-street, London, per Messrs. Wyatt, Parker, and Co.
The manufacturer and his late father have conducted the present business since 1808, now thirty-four years. He begs to remark that, during that period, the works have supplied their materials to a considerable extent, provincially, and experience leads him to believe that they will be more generally adopted in the metropolis, as they become known.

M. P. had no hope to supply roof tiles for lodges, villas, &c. at Chatsworth, and he believes they are not excelled in efficiency or appearance by any tiled roofs in the world.

Pipes instead of Targit for chimneys, either circular for mansions or 14 by 9 in., and other forms and sizes, not to injure the bond of brickwork; Green, Italian, pan, plain, and ornamental tiles, instead of slates, for roofs, with tiles for the hips, and for a complete substitute for lead, slates, and ridge tiles, with pyramidal points, tiles, &c.; paving tiles, 6, 7, and 9 in. square, blue and red, to lay in checker; skirting tiles; garden edging tiles, very neat; channel tiles; granite tiles; drain tiles; and a great variety of other tiles, from 3 to 16 in., with dead crocket joints, also conical, to fit one within another.—the 12 and 16 in. are well adapted for small sewers.

At the different works, the above Pipes have been used upon the railways, especially the London and Birmingham, the Great Western, and Birmingham and Gloucester lines. At home and abroad they are appreciated and sought after for their materials, and the saving of this material, whether square or oblong, is clean, efficient, and durable; it is well adapted for ground floors in general, for outyards, footpaths in towns, &c.

Bath Depot—Mr. W. Davey, the Quay.
Bristol Depot—Mr. G. S. Burroughs, Canon's-march.
Ile of Wight—Mr. Ent. Easton, Ryde.
An early call is most respectfully solicited.

ORNAMENTAL GLASS, Wedgwood Vases,
China and Earthenware.—APSEY PELLATT, only surviving partner of the firm of Pellatt and Green, many years since removed from St. Paul's churchyard to the Falcon Glass Works, Holland-street, Blackfriars, which is the only establishment in London where every operation connected with glass manufacture (as blowing, cutting, engraving, stoppering, &c.) may be seen in full operation every Tuesday, Wednesday, and Thursday. For a description, with engravings, see Penny Magazine, No. 572. The extensive show-rooms contain a large assortment of decanters, wine glasses, tasset services, toilet and smelling bottles, medicine bottles, conical glass ware, crystal renascence chandeliers, massive, highly refractive, and decorated with large arabesque ornamental devices, easily cleaned; also granitoides, candlesticks, &c. The china and earthenware consist of breakfast, tea, and chamber services, from the best manufacturers; together with an extensive selection of Etruscan, Italian, and other vases, modelled and executed by the most able artists in the Cimento, Wedgwood's works, at Etruria, including his celebrated chalcidre copy of the largest Etruscan vase in the British Museum, the Portland vase, &c. Printed lists, with sketches, may be had on application.

SMITH'S PATENT DOUBLE AND SINGLE ACTION DOOR-SPRINGS are warranted to be the cheapest and best in the world.
Patent weather-tight Fastenings and Cill bars for French casements, which render the French windows perfectly dry, and make a secure, cheap, and invisible fastening. Improved cramp for laying floors.
Manufacture for Iron and Brass work of every description. Depot for the Patent Wire, Rope, and Sash Line, 69, Princess-street, Leicester-square.

London.—Printed by Messrs. J. L. Cox & Sons, 75, Great Queen-street, Lincoln's-Inn-Fields; and published by FRANCIS NEWTON, at the Office, 2, York-street, Covent-garden, where all Letters and Communications for the Editor are to be addressed.

The following presents a list, taken from the census of 1831, of the building and connected classes in Great

SATURDAY, February 18, 1843.

The various speculations and expressions of opinion to which our movements have given rise would, if accurately noted, supply the most interesting exposition of what we have to contend with on the one hand, and what we have to encourage us on the other. We should gather from it the most convincing testimony of the necessity of some such effort as that which we are now making to remove the general ignorance on all points connected with Building, whether as regards the science or its professors and practitioners. Grave and experienced men are to be found who hold up their hands in astonishment at the rashness, as they consider it, of our enterprise—men who argue upon general principles against the success of our plan. They say the Builders are not a reading class, nor a class at all, either in themselves or their connection, to support a periodical like the one we propose to give. The publishers in particular, and they, in their experience on all points connected with publication, are certainly entitled to be considered oracles—the publishers generally have but a mean opinion, or say they can form no opinion at all of the probabilities of success. They confess themselves astonished at the numbers of the Building Class; but they mistrust the conclusions to which we have come upon the data which these numbers supply. So little have publishers had to do with the Building Class, and so little the Builders with the publishers, that they might have lived on the opposite sides of the same globe as regards the acquaintance each has with the other for any practical interchange of their mutual special interests; but we propose to bring them into more intimate union, and to make the publisher at least confess that he knew not one half the territory over which his appointment was designed to extend.

But there are parties connected with the arts who might have been supposed to have lived in something like a consciousness of the immense, as it is intimate, alliance that subsists between them and the Builders as members, it may be said, of one common fraternity; and these are as ignorant of the more important facts as it is possible to suppose men to be. An eminent sculptor addressed us the other day in a strain of this character: "The Builders," said he, "are too small a body to support a class paper; look around you," he continued, "and you find them dotted here and there only, and not like the Shoemakers, or the Publicans, or the Butchers, meeting you at every turn." It should be stated that he had not seen our Precursor Number. We asked him if he was aware of the fact that the Carpenters alone outnumbered the Shoemakers, and that the whole body of Builders are as five to one of that very numerous class: that in round numbers we had 130,000 Carpenters, 60,000 Masons, 40,000 Bricklayers, 30,000 Painters, Plumbers, and Glaziers, and so on. And that these were an intelligent, a reading, a thinking, and provident class, and well to do in the world. At this he expressed his surprise, but yet in such terms as to shew us that there was a leaven of incredulity mixed with it. Again we referred to them as an advertising class, on which he seemed amazed, but more so when we pointed out to him seventy-one advertisements in the Precursor, and expressed our belief that shortly it would amount to five times that number. On this head, indeed, it would be easy for us to give convincing proof, were we so disposed, and we know not but we may, for the curiosity of the matter, some day do it; we could print the largest part of a paper in thickly-set adver-

tisements pertaining to building, and all selected from the London and provincial papers of one week: sales and falls of timber, of brick earth, and minerals; of building land and general building materials; businesses to be disposed of, contracts to let, situations wanted, and the like; indeed, there is no such class, no class so much in need of, and so well able to support their own weekly paper. Other parties we have met with, and reports have been brought to our ears, from men moving in the very ranks of the workmen themselves, who express a most disparaging opinion, not of our objects, or our exertions, but of their fellow-workmen; they say, in as many words, that "we are throwing pearls before swine." The plan is good, they admit; but they urge that the mass of the workmen are too fond of amusements, and so given to low and sensual indulgences, as to deny the hope that they will, to any extent of numbers, seek to benefit by it. These people, we are afraid, measure their class by themselves. Others again urge, that the reading appetite is vitiated and depraved, and that unless we pander to the passions of the multitude "by strong and exciting and vulgar matter" (we use their own words), we may look in vain for subscribers. Against all these we have to contend, and we are utterly opposed to them in opinion on all such grounds as the foregoing; but in one point we agree,—we certainly have an uphill affair. The ground we have chosen is unoccupied and untrodden. We have a great task in reversing the usage of centuries. We must, therefore, call upon the workmen themselves to aid us in fighting their own battle,—not a battle against interests or individuals, but against ignorance and exclusion. And we reiterate our call on the friends of the working classes, for whose satisfaction, and the satisfaction of all who care to know it, we now make our profession of purpose as regards the end and object of our labours.

We do not want to inflame the mind of the workman with discontent; we do not want to unsettle or disturb the relations of society; we do not wish to raise any man above his proper condition. On the contrary, we would promote and teach contentment; we would settle and consolidate; we would give every man his own proper level. We consider that it is too much the tendency of the agitation of these times to effect the opposite of all this. The best words are perverted from their true meaning or misunderstood; a false principle pervades and regulates our intentions, and the world runs counter to its own wishes, by reason of its neglect of simple truths, which he who runs may read.

As regards that much abused word education, and as to our purpose to educate the workman, a right understanding will suffice to disarm it of its terrors in the minds of many who have seen in its perversion or abuse that which they have ascribed to education itself. What is an educated man? Here we fancy we hear ten thousand voices exclaim, What a question! And yet we challenge the whole of that ten thousand to give the true answer, if they reply in the generally accepted meaning of the term. Education is too frequently confounded with book-learning, and that is considered to be knowledge which is only the key to it. Take your educated man, as he is called, and put him into the workshop, or the sphere of operation in that art on which he descends so learnedly, and he must give way (at first at least) to the unlettered, or, as he is termed, the uneducated artificer and labourer. A mind

well stored with the facts that bear upon any particular art, may be likened to a well-furnished chest of tools; but it requires a practised hand to apply those tools with skill and to a useful purpose—all the rest is mere theory; and of this sort of theory we have a great deal too much now-a-days.

Aye! we will take the rude, unlettered Carpenter of the most obscure country workshop, and match him as an educated man against the most learned pundit of our universities. We do not mean to say that the Carpenter is a better man for his rudeness, or because he may read or write badly, or not at all; but we take this as an illustration of the meaning we attach to the word education in its practical sense, and we will now say a word as to its bearing on the course we have chalked out for ourselves.

It is true that the relations of society and its workings in these times appear very mysterious, confused, and complicated; but what does it arise from? Does any man imagine it to be more difficult to regulate domestic or civic government now, than it was in the simplest state of pastoral life? Not a whit the more, provided the education of the heart, the bringing out of its virtuous tendencies be properly studied and promoted. Teach the workman his duties in the several relations in which he is placed, as much as you aim at making him skillful in the handling of his tools, or the fashioning of his materials, and you have educated him for the whole end of his existence; but he wants few or none of the theories of matters that are above him.

It is to settle then, to calm or quell the agitation of purpose which now disturbs the public mind, to do our part in this, as we conceive, great work of national repair, to bring into harmony the now contending powers and forces, and to assist in our humble way to direct them to one end and object, of peaceful and profitable action that our exertions will be directed.

And how do we propose to do this? how do we aim to be useful in this work of charity,—for surely charity it must be called which shall effect the ends of peace? Why, by bearing in mind and acting upon the old proverb, "Charity begins at home." We begin with our class—we begin at home.

Oh! there are conquests more bright, achievements higher, glory greater, to be reaped in this sphere than in all the turmoil of politics, or the dread strife of war! Let us warn our countrymen, but particularly that great body of which we have the honour of being a member,—the building class,—from the fretting and exciting consideration of subjects which only tend to unbinge the mind and distract it from acquiring that solid profit which a skillful exercise of his craft procures for every intelligent workman, let the quiet habits of a steady industry be enforced upon ourselves; let our curious and admiring thoughts be bent, so far as business goes, upon the investigation of the principles in science, and the properties in nature which affect the things we construct, and the materials of which they are constructed; let the workshop and the building have our working hours, and our homes and families the rest, even to a participation in our studies, for these in most instances may be made the interest, and now and then the delight of every family circle.

Is it nothing, good countrymen and esteemed fellow-craftsmen, that we have to boast honours and achievements such as neither military daring, or statesmanlike craft or wisdom has ever attained, or can attain to. What are

all the doings of the science of war or government compared with the building up, on clear and well-defined principles, abstract as well as tangible, those stupendous and imperishable memorials of a country's history which the works of the Architect and the Building Artificer supply. After the lapse of ages of obscurity, we recover, by means of the indelible tracings of the hand of the long departed, a knowledge of the habits, character, and condition of the countries in which they lived and worked. How much of the tale of British history of the fourteenth century, and of following centuries, have to be recorded by the architect and builder of these days? and by those whom their present conduct will influence? How important then it is that there should be none of the trifling in our department, and that we should be alive to the importance of the functions we are called upon to exercise.

The humblest workman of the building class is charged with the duties of the same mission. It will be our part to show them how this duty was discharged in times gone by, and to engage them in the consideration of such subjects, and in the labour of acquiring a similar mastery in their craft with those whose works we call upon them to join us in investigating.

It is thus that we propose to educate—the standard of mechanical and moral excellence must be raised at the same time, and good citizens, as well as able artisans and artists, be trained under one system and together.

OUR CORRESPONDENCE.

It is a pleasing part of our duty to acknowledge the flattering testimonials we have received in favour of our work. Certain of our approving friends have taken the trouble to write, but many more have called at the office, and expressed the warmest interest in the success of *THE BUILDER*, with a determination to do all in their power to insure it. The Royal Institute of British Architects have, by a special resolution, directed their Honorary Secretary (Mr. Bailey) to acknowledge the reception of our first number, and the Society of Arts have placed it in their library, and thanked us for the presentation. These matters are noted as shewing that a work of this class is recognized by important public bodies as deserving of their especial regard; and we feel assured that as we advance we shall find not only an admission but a welcome to every public and private library in which the literature of art obtains a place.

We have letters of encomium from architects as well as from builders and working men; and as it is for the latter that we are most anxious, feeling assured that when matters are right at the base of the social structure, the ornaments are firmly fixed and supported, so we feel the greater pride in perceiving the interest which the workman takes in our labours. It is the architect, however, and the experienced and liberal master builder, the clerk of works, and foreman, who can assist us to the enlightening of the body of the craft; and we have one grateful specimen of this species of co-operation, from a learned and eminent architect, an extract from which we cannot forbear committing to print.

"I should like to know whether *THE BUILDER* will assume the character of *London's Magazine*, or whether you intend it entirely for the working classes—if for the latter, shall you endeavour to bring before them the principles of what they are called upon to labour at, or shall you endeavour to give them a taste for those acquirements which at present are supposed to be possessed by those who direct them? I do not fear any ill from raising the mental condition of the artisan, but see in it much good, at the same time, feel the difficulty of elevating the social condition of so large a mass of the community, and am desirous that when the attempt is made, it should be followed by success.

"To inform the working classes how their labour was performed in ancient days, would be instructive and amusing, and would lead to a better style of workmanship. I will instance the carpenter's

employment—describe the tools, the style of setting out and executing roofs of the middle ages, where neither iron-work nor nails of any kind were employed. The scarfing, the manner of uniting the timbers, &c. &c., are all at variance with modern practice. Then the beautiful manner in which the whole is put together and balanced would be a study calculated to raise him in his own estimation, and satisfy him that he belonged to a superior class of artificers. Emulation would encourage him to do as well or better, to carry the same excellence into minor employments, or, at all events, to understand sufficient to derive pleasure from the examination of many of the specimens left us. A vast deal might be written upon the mere handicraft—much more upon the principles—more still upon the art; and when the design is taken up, the field is too spacious to put bounds to."

The foregoing so well expresses many of our views that we can hardly encumber it by a comment. We have in another place given our own opinions on the question of "raising the mental condition of the artisan," and we have also in the same paper attempted to sketch out by what means and for what end we propose to raise it. We shall, therefore, proceed to the letter of another architect, which, as it regards the "getting up," as it is termed, of the paper, has a practical value in that sense, and will enable us to explain a point or two in reference to it, that may give satisfaction to many.

"SIR,

"As you have invited opinions of your precursor number of *THE BUILDER*, I take the liberty, as an architect, to express my gratification at the publication of so useful and desirable a periodical, and have very little doubt, if continued as promised in the address, of its becoming a work of great circulation, and one which will effect much benefit to the numerous classes connected with the building art, more particularly to the workman, providing you publish it at a price within his means, for at present, it is much to be regretted, this great class of persons are wholly denied the advantages derived by perusal of works on this science, owing to the high price at which they are from necessity published. I would therefore suggest you give this the fullest consideration, as I feel sixpence will be too high to give *THE BUILDER* the circulation you desire. Another point requiring attention will be as to the advertisements, both as to quantity and description. If general advertisements are received, it will not so well admit of the title you give to the paper, which should exclude many such as are in the *Precursor*; and I fear, without much less space is devoted, or that the number of advertisements is compressed by smaller type, you will experience a disappointment in the success of your undertaking. I again beg you will accept the thanks and best wishes of an

"ARCHITECT."

Now as to price, we think the best answer we can give is the present number. We have been advised to steer clear of too low a price at the commencement, because of the admitted difficulty of alteration in such cases, when found necessary to raise it. We hope no such necessity will arise in this; and that the largeness of the subscription-list and of the number of purchasers will fully compensate us for any sacrifice we may make in the outset. With regard to advertisements, it was our wish to confine the list to such as bore directly on building, but to be stringent in this respect would be to deprive the paper of a large power of usefulness. Builders want almost every thing, and are consumers to an immense amount of all sorts of commodities; wherefore, then, should we refuse our columns to advertisements that inform the workman and the master alike of the ready means of supplying their general daily wants? But we make this promise, that the space given to advertisements shall not defraud the inquiring reader of his full share of information and of matter of trade interest; nor shall our friends the advertisers be treated with less consideration for this resolve—the more they bestow their favours upon us, the more shall we study to cater for their advantage, and for every page they add to our sheet we shall in some way or other give a page to the reader, so that the mutual workings of both parties shall be for the mutual good.

We give the next letter, though of some length, entire. It, like the first from which we made an extract, embodies so much of our views and plans, that we would give Mr. Harvey the full credit of his own clear perceptions, by letting it be seen how well he understands the subject upon which he writes, as will be exemplified in the carrying out.

"SIR,

"The general invitation conveyed through the 'precursor number' has induced me to offer a few remarks in reference to *THE BUILDER*.

"The discovery of the disease is half the cure," so in this instance, the primary point to ascertain is, what class stands most in need of the kind of publication contemplated in *THE BUILDER*. When the vast number directly and indirectly connected with building and mechanical pursuits is considered, there is certainly much cause for encouragement in such a project: at all events, it may be fairly concluded that there is a good site; and if the foundation be well studied, there is but little fear of erecting a durable structure.

"I have no doubt that *THE BUILDER* may be rendered worthy the patronage of all the numerous grades named in the list given in the 'precursor number,' but bearing in mind 'the old man and his ass,' I am of opinion, that out of these several grades, some particular class should be specially borne in view, and that upon the selection of this class mainly depends the success of *THE BUILDER*.

"Upon a review of such literary works extant as may be deemed the property of that body to whom *THE BUILDER* is addressed, I think it will be found that no class of men are so ill provided for as journeyman mechanics generally, and this is the class that I would recommend to your preference in the conduct of *THE BUILDER*; to this class *THE BUILDER* ought to be considered invaluable in the dissemination of practical knowledge,—extracts from works made inaccessible by their cost,—experiments,—hints on construction,—design,—enrichment, and similar topics; which at the same time would be very acceptable to the more enlightened portion of the building community, and produce inquiry and improvement in the minds of the less experienced and youthful.

"With this view but little will be expected or required of *THE BUILDER* in the character of a newspaper. Further than the limited notice of occurrences appertaining to its title, I would suggest the insertion of the *markets*, or current prices of building materials, &c. &c., and in particular, that an allotted space be given up to the subjects just referred to, to the exclusion of advertisements or any other matter. Probably once a fortnight might suffice for such a work; this point, however, with its price, I will not now enter upon, having already, I fear, trespassed too long on your attention.

"Be assured of my interest in the success of *THE BUILDER*; to the aid of which my humble tribute will be given with much pleasure.

"I am, Sir, your obedient servant,

"SIDNEY HARVEY."

The next letter is from a plasterer, and we make it the occasion of reiterating our intention to give designs of ornaments for plasterers. There is a field of novelty and propriety open to them which we venture to say has scarcely yet been touched upon. Hitherto architectural ornament in plaster-work has been principally confined to imitations of marble, or stone-work and wood. Now this is a perversion and a deception, and a better principle will inevitably obtain, since just and sound views of the principles of design and ornament are beginning to be inculcated. So beautifully plastic a material has its own peculiar province in decoration, and we shall take occasion, as we advance, to throw out practical suggestions for ascertaining and working in it.

"SIR,

"It is with much satisfaction I have read the precursor of *THE BUILDER*, which I think will be well received by all persons in that line of business, for nothing can possibly be so much wanted for the trade in general as a publication of the sort you are about to send into the world. I have been a practical plasterer these thirty years, and have often expressed a wish that a useful intelligent paper might be published. I shall be most happy to become a subscriber. I am fearful there will be thousands read the *Precursor*, like myself, that will be proud to subscribe, but will not take the trouble to express themselves by letter, and then you may fancy it will not be taken up with spirit, though I am convinced, by the many persons, indeed all, that I have conversed with, that it is their intention to become purchasers the moment it is fairly out. Wishing you success,

"I am Sir, your obedient servant,

"B. J. MASKALL."

We will insert two more of what we may term the professional, and conclude with a complimentary note, lately received, from a gentleman whom we have not the pleasure of knowing, and extracts from the first that came to hand, as proofs, along with a great number of others, of a deep interest being taken in *THE BUILDER*, as we predicted would be the case, by the amateur.

"Sir,
"You invite a reply from your readers of the 'Builder's Magazine.'

To make a newspaper answer, it must be numerously circulated. I should advise to make it a weekly paper, to suit every mechanic or person engaged in the trade. I should recommend that it be like the *Illustrated London News*, to contain sketches of works in progress, new buildings, amounts of contracts, and other news relating to building. Also, to make it general (for nearly every workman takes a weekly paper), it must contain the heads of the news for the week. This would answer, without doubt, and I should like my name as a weekly subscriber.—Yours, &c.

"J. NESHAM."

"Sir,
"I approve much the plan of your proposed publication, and cheerfully offer myself a subscriber in whichever form it may appear; but would prefer it as a weekly magazine and advertiser, in which character I hope soon to see it, and wishing it all possible success,

"I am, Sir, yours respectfully,
"THOMAS ALLEN."

"Sir,
"I have only just had time to look into your valuable and most interesting work, *THE BUILDER*, which I took up by accident this morning. I am so convinced of its excellence, that I should feel greatly obliged if you would allow me to become a subscriber of the unstamped number, from the first, and supply me regularly with it, if you are in the habit of sending it to this neighbourhood.

I am, Sir, &c.
"J. R. W."

"Sir,
"Last Saturday evening I bought the precursor number of *THE BUILDER*, and was so pleased with the contents, that I called again at your office to say that I meant to take it in myself, and that I had shewn it to a bookseller, who told me that he also would order it at once for his shop. At that time I had only taken a very cursory glance at the number, but on further inspection, I feel convinced that it must have a very great sale, and I am sure I heartily wish you every success. My answer to your question, as to whether a magazine or simple newspaper would be the better form of publication is this,—that though many would prefer it as a magazine only, yet many more would rather see the news of the week blended in its columns. I am no artist, I am no mechanic, but I am a very great admirer of architecture, particularly of country houses and rustic cottages, churches, gardens, &c.

"I wish your new work was called 'The Builder and Landscape Gardener.' Views of parks and garden grounds, &c., ornamented with their castles, halls, cottages, &c., both of this and other countries, are at all times highly instructive and interesting.

"To the greatest talent is united in your work that kindly feeling towards those who have to labour for their daily food that will carry you on triumphantly. That your undertaking may meet with a deserved and most abundant reward, is the sincere hope of yours, &c.,

"M. B."

The suggestion contained in the last extract, as to the title, is one upon which we are glad to make a few remarks, because the same suggestion has been embodied in the observations of other friends, in different ways.

We have confined ourselves to the simple term "Builder," as best descriptive of all classes and crafts concerned in the art of building itself, and the arts with which it is intimately allied. Were we to attempt to give a title that should specifically explain the branches of art and science to be treated in this work, we should occupy half a page. Not only setting up houses or edifices, but, as we have said before, preparing the materials—aye, even to the very question of the planting and the culture of the oak and the pine, on which the future carpenter is to exercise his ingenuity. As to the brick-field, the quarry, the limekiln, the mine, the forest—consider what enters into the composition and completion of a building, what machines and implements are employed in working and preparing the materials, and its erection—what in the furnishing and fittings—what in the garden and other appurtenances. Consider all these, and you have engineering and machinery, cabinet-work and upholstery, and finally landscape art, included. And as to building science, or architecture, consider also its extensive range: the cottage, the middle-rate dwelling-house, the mansion, the villa, the palace—there is the labourer's house

of the country, and the labourer's and workman's house of the town; the farmer's dwelling in the one, and the tradesman's in the other—the farm-yard buildings and the corresponding workshop, warehouse, and factory—the country "box" and the citizen's suburban retreat—the mansion of the country squire and that of the wealthy town merchant—the parsonage, the church—the humble village church!—the street of the pretty country village, the formal lines and gay shops of the crowded city—the traveller's way-side inn, the town hotel—the petty sessions house, the county courts, prisons, workhouses, almshouses, asylums, barracks—the halls of our cities, the concert-rooms, the theatres, the great market-houses, the exchange for our merchants, the parliament-houses, the palace, the cathedral!

Our subterranean structures, in drains and tunnels; our pavements and highways; our bridges, aqueducts, and viaducts; our railroads, our lighthouses, harbours, docks, ports, defences. Consider these, and we have not half exhausted the list—we dare not longer particularise—consider these, and the numerous crafts and callings engaged in them, and it will be at once seen that we should only weaken the force and destroy the comprehensiveness of our title, *THE BUILDER*, by any attempt to make it more comprehensive.

The following excellent letter has come to hand since the foregoing summary was penned:—

"Sir,
"The delight with which any one connected with the erection of an edifice seizes a book or paper, bearing the title (*THE BUILDER*) heading your new publication, can be duly appreciated by those who have carefully studied the 'Practical Builder,' as published by Mr. Peter Nicholson, in the enlarged edition of 1822.

"In the perusal of which the idea of a work similar to the one shewn forth in the precursor number of *THE BUILDER*, has very often engaged my most serious attention, leaving no doubt on my mind of the very favourable reception the work would have from all parties engaged in the Building department.

"Begin and continue on the broad principle of practical utility, making most prominent, works already executed, or in the course of erection, with a copious description, as also, plans, elevations, sections, and details of the most prominent features of the building or structure, illustrated, and the work, from its great utility, will take a place amongst the magazines of the present day, second only to the great magazine of the north."

"A large and beautiful field lies open before you, and by bringing before the public some of the noble metropolitan structures, the beautiful street architecture, and suburban villas, you will create a love for reading and study amongst a most important class, that will force *THE BUILDER* on, till it has attained the 'Corinthian order' as a magazine, and the companion of every artisan."

"A magazine has always occurred to me as the best mode to bring the architecture of this country into its best form before the public, always acknowledging the name of the professional gentlemen employed in the erection illustrated; so much so, that I have often been tempted to suggest the idea to some of the London publishers, as there the erections are as a source inexhaustible."

"Though *THE BUILDER* may be an instrument of much good, if correctness of plans and details are guaranteed, its fall will be as certain, if it should be a medium of 'book-making,' so oftentimes thrown before the public."

"It will likewise add to the value of *THE BUILDER*, by continuing the portraits of men so eminent in architectural skill as the noble-minded William of Wykeham, already illustrated in the Precursor number."

"I would respectfully suggest the propriety of detaching the advertisements from *THE BUILDER*, so far as to allow a separate binding of the work."

"Reviews of architectural works are also highly commendable in *THE BUILDER*, as they increase in quantity of late years; and a guidance to purchasers therefore is valuable."

"With best wishes for the prosperity of the undertaking, in a continual increasing circulation, I must beg the forwarding to your correspondent here, such of the numbers as have been issued."

"I remain, most respectfully,
"JOSEPH J. ROZBUCK, Joiner."
"Manchester-Road, Huddersfield, Feb. 13, 1843."

"Sir,
"Judging from a perusal of *THE BUILDER* that it is your intention to give to the building world the first information upon all matters connected with

its interests, I beg therefore to apprise you that at this moment, a bill is preparing very secretly (at least the ground-work for one) for Parliament, upon which it is presumed, as secretly will be obtained, a New Building Act.

"Whatever objections there may be (and I readily admit there are many) to our present Building Act, yet I do not think it requires altogether to be superseded."

"From private information I learn, that the majority of clauses in the intended new bill, are exceedingly arbitrary, and calculated only to oppress the Builders without the least additional benefit to the public, and indeed, I am of opinion that if adopted, it will prove a source of great inconvenience and expense to all parties in any way connected with building. I should, therefore, recommend a Meeting of speculative Builders immediately, to take into consideration the best means to oppose the bill in Parliament."

"I shall be most happy to give my best assistance in this matter, as also to forward the views of the proprietor of *THE BUILDER*."

I am, Sir, your obedient servant,
"JOHN REID, Surveyor."
"90, Canterbury-buildings, Lambeth,
"February 14th, 1843."

The foregoing letter came to hand as we were going to press. We have only time to assure our correspondent that we will pay immediate attention to the subject it refers to, and we invite further information from all those who may be in the way of procuring it. At the same time we would urge a calm and steady purpose in the pursuit of this or any similar object of our vigilance.

Legislation on matters affecting building interests, above all things, should be deliberate and not capricious. Much mischief may be done by over anxious meddlings, indeed, we may say in this respect with Shakspeare in Hamlet,

"Better bear the ills we have than fly to others that we know not of,"
or run the risk of so doing.

ON METAL WORKS.

(From Pugin's principles of Pointed Architecture.)

We now come to the consideration of works in metal; and I shall be able to shew that the same principles of suiting the design to the material and decorating construction, were strictly adhered to by the artists of the middle ages, in all their productions in metal, whether precious or common.

In the first place, hinges, locks, bolts, nails, &c., which are always concealed in modern designs, were rendered in Pointed Architecture, rich and beautiful decorations; and this, not only in the doors and fittings of buildings, but in cabinet and small articles of furniture. The early hinges covered the whole face of the door with varied and flowing scroll-work. Of this description are those of Notre Dame at Paris St. Elizabeth's church at Marburg, the western doors of Litchfield cathedral, the Chapter House at York, and hundreds of other churches, both in England and on the Continent.

Hinges of this kind are not only beautiful in design, but they are practically good. We all know that on the principle of a lever, a door may be easily torn off its modern hinges, by a strain applied at its outward edge. This could not be the case with the ancient hinges, which extended the whole width of the door, and were bolted through in various places. In barn doors and gates these hinges are still used, although devoid of any elegance of form; but they have been most religiously banished from all public edifices as unsightly, merely on account of our present race of artists not exercising the same ingenuity as those of ancient times, in rendering the useful a vehicle for the beautiful. The same remarks will apply to locks which are now concealed, and let into the styles of doors, which are often more than half cut away to receive them.

A lock was a subject on which the ancient smiths delighted to exercise the utmost resources of their art. The locks of chests were generally of a most elaborate and beautiful description. A splendid example of an old lock still remains at Beddington Manor House, Surrey, and is engraved in my father's work of examples. In churches we not unfrequently find locks with sacred subjects chased upon them, with the most ingenious mechanical contrivances to conceal the keyhole. Keys were also highly ornamented with appropriate decorations referring to the locks to

which they belonged; and even the wards turned into beautiful devices and initial letters. Railings were not *costs of meagre stone tracery*, but elegant combinations of metal bars, adjusted with a due regard to strength and resistance.

There were many fine specimens of this style of railing round tombs, and Westminster Abbey was rich in such examples, but they were actually pulled down and sold for old iron by the order of the then dean, and even the exquisite scroll-work belonging to the tomb of Queen Eleanor was not respected. The iron screen of King Edward the Fourth's tomb, at St. George's Chapel, Windsor, is a splendid example of ancient iron-work. The fire-dogs or Andirons, as they were called, which supported either the fuel-logs where wood was burnt, or grates for coal, were frequently of splendid design. The ornaments were generally heraldic, and it was not unusual to work the finer parts in brass, for relief of colour and richness of effect. These form a striking contrast with the in-

consistencies of modern grates, which are not unfrequently made to represent diminutive fronts of castellated or ecclesiastical buildings with turrets, loopholes, windows, and doorways, all in the space of forty inches. The fender is a sort of embattled parapet, with a lodge-gate at each end; the end of the poker is a sharp pointed finial; and at the summit of the tongs is a saint. It is impossible to enumerate half the absurdities of modern metal-workers; but all these proceed from the false notion of *disguising* instead of *beautifying* articles of utility. How many objects of ordinary use are rendered monstrous and ridiculous because the artist, instead of seeking the *most convenient form* and *then decorating it*, has embodied some extravagancies to conceal the *real purpose for which the article was made*! If a clock is required it is not unusual to cast a Roman warrior in a flying chariot, round one of the wheels of which, on close inspection, the hours may be descried; or the whole of a cathedral church reduced to a few inches in height, with the clock-face occupying the posi-

tion of a magnificent rose window. Surely the inventor of this patent clock-case could never have reflected that according to the scale on which the edifice was reduced, his clock would be about 200 feet in circumference, and that such a monster of a dial would crush the proportions of any building that could be raised. But this is nothing when compared to what we see continually produced from those inexhaustible mines of bad taste, Birmingham and Sheffield; staircase turrets for inkstands, monumental crosses for light shades, gable ends hung on handles for door porters, and four doorways and a cluster of pillars to support a French lamp; while a pair of pinnacles supporting an arch is called a *quatrefoils* and fan tracery an *abbey garden seat*. Neither relative scale, form, purpose, nor unity of style, is ever considered by those who design these abominations; if they only introduce a *quatrefoil* or an acute arch, be the outline and style of the article ever so modern and debased, it is at once denominated and sold as Gothic.

SUSPENSION ROOF.

TO THE EDITOR OF THE BUILDER.

SIR—I have introduced the suspension principle in two or three instances with great success, where nothing else could have answered the purpose; and as it was through you that the first impression was made upon my mind of its practicability for building purposes, I at once send you a rude sketch of the last one I have used. It is to carry a roof, lead-flat, and ceiling; it is in connection with the old mansion, an enlargement of the cooking kitchen, taking out the whole of the end wall, 16 feet wide, and making or adding to the same a large bow, which is covered with lead. I have marked the different parts as follows:

A. Suspension-rods secured to walls, $\frac{1}{2}$ inch round, iron, flat in the walls.

- B. Screw bolts, 1 inch round, iron.
- C. Nuts at bottom of bolts, and brace.
- D. Brace, $\frac{1}{2}$ inch round, iron.
- E. Head to brace.
- F. Iron plate under wood plate, 3 inches by $\frac{1}{2}$ inch, flat.
- G. Wood plate, 3 inches thick.
- H. Lead-flat.
- I. Joists to ditto.
- J. Ceiling-joists.
- K. Principal beam of roof.

I must give you to understand the bow, lead-flats, &c., were done before I came here, and supported in a manner that gave offence to every one; you will now perceive there is a straight ceiling and no obstruction to light or any thing else.

The suspension-rods are fixed to the bolts as the link of a chain, the brace screws them

tight together, and the bottom nuts screw up and camber the plate, which renders the whole complete and very strong. I had it put together and fixed in about two hours, so that you will perceive it can be applied in any situation without doing any damage, by merely boring the holes and making good the joint round the bolts on either a floor, roof, or flat.

I have applied others in different places, and have made them as circumstances required, to carry scores of tons weight. They have given the greatest satisfaction possible to all concerned.

I am happy to inform you that our architect and the master-builder will both be subscribers to your valuable work. I think from this neighbourhood you will have a dozen names.

Yours most obediently, T. P. HOPE,
Clerk of Works, Richmond.



THE ENTHUSIAST.

We beg to introduce the Enthusiast to our readers, for such the world is pleased now and then to call him; his real character, however, shall be judged of by the reflecting and considerate; the name may stick to him as a matter of small account, for a wiser man than ourselves has said "there's nothing in a name."

When we speak of the reflecting and considerate, it is not to be implied that all persons do not at times and in their way reflect and consider; but it is hard to do so while we are involved in the business of ordinary life; like players at cards, we are absorbed in the calculations that affect them, and in the consideration of the "hand" we hold. We find even the most skilful, straining to recollect himself of the past progress, and speculating on the future chances of the game—so it is with the mass of human beings. Could we look but on as cool spectators of the games, and shifts, and moves of general life, we should pity, smile, expostulate, reprove, where now at best we give a vacant look, an unmeaning sigh, rage and burn, as in turns we feel the instinct of weakness or passion, and are driven to act under their impulses—but we are drawing the portrait of the multitude, and losing sight of the Enthusiast.

How shall we catch his likeness and how present it to our readers? It must be drawn with many lines and a patient hand. We are not limners, or choose not to be, who

cut out profiles in black, with a pair of scissors; nor can we daguerotype him at a glance. No! The Enthusiast must be the subject of many sittings, though we may give a complete feature or sketch at each of his aspect for the day; and in doing so, we promise ourselves what we hope will be largely shared in by our readers, a fair amount of interest and gratification.

Enthusiast has some eccentricities, or to speak more plainly, has his oddities. Tell him so however, tell him as a friend, and he is enthusiastic to rid himself of his oddities. He has friends who now and then tell him so; he has enemies who also take the same liberty; but it is ten to one, if you examine it, that both friends and enemies, in specifying some particular oddity, confront and contradict each other, and leave the poor Enthusiast not wiser, but more perplexed, between them. Indeed, so much do they themselves blunder, and so much of guess-work is there in their opinions, that to give things their right names, judging from effects, we should call the friend an enemy, and the enemy a friend. The only conclusion we can come to is by canvassing the motives of each, to decide that the well-meaning and evil-doing are ranged on the one side, and the evil-meaning and well-doing on the other. So odd are many things and many persons besides Enthusiast; but we are again sketching from the crowd, and Enthusiast sits impatient, or rather his friends are impatient, which with them is much the same thing.

Enthusiast is an architect! Upon my word,

some one will exclaim, what is coming to us now-a-days?—architects and architecture are obtruded upon us at every turn; and a certain lady of a certain age (which means, as everybody knows, no very large portion of a century) indignantly expostulates against this attempt to engross the public mind and attention with these "new fanglements" of a profession and an art which her father and grandfather's days could very well do without. "Formerly," she says (which means about the ancient period of her youth), "we hardly heard the mention of such things. Architects, indeed! formerly the word even was scarcely so much as known among us. I recollect," says she, "having my attention forced upon it somewhere in my school readings, in some out of the way chapter or exercise, which poor Mrs. Cross-stitch imposed upon me at the 'finishing' of my education. I recollect reading something about architecture, and how I mispronounced the word, and how Miss Letterhead, our class mistress, told me to pronounce the ch like k; and how she gave us a spelling task with that and several other hard words to learn at home in the evening, and how my poor father, when he heard me my task at my bed-time, had a dispute with our neighbour, Percy Fullpurse, as to which was the greater personage, the archdeacon or the architect; for they both insisted that Miss Letterhead was wrong in her pronunciation, as Percy had it; and how Percy, who was a great authority with us, for we thought riches and wisdom went very much together, decided that

the archdeacon and the architect had nothing to do with each other, but that the architect was something he could not exactly tell what or how, but he believed had something to do with the quarter of the Archipelago, with which also he had nothing to do. All this I recollect, and certainly, though I may now smile at the ignorance of my poor father and neighbour Percy, yet I am not bound to hold with all that we are hearing and having dimmed into our ears every day. Almost every third person I meet with has some friend or friend's friend who is an architect, or is acquainted with an architect—and I meet with them at parties; and there is Cousin Symmetry has placed his son by his first wife as pupil to an architect; but what call can there be, or what to do for so many architects? Architects, like Proctors, should keep their places, and some two or three of them inhabit a cathedral town, to take care of those fine old buildings and the churches, for the churchwardens, they say, do not look to those things properly; but, Lord bless us, do not let us be bored with architecture at every turn. Let them have a book-seller specially to themselves, if they will—and now I think of it, I recollect something of an old established shop in that way somewhere in Holborn; but here I see Messrs. Longman are publishing works on architecture, and Mr. Tilt pushing them before one's noses, and Bell & Wood, and others, as the advertisements tell us. Nay, to crown all! there is that very Boz, in his new work, *Martin Chuzzlewit*, beginning with an architect, which, by the way, proves what I have always said, that he is wearing out his subjects—and mind what I say again, it will break down! He should take popular characters and popular subjects; but an architect! Why, not one in a thousand knows or cares any thing about architects. Trash! and now just do look at this—a weekly paper, called *THE BUILDER*! and another character to be drawn out—an Enthusiast, who is also an architect! Well, upon my word, that is good! We have heard of castles in the air; I suppose we are going to have a builder of them, and that this Enthusiast is to be the architect. Well, that is as it should be—the clouds for the architects, and the architects for the clouds."

But when shall we sit down to our business?—Miss Fatima Five-and-forty has had the turn of our pencil, and Enthusiast still awaits its return.

Enthusiast is an architect; that is, he is so for this limning; for Enthusiast enters into most things, and is the life and soul of them. We cannot go into his parentage, to show how he is allied to, or of the family of, the Geniuses; but really it is a difficult task this sketching that we have undertaken, and reminds us of one of George Cruikshank's humours, under the head of "Ugly Customers;" not that we are so much out of love with our subject as with the task we have undertaken.

Do excuse us, good readers, for a while longer, and we will tell you a story about this same Enthusiast. It is a trick of some of our contemporary painters, to beguile the sitter by a conversation on some topic which throws him from the restraint of posture-making; perhaps if we try it, Enthusiast may be caught in a more favourable attitude, and we may close the day with some success for our hitherto failing and disappointed pencil.

Enthusiast was one day engaged in a discussion with a lady friend, and had, in the usual warmth of his manner, been descending on the beauties and proprieties of Church Architecture in connection with the proposed erection of a suitable structure of this class in a wealthy manufacturing town. "It should be a cathedral," said he, "at least in dimension, in aspect, in decorations and appointments." He had dwelt on the peculiar features it should possess, on the facilities that could be commanded, on the energies that ought to be exerted, and so on, when he was cut short in his rhapsody by the cruel observation of the lady,—and a common one it is,—"There is no money for such things now-a-days."

Casting his eyes around, as if in a reverie of thought, he scanned the character of the various luxuries of the well-appointed drawing-room in which they sat. Glancing from the broad mirror boldly superposed on the massive carved chimney-piece of Carrara marble, which in its turn enclosed the highly-polished steel and burnishings of a costly Sheffield grate and its furniture,

to the rich silk hangings of the windows—their gilded cornices and single sheets of plate-glass—thence to the chairs of rosewood and ivory inlaid, the seats of silken suit—the companion couch and ottoman of most ample dress—the curious and costly cabinet, the screens, the gold-mounted harp, the "grand piano."—Pacing once the length of the room on the gay velvet of the carpet, he turned again and rested his view on the table, choicely decked with books, most expensive in all the appliances of paper, type, illustration, and binding—having done all this, with breath suppressed and stiflings of emotion, which fain had broken out with a scornful repetition of the lady's words, "there is no money for such things now-a-days," he quietly disengaged himself of his passion, and by an apparently easy transition ran on thus:

"I have been calling to mind some of my early readings, and most prominent just now is the recollection of the observations of Hope when treating the subject of Egyptian Architecture and commenting on the vastness of the Pyramids; he enters into a speculation as to the means by which the people of that country under the Pharaohs were enabled to find the leisure, or the time necessary for the construction of such stupendous works, and he ventures to ascribe it to the natural fertility of the soil caused by the annual over-flowsings of the Nile, thus demanding less from the Egyptians of the labour and care of agriculture; and hence the drift of their exertions in the direction of architecture. True, the bounty of nature would go a long way in supplying to the cravings of art the leisure and opportunity for gratification. True, those pyramids are evidence of the direction of great means and great powers to an end which astounds more than it edifies us, but what were the bounties of Egypt's irrigating water, what the greatness of their pyramids compared with that bounty which Providence has given us in the mineral and the out-growing mechanical characteristics of this favoured country, and the pyramids which we erect as if in emulation of Egyptian vanity and intility?" "Pyramids!" interrupted the lady, "Ah, it is always so with you, to propound to us first some extravagant project, and when driven from your ground by a common sense and practical answer, to take shelter in some ambiguity or paradox. Pyramids, Sir,—what is your meaning?" "Here," said the Enthusiast, "here madam, are stones from some of the English pyramids, of which your Scotts, and Byrons, and Bulwers, and Marryatts have been the architects. Compare the labours, and the end of the labours of these ingenious minds with those of the architects of the Egyptian pyramids, and tell me then the difference in amount. See the glories and untiring industry of him of Abbotsoford, devoted to an incessant wearing out of the energies of his mind in designing pyramids of fiction—look on the anti-lake bustle and activity of the thousands whom he brought into requisition to be engaged in the building—look at the millions of devotees who have prostrated and continue to prostrate themselves at these great entombments of his genius.—The paper-makers—the printers—the artists employed in illustrating—the binders—the booksellers—the advertising—the correspondence—the carrying—volumes, pyramids of volumes to advertise alone—an endless train of carriages and lines of road for the conveyance—the Builders and makers employed on all these—and on the establishments of printers, booksellers, &c.—and then the excited million of expectants, the absorbed and half-entranced readers—the hours, days, weeks, months, and years of reading—the impatience of interruption till the whole delusion is swallowed—the readings again and again—the contagion from the elders to the younger—children even bewildered with the passion to peep into, to pore over, and last, to read as rote-books these little better than idle fables—bootless in their aim and object, and pointless in all but their rival obtuseness of the mountain-mocking pyramids. The fertility, the leisure, and the vanities of Egypt!—oh, madam, their country was sterility—their leisure, incessant bustle compared with what we enjoy; and their vain direction of labour and thought not to be named after this enumeration of vanities. Pyramids!—where they had one we have ten. Where ages were required by the

Egyptians, we in as many years outvie them, and yet your answer to my aspirations is, "We have no money for such things as these!"

Reader, we have beguiled ourselves and you, and not the Enthusiast, into a sitting; and one feature is sketched of his likeness and his character.

STREET SWEEPING MACHINE.

We give the following notice in connexion with the subject of Wood Pavements, believing, as we do, that the efficiency of that mode of paving greatly depends upon its being kept clean; an object which this invention will materially facilitate.

Patent Self-Loading Cart, or Street-Sweeping Machine.

The Self-loading Cart has been lately brought into operation in the town of Manchester, where it has excited a considerable degree of public attention. It is the invention of Mr. Whitworth, of the firm of Messrs. Joseph Whitworth & Co., engineers, by whom it has been patented, and is now in process of manufacture. The principle of the invention consists in employing the rotatory motion of locomotive wheels, moved by horse or other power, to raise the loose soil from the surface of the ground, and deposit it in a vehicle attached.

It will be evident that the self-loading principle is applicable to a variety of purposes. Its most important application, however, is to the cleaning of streets and roads. The apparatus for this purpose consists of a series of brooms suspended from a light frame of wrought iron, hung behind a common cart, the body of which is placed as near the ground as possible, for the greater facility of loading. As the cart-wheels revolve, the brooms successively sweep the surface of the ground, and carry the soil up an inclined plane, at the top of which it falls into the body of the cart.

The apparatus is extremely simple in construction, and will have no tendency to get out of order, nor will it be liable to material injury from accident. The draught is not severe on the horse. Throughout the process of filling, a larger amount of force is not required than would be necessary to draw the full cart an equal distance.

The success of the operation is no less remarkable than its novelty. Proceeding at a moderate speed through the public streets, the cart leaves behind it a well-swept track, which forms a striking contrast with the adjacent ground. Though of the full size of a common cart, it has repeatedly filled itself in the space of six minutes from the principal thoroughfares of the town before mentioned.

The state of the streets in our large towns, and particularly in the metropolis, it must be admitted, is far from satisfactory. It is productive of serious hindrance to traffic, and a vast amount of public inconvenience. The evil does not arise from the want of a liberal expenditure on the part of the local authorities. In the township of Manchester, the annual outlay for scavenging is upwards of 5,000*l*. This amount is expended in the township alone. In the remaining districts of the town, the expense is considerable. Other towns are burdened in an equal or still greater proportion. Yet, notwithstanding the amount of outlay, the effective work done is barely one-sixth part of what would be necessary to keep the public streets in proper order. In the district before referred to, they were a short time ago distributed into the following classes, according to the frequency of cleaning them:—Class A, once a week; B, once a fortnight; C, once a month. It may be safely asserted, that all these streets should be swept, at least, six times oftener. The main thoroughfares, as well as the back streets and confined courts, crowded with the poorer part of the population, absolutely require cleaning out daily. But the expense already incurred effectually prevents a more frequent repetition of the process. The expensiveness of the present system, in fact, renders it altogether inefficient; nor is there any chance of material improvement in this important department of public police, unaccompanied by a corresponding reduction in the rate of expenditure.

According to the *Kunstblatt*, a German painter, Edward Hansen, of Basle, has been commissioned to prepare cartoons for the oil paintings intended to decorate the church at Oscott, which Mr. Pugin is about to build at the Earl of Shrewsbury's expense. One of the designs, "the Last Judgment," is spoken of as exceedingly beautiful. On the same authority, we learn that Thorwaldsen has sustained a loss by the wreck of a ship, bound from Leghorn to Hamburg. On board were several of his works, most of which were saved, but were completely spoiled by the sea-water; from which we infer that they were plaster casts.



Westminster Hall Roof.

Gothic Architecture.

CHAPTER I.

We now beg to draw attention to what we consider will be found the most important feature in this number, inasmuch as it is the commencement of the task with which we have charged ourselves to enter upon the investigation and elucidation of the character and principles of Gothic Architecture.

We use this unhappy term, Gothic, for no other reason than that as we address ourselves mainly to the workmen, and as the style of architecture so designated (originally in opprobrium) has now and for long obtained the appellation in a popular sense, we feel unwilling to depart from it until a thoroughly correct epithet shall have been devised and accepted amongst us; that we are justified in this decision, or rather indecision, we think may be shewn by the various opinions of parties who may be said to rank as the authorities on such points. Mr. Pugin is anxious that it should be called "Pointed, or Christian Architecture." Mr. Whewell and others have lately been pleading for a title which the prevalence of vertical lines and principles of construction, as in contradistinction to the horizontal character of Greek architecture, appear to them to justify; others again have contended for the term "English Architecture." Now, without committing ourselves to an opinion of our own, we think there is sufficient ground for hesitating as to the adoption of this or that novelty, notwithstanding our strong objection to the inapt and absurd term "Gothic."

Our task will be formidable, as to the length of time it will occupy, the pains-taking it will require, the expense it will entail upon us, and, above all, the system with which it must be conducted. But what good thing is to be accomplished without some one or more of all these? We only hope to be cheered on by the approving smiles and the patient co-operation of those for whom we undertake it.

And how do we commence this task, so as to give promise that a system may be observed, without which the best efforts in other respects are likely to fail? It will not do to enter upon it at random, or without due preparation, both on our own part and that of our readers. We shall, therefore, proceed to state our object in selecting the illustration we have done as the heading of this paper.

Let the carpenters look to it, and let them look on it with pride—nay, let them look on it as we have done, with reverence. Let them remember that this was the work of great spirits of their department. It is a masterpiece, and we have chosen it on this account, as we shall continue, for some weeks to come, to make choice of similar master-pieces, in the masons' department. Oh! we have such glorious examples at our hands. And then, again, as to ornamental brickwork, and brass and latten work, and that gorgeous coloured glazing, and such mastery in the carvers and sculptors' art; these we choose, to fire the breasts of our readers. We would excite them by such glowing description of the land of promise into which we propose to lead them, that the future steps, however irksome or laborious, may be trodden with a light and glad some foot. For the present, then, and as we have said, for weeks to come, we shall select the instances of varied excellence in roofs, vaults, arching, in traceried windows, doorways, screens, in elaborate specimens of "bench carpentry," such as stalls, pulpits, railings, tabernacle and screen work, in monumental brasses and other memorials of sepulture, in moulded and enriched brickwork; the encaustic and coloured pavements, the staining in glass, and generally all such matter in the province of the artificer as may be regarded with the admiring eye of the discerning practitioner.

Borrowing a similitude from what we are otherwise bound to deprecate, we would speak of these as the trophies of our predecessors in campaigns of glory, bidding every good soldier in this day of later, though of similar service, to burn with ardour until he may have successfully emulated the doings of his ancestors.

Yes, every carpenter should feel proud of a calling which enrols him in the ranks of a craft whose arms are emblazoned and charged with insignia such as these; but we promise the same evidences of distinction to every department of the building fraternity.

This Westminster-Hall roof, spanning over an area of 74 feet wide and 270 feet in length, rearing its ridge to the height of 90 feet, exhibits in its application a proof of the progress of working upon a principle which is, in the present day, somewhat too much derided. Originally that Hall was otherwise covered in; doubtless, in the same manner as the halls at

Norwich and York; that is, with a roof supported by pillars; but the decay, or perhaps destruction by fire, of the original roof, gave scope to the genius of advanced science, which, disdaining to merely restore, applied this noble emendation,—with such happy effect, however, as not only to reconcile us to a departure from the original model, but to lead us to applaud the "innovator."

The illustration we have given has been made pictorial rather than simply geometrical; because, as we have already observed, our object now is not to enter into a critical examination, which would with such a subject be beginning at the wrong end, but to give a comprehensive glimpse of that end to which we must by another process patiently steer. This plan will enable us, too, to give much more effect to our future instruction, inasmuch as it will enable a greater number of readers to become our companions in the paths of study and research. After we have occupied what appears on all hands to be a sufficient number of our series in illustrations of this class, we shall commence with the simple rudiments of Gothic art, citing first from the most ancient specimens the various features of the edifices of the period, and accompanying it by a glossary of terms and such matter of description as will give the series the character of a workman's hand-book or manual.

Take, for instance, the subject of Roofs as now brought before us. We have in this draught or picture, a kind of summing up of that which it will be our duty to go through in detail, as to style, construction, and workmanship. In Masonry, though the end may be one of those embodied marvels of the imagination, the almost overwrought canopy of a stone ceiling or roof; and which end, as in the case of this week's carpentry, we may present to view; yet the beginning of our studies will be some rude effort of a Saxon chisel, and their continuation, to trace through the various eras the change and progress, until we arrive, skilled as masters, to analyze and fully understand the intricacies of science and art involved in these objects of our setting out.

By this we hope to give a thoroughly practical character and value to our pages, and that this will be in nowise diminished, if we shew ourselves now and then susceptible of emotions of almost ecstatic delight, while we contemplate those almost superhuman efforts of the skill of the mid-æval architects and workmen.

In concluding the present chapter, we beg to state that we have copied the drawing at its head from the beautiful work known as *Britton and Brailley's Westminster*.

Reviews.

First Additional Supplement to the Encyclopedia of Cottage, Farm, and Villa Architecture and Furniture. By J. C. Loudon, F.L.S., &c. London: Longman and Co.

It was said by the *Times*, of the Encyclopedia to which this is a supplement, that "no single work had ever effected so much in improving the arrangement and the external appearance of country dwellings, generally," and nothing that was ever said by that influential journal had in it greater truth. We scruple not to go out of our way to subscribe in full to this opinion. And we say more, that no man living has ever laboured more assiduously, generously, and usefully, to effect every practical improvement in the building art, than our good and worthy friend Mr. Loudon.

And why should we scruple or be ashamed to confess the strength of our partialities for one of whom we entertain such an opinion? It may be said,—but no! we will not do any man the injustice to suppose that he will say anything in disparagement of our motives, and certainly none will be so ungrateful as to undervalue the honest disinterestedness of our friend. See him, read his works, and if any one after that retires with a feeling of less reverential respect than our own, we will give him license to bate us for a partiality of an over-measured and unfair amount.

What if he has put at our service in the Precursor Number and in this review the choice of those pleasing illustrations that adorn his works? We point to these as additional proofs of his title to the respect and esteem of our readers. He was influenced, we know full

well, by that same generous purpose which has sustained him through life, which has made him to triumph over physical difficulties and to stand now a living, and to be a memorable instance of the supremacy of mental over material power. He will pardon us, if in the honest excess of our gratitude on personal grounds, but much more in our humble capacity as of the "craft" for whom he has so well laboured—a gratitude which took possession of our minds through the reading of his works long before we knew him—he will pardon us, if, unrestrained by a sense of the little pain we may cause him on the one hand, we thus tender to him that which we are assured, will on the other be acceptable—our honest and undisguised, but feeble expression of grateful esteem.

As we profess to teach not so much by criticisms, which after all can have but little weight, or at any rate little more than

the opinion of an individual, and when delivered with an air of authority that the test of inquiry would dissipate, only make criticism ridiculous, and confirms error; as we teach not so much by criticisms as by joining in the commendations of generally acknowledged good; and as every one who has travelled on the North Midland Railway has acknowledged, that the station-buildings on that line have more of the picturesque and attractive than any thing of the kind on our other railways, we have a pleasure in transferring from Mr. Loudon's Supplement the accompanying elevation of "a cottage in the style of the Ambergate Railway Station," by Mr. Francis Thompson, who was also the architect of that station, and it will readily be admitted that there is a meritoriousness which entitles this design to the regard which that gentleman's other works have obtained.



The next selection which we make is a design, by Mr. E. B. Lamb, of "the Keeper's Lodge at Bluberhouses," which, it appears,

was built, with some slight variations, for Sir F. R. Russell, Bart., on his estate of Thirleby Park, Thirsk, Yorkshire.



In Mr. Loudon's text there are some judicious remarks on the elevations; the construction is also described, and plans likewise given, as indeed with all the designs, both of this supplement and its parent or precursor vo-

lume. The supplement alone contains nearly 300 engravings.

The next design is also by Mr. Lamb, and is one out of a number of "small villas in the Gothic style," originally intended to be built



near Gravesend. We have not space to transfer Mr. Loudon's critique, and are precluded by the rule we have laid down from any observations of our own.

In a future number it is our intention to return to this subject, and, in connexion with the

question of the improvement of labourers' and workmen's dwelling houses, several plans for which are now before us, we shall have the assistance of Mr. Loudon's matured lucubrations, as given in the Encyclopædia and the Supplement.

Architectural College.

AN Architectural College was founded in London, on Advent Eve, 1842, for the cultivation of the various branches of the art, under the denomination of the "Free-Masons of the Church, for the Recovery, Maintenance, and Furtherance of the True Principles and Practice of Architecture."

It appears that the objects contemplated in the foundation of this Institution are the re-discovery of the ancient principles of architecture; the sanction of good principles of building, and the condemnation of bad ones; the exercise of scientific and experienced judgment in the choice and use of the most proper materials; the infusion, maintenance, and advancement of science throughout architecture; and, eventually, by developing the powers of the College upon a just and beneficial footing, to reform the whole practice of architecture, to raise it from its present vituperated condition, and to bring around it the same unquestioned honour which is at present enjoyed by almost every other profession.

It is proposed, by having numerous professors, contributors, and co-labourers, to acquire a great body of practical information; and that, whenever any knowledge of value shall be obtained by the College, the same shall be immediately communicated to each of its members, without waiting for the production of a whole volume, and before the subject-matter shall have lost any of its professional interest.

By the appointment of a "Professor of Architectural Dynamics," the gravitation of materials will be taught to the student in practical architecture; thence in all designs the present mystery, in which the quantity of materials merely absolutely requisite to cause a building to hold firmly together, may be ended; architectural designs may in future be made on certain principles of stability, and therefore on principles of natural and philosophical taste; and through the economy of discharging from buildings all lumber, as is the case with all living members of the creation, the architect will be enabled to restore to his work, frequently without extra expense, the carving and other exquisite beauties for which ancient architecture has in every age been celebrated.

By the appointment of a "Professor of Architectural Jurisprudence," it is judged that the practical profession of architecture will be rendered more sure, through the acquirement of fixed and certain rules relative to contracts, rights of property, dilapidations, and other legal matters.

By having a "Professor of Architectural Chemistry," it is confidently expected that a more certain method will be assured to the practitioner in the choice of proper and durable materials.

By the appointment of the various other professors and officers, it is judged that the very best information will be obtained upon all material matters connected with the science and the practice of architecture, and that a degree of perfection will be thus induced, and will thus mix itself with the practice and execution of the art in a manner which is not now very often the case.

As a first labour of the College, it is proposed that the present unsatisfactory division and nomenclature of pointed architecture shall be remedied, and that all the publications of the society upon that subject shall be issued according to such classification and nomenclature. Not indeed that the perfecting of so desirable a project can be expected at once; but such a nomenclature can be laid down as shall immediately distinguish the different members of the art, which are as numerous as those of heraldry; and these can be superseded by more primitive or more simple and energetic terms, as they shall be recovered from ancient contracts and other documents, or shall be invented by more judicious and mature consideration. But, to prevent doubt or future mistake, it is proposed that a cut of each intended object shall be executed, and that a reference shall be made to where exemplars of it are to be found, and also to its chronology.

Further, it is proposed to render this College still more useful, by joining with it a charitable foundation, for the behoof of those and their families over whom it shall please Providence, after a life devoted to the service and practice of architecture and its dependant arts, that need shall fall.

This Institution, the scope of which is most extensive, is silently, but rapidly forming, and has already connected with it many of the chief men of the literature and science of architecture: few of those whose names will be found amid the subjoined list have not distinguished themselves by the authorship of some eminent architectural work, and many of them are well known in the sciences and arts connected with architecture. A power, an order, and a propriety previously unknown in the profession since the fall of pointed architecture in the sixteenth century, are being worked out, by having every man at his post, and with ability to fill that post well.

Twelve meetings of the College are appointed to take place in every year, and four have already been held.

The following elections have taken place:—

Admit-Ere, 1842.

1. Edward Cressy, Esq., F.S.A. Architect of Trafalgar-square, as Professor of Painted Architecture.
2. Thomas Parker, Jun., Esq., of Lincoln's-Inn, as Professor of Architectural Jurisprudence.
3. Valentine Bartholomew, Esq., F.R.B.S., Flower-Painter in Ordinary to the Queen, of 23, Charlotte-street, Portland-place, as Professor of Fruit and Flower Painting.
4. George Atchison, Esq., Architect, A.I.C.E., Surveyor to the St. Katharine's Dock Company, and to the Honourable the Commissioners of Sewers for the Precinct of St. Katharine, as Professor of Concreting and Opus Incertum.
5. W. R. Billings, Esq., of Manor House, Kentish Town, as Itinerant Delineator.
6. William Bartholomew, Esq., of Gray's Inn, Vestry Clerk of St. John, Clerkenwell, as Honorary Secretary.
7. W. P. Griffith, Esq., F.S.A., Architect, St. John's-square, as Baptistographer, or Delineator of Fonts and Baptisteries.
8. Frederick Thatcher, Esq., A.R.I.B.A., Architect, of Furnival's Inn, as Recorder, or Clerk of Proceedings.
9. William Fink, Esq., of Howland-street, as Professor of Historical Painting.
10. C. H. Smith, Esq., of Clippstone-street, as Architectural Sculptor.
11. Thomas Deighton, Esq., of Eaton-place, Belgrave-square, Architectural Modeller to her Majesty and Prince Albert, as Modeller of Buildings.
12. W. G. Rogers, Esq., of Great Newport-street, as Gibbons Carver.
13. J. G. Jackson, Esq., Architect, of Lenington Priors, as Correspondent Delineator for the County of Warwick.
14. T. L. Walker, Esq., F.R.I.B.A., Architect, of Nunenton, Warwick, as Correspondent Delineator for the County of Warwick.
15. John Mallett, Esq., of Newgate-street, as Professor of Masonry.
16. Alfred Bartholomew, Esq., F.S.A., Architect, of Warwick House, Gray's Inn, as Honorary Secretary.
17. Josiah Houle, Esq., Architect, of Turnham-green, as Custos.
18. Joseph Springbett, Esq., of Islington, Architect, as Cataloguer of Proceedings.
19. James De-la-Rue Sowerby, Esq., F.L.S., F.R.B.S., Secretary of the Royal Botanical Society, Regent's-park, as Professor of Botany.
20. Thomas Moule, Esq., St. James's Palace, as Honorary Architectural Biographer.
21. Walter Chamberlaine, Esq., Worcester, as Maker of Encaustic Tile Pavements.
22. H. P. Bone, Esq., of 12, Percy-street, Enamel Painter to her Majesty, as Enamel Painter.
23. Also, Miss F. Bessemer, of Pentonville, Embroidress to the Queen, as Embroidress.

The Honorary Fellowship was conferred upon the following gentlemen:—

- Sir F. Palgrave, Kat., F.R.S., and F.S.A., of the Rolls-house, Chancery-lane.
 The Rev. R. Willis, M.A., F.R.S., Jacksonian Professor, Cambridge.
 The Rev. William Whewell, B.D., V.P.R.S., Master of Trinity College, Cambridge.
 Thomas Willement, Esq., F.S.A., of Green-street, Grosvenor-square.
 James Savage, Esq., F.S.A., Architect, of Essex-street, Strand.
 Messrs. Nichols, F.F.S.A. of the Gentleman's Magazine, Parliament-street.
 Owen Jones, Esq., Architect, of John-street, Adelphi.
 C. Barry, Esq., R.A., Architect, London.
 J. H. Good, Esq., F.R.I.B.A., Architect, Kensington Palace, Surveyor to her Majesty's Commissioners for Building Churches, to the Incorporated Society for Building Churches, to the Incorporated at Brighton, and to Kensington Palace.
 Samuel Ware, Esq., F.S.A., Portland-place and Henden Hall.
 R. Abraham, Esq., F.S.A., of Keppel-street, Architect to the Herald's College, &c.; in a request that he will take the honorary office of Mensurator.
 James Ingram, D.D., President of Trinity College, Oxford.
 The Secretaries of the Society of Antiquaries, of the Oxford Gothic Society, of the Church Commis-

sioners, and of the Society for Building, &c. Churches.

Each of the Church Commissioners.
 Each Bishop, Dean, Archdeacon, and Rural Dean, and each Master of the Colleges of Oxford and Cambridge.

Each of the Kings-at-Arms.

Elections, Second Chapter, Dec. 13, 1842.

Augustus Abraham Winterbottom, Esq., Architect, Walham-green, Fulham, as Fellow and Auditor.

Honorary Fellows.

Rev. Hugh Hughes, B.D., Rector of the Knights Hospitallers' Ancient Priory Church of St. John of Jerusalem, at Clerkenwell, to be one of the Chaplains to the College.

Rev. Daniel Moore, B.A., of Malda Hill, to be also one of the Chaplains to the College.

Rev. George Newsham Wright, M.A., of Hatton-garden, Editor of the Colonial Magazine.

C. Irving, Esq., L.L.D., F.A.S., Editor of the Polytechnic Journal.

W. H. Black, Esq., Improper Rector of Little Maplestead, Essex, and Assistant Keeper of the Public Records at the Rolls' House, Chancery-lane.

Elections, Third Chapter, Jan. 10, 1843.

Thomas Hudson Turner, Esq., of 6, Symond's Inn, as Professor of Heraldry.

Mr. E. Cressy, Jun., of 3, Trafalgar Square, as one of the Collectors and Designers of Monumental Brasces.

John William Griffith, Esq., of St. John's Square, Architect, Fellow and Auditor.

James Collic, Esq., of Glasgow, Architect, Honorary Fellow, and also Correspondent Delineator for Scotland.

Samuel Ware, Esq., of Portland Place and Hendon Hall, as Contributing Fellow.

James Wilson, Esq., F.S.A., Architect, of 6, Alfred Place, Bath, as Fellow and Correspondent Delineator for the County of Somerset.

Henry Ashton, Esq., Architect, of 50, Lower Brooke Street, Grosvenor Square, as Honorary Fellow.

George Porter, Esq., Architect, of Port Place, Bernersley, District Surveyor of the Parish of Newington, and of North Lambeth, as Fellow and Auditor.

William Conrad Lochner, Esq., F.I.B.A., Architect, of Albion Hall, London, Surveyor to the Royal Exchange Assurance Company, as Fellow and Auditor.

David Sands, Esq., Architect, Walham Green, Fulham, as Fellow.

Mr. J. W. Archer, of Clarendon Street, New Road, Monumental Brassier.

William Bland, Esq., of Hartlip, near Sittingborne, Kent, as Honorary Fellow.

George Pearce Pocock, Esq., of Norfolk Street, Strand, Solicitor, as Lay Fellow and Auditor.

Alfred Fowler, Esq., of Datchet, as Lay Fellow.

Rev. Frederick Pearce Pocock, B.A., of St. Peter's College, Cambridge, as Honorary Fellow, and also one of the Chaplains.

William Wallen, Esq., F.S.A., of 41, West Parade, Huddersfield, as Fellow and Correspondent Delineator for the County of York.

At the Fourth Chapter, held Feb. 14th.

A beautiful illuminated Election Diploma was ordered to be adopted; and the following elections were made:—

Rev. Geo. Pocock, Vicar of Hallaham, Honorary Fellow and Chaplain.

W. P. Griffith, Esq., St. John's Square, London, Contributing Fellow.

J. J. Wood, Esq., Civil Engineer, New Palace Road, Lambeth, Fellow.

C. L. Graves, Esq., Fulham, Lay Fellow.

T. Dodd, Esq., Curator to the Bodleian Library, Oxford, Lay Fellow.

W. F. Harrison, Esq., Rochester, Lay Fellow.

R. Cull, Esq., of Tavistock Street, Bedford Square, Lay Fellow, and Professor of Architectural Acoustics.

Mr. W. H. Rogers, of Great Newport Street, Illuminator.

We recommend architects, architectural students, and patrons of architecture to join this institution, the advantages of which promise to be great, and the costs small.

PUBLIC FOOTPATHS, &c.

The following letter is so generally applicable to the subject of the management of the roads and footways in the environs of large towns, that we insert it as much on that account as for the particular drift which recommends it to the attention of our metropolitan readers:—

To the Editor of The Morning Herald.

"Sir,—The readiness with which you insert notices of public grievances, and the effect which these notices always have in drawing attention to them, induces me to state to you a serious inconvenience to which the inhabitants of Bayswater are subject, in the hope that it may through your pages attract the attention of the Metropolitan Road Commission.

"It is simply this that the footpath of a considerable portion of the Bayswater-road, between the end of Oxford-street and the door into Kensington-gardens, is during wet weather, and especially after frost, in a worse state than any other footpath, as far as I know, in the neighbourhood of London; in fact, though in the immediate suburbs of the metropolis, it has, with its wide and deep open ditch, and rough hedge bank, all the characteristics of a footpath in a remote rural district. It requires only to be inspected, to produce conviction that it ought no longer to remain in its present disgraceful state. On the other side of the road, approaching the door into Kensington-gardens, there is another open ditch, which serves as a common sewer to the houses in its neighbourhood; and the fetid exhalations from this ditch in the warm weather, and the filthy appearance of the water in it at all times, are disgraceful to the public authorities; more especially in these days, when so much attention is being paid to public drainage, and other sanitary measures.

"The parish authorities have been repeatedly applied to, but their answer is, that it is the business of the Road Commissioners to attend to these footpaths and ditches.

"As to the footpaths, they ought to be paved, or laid with asphalt; but if it be too expensive to pave the whole width of the footpath, a strip of two feet wide, along the middle, would be a great accommodation to females and aged persons, and to workmen going to and returning from their work in the mornings and evenings. Some years ago you published a letter of mine, in which I endeavoured to point out the advantages that would result from paving a narrow strip along the middle of the footpaths, or two separate strips along such as were much frequented, on all the footpaths round London for several miles distant. Besides the obvious accommodation to females and infirm persons which this strip of pavement or asphalt would afford, it would enable mechanics going to their work to walk nearly as fast again as they do now, and consequently they might have their dwellings farther out in the country, where they would pay lower rents, and sleep in better air. Strips of Yorkshire pavement two feet wide might be laid down at 1s. 3d. per foot in length, or cheaper if the contract were made for laying down several miles of it.

"As for the ditches on the Bayswater-road, they require only an 18-inch barrel-drain, and filling up to the level of the path.

"If I might further trespass on your pages, I would direct public attention to the manner in which the trees and shrubs along footpaths are cut and mangled by the parochial road-surveyors in the suburbs of London. On the south side of roads lying in the direction of east and west, it may be advantageous to cut off all those branches which overhang the footpath, the better to admit the sun and wind to act on its surface; but surely the Act of Parliament which directs the lopping of trees overhanging roads, need not be so rigidly enforced in the case of streets running in the direction from north to south, along the whole surface of which the sun shines a portion of every day throughout the year when he appears; whereas on the south sides of east and west streets, during a portion of every day in the year, he does not shine at all. The street from which I date this letter consists of detached houses, each surrounded by a garden, the low trees and large shrubs in which slightly overhang the footpath, or rather, I should say, break and vary the line of the front palisades, and render the street one of the most picturesque in the immediate neighbourhood of town; but of late a new parochial road-surveyor acting, no doubt with the best intentions, according to the letter of the law, has given notice to all the occupants to cut off the overhanging branches, which having been done by the greater number of occupants, even to the cutting off of the projecting tufts of ivy, has produced a formal line of amputation which disfigures the street, without doing any good whatever. In the case of a north and south street, it is surely sufficient to cut off all branches that would impede a tall person carrying an umbrella, or which reach as far as the curb-stone, and might be in the way of the cart or carriage taking up or setting down. I understand that in such a case as this there is no appeal, except to the magistrates, who of course can only point to the law.

"I hope this last subject may be considered as coming within the province of the Metropolitan Commission for Improvements lately formed, and if so, I hope they will consider this letter as an appeal to them.

"It never can be the intention of the Legislature to disfigure any public road or street when doing so is attended with no public good whatever.

"Apologizing for the length of this letter, and hoping you will be able to spare room for it,

"I remain, Sir, your obedient servant,

"J. C. LONDON.

"No. 3, Porchester-terrace, Bayswater,

"February 14th, 1843."

COTTAGE WINDOWS.

Extracted from the Supplement to London's Cyclopædia of Architecture.

"Windows having been generally among the worst constructed parts of Scotch cottages, the Highland Society offered a premium for the best cottage window, which was awarded to Messrs. McCulloch and Co. to 2218. This form, of the dimensions shown in the figure, viz., three feet three inches by two feet, without the wooden frame, costs, in cast iron, only 5s., and the glass for such a window may be purchased at 2½d. per square. This kind of window admits of being formed of any size, and is equally adapted for workshops, farm buildings where glass windows are required, and cottages.

The dimensions that have been recommended for the windows of ordinary cottages are, thirty-nine inches for the height, and twenty-four inches for the width, within the wooden frames. The size of glass required for these frames is seven and a quarter inches by five and a quarter inches. The sash is divided into two unequal parts, the lower part having three squares in height, and the upper part two. The lower part is permanently fixed, while the upper part is constructed to turn in the vertical direction on pivots, which are situate in the line of its middle astragal; and both parts are set in a substantial wooden frame, which may be either built in while the wall is erecting, or may be set in afterwards in the ordinary way, with or without checked rabbets (§ 911), according to the taste of the proprietor. The window, and its arrangements, will be better understood by reference to the annexed figures.

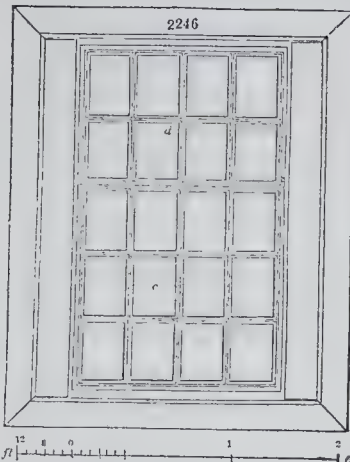
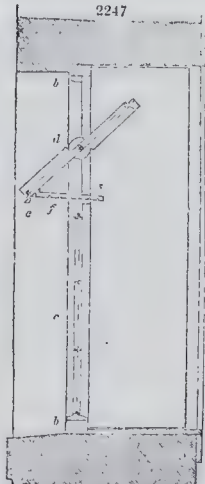
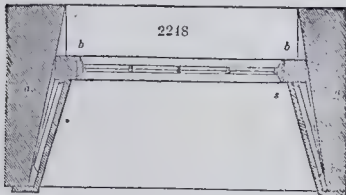


Fig. 2246, is an inside elevation, fig. 2248, a plan, and fig. 2247, a vertical section, in each of which a portion of the wall is exhibited, and the same letters refer to the corresponding parts in each figure; a is a portion of the surrounding wall; b, the wooden frame of the window; c, the lower sash, which is dormant; and d, the upper and moveable sash.

In fig. 2247, the upper sash is represented as open for ventilation; when shut, the parts of the opening-sash cover and overlap the fixed parts in such a manner as to exclude wind and water; but when ventilation is required, the arrangements of the parts which produce this is such as to enable the housekeeper to admit air to any extent. For this purpose the notched latch, e, is joined to a stud at the edge of the sash; a simple iron pin or stud is also fixed in the wooden frame at s, and the notches of the latch being made to fall upon this stud at any required distance, the requisite degree of opening is secured, and when the sash is again closed, the latch falls down parallel with, and close to, the sash. To secure the sashes when shut, the T bolt, f, of the middle of the meeting bars, has only to be turned one-fourth round, and the moveable sash is held fast in close contact with the other. The figures represent the window as finished up with single dressings, viz., plain deal shutters, facings, and sole, which, at a



small expense, would give an air of neatness and comfort to the apartment, and promote a corresponding taste in the other parts of the cottage. Though the dimensions of the window here stated may be conceived sufficient for lighting an apartment of ordinary size, they can nevertheless be varied to suit every purpose. This may be done either by employing two such windows as above described, with a million of wood or stone between them, or the single window may be enlarged by one or two squares in width, or in height, or in both directions." (*Highland Soc. Trans.* vol. xiii. p. 541.)

SUPPLY OF WATER TO NEW YORK.

(From the Scotsman of Nov. 12, 1842.)

THE New York papers of 15th October are filled with long accounts of the opening of a stupendous aqueduct of thirty-two miles, for conveying water to that city from the Croton River. The celebration of this event took place on Friday, the 14th, under the direction of the Common Council, and consisted of the largest procession of military companies and civic associations that ever took place in New York. It was between six and seven miles in length.

We omit the account which describes the time and order of the procession, the personages and bodies composing it, the forms and ceremonies gone through, the festivities, illuminations, and rejoicings, and proceed with that part of the account which is more directly to our purpose.

It appears that from 1829 up to the present time, New York was supplied with water from a tank or reservoir erected in Thirteenth-street, and filled first by means of horse and afterwards by steam power. The present work was commenced in 1835, after being approved of by the people by a vote of 17,530 affirmatives to 3,960 negatives. It consists of—

First, an artificial reservoir, called the Croton River Lake, 45 miles from the Battery—the extreme part of the city; this lake is formed by a hydraulic stone-masonry dam, with two waste weirs or aprons, for the over fall of the water, one of 87 feet and one of 150 feet, these being separated by a gate-house. The height of these waste weirs is 35 feet above the bed of the river, and 40 feet above the low water level.

The dam backs the water 5 miles, and makes a lake of an area of 400 acres, and of a capacity equal to 500 millions of gallons.

The water enters a gate-house, where the quantity is regulated, before it enters the aqueduct, which is a stone structure, lined and arched with brick.

The face of the interior of the aqueduct is at the bottom an inverted arch, width 6 ft. 9 in., height 8 feet 5½ inches, area 53½ square feet, about large enough for an omnibus and four to pass through. The line of the aqueduct being on a regular declivity of 13½ inches to the mile down to the Harlem River, a distance of 33 miles, it has a line of tunnels of 6841 feet, being sixteen in number, sometimes through earth and sometimes through solid rock; the deepest cut is 80 feet, and the least 25 feet. In Westchester only, the aqueduct crosses 25

streams of water, which are from 25 to 13 feet below the top of the aqueduct.

The grade line of aqueduct across the Harlem is 25 feet above tide water, and the top of the water now passes over Harlem river in one pipe of 36 inches, placed on the earthen dam made in the construction of the high bridge.

The bridge itself is now about one-third completed, and will be when finished one of the most stupendous works of the kind in the world. Its cost is estimated at one million of dollars, and its elevation is so great as not to impede the navigation of the stream. Some idea of this vast undertaking may be formed from the fact, that the excavation for one pier has been carried 34 feet below the surface of the water, and then a rock foundation not having been reached, 210 poles, from 30 to 40 feet long, were driven in for the purpose. Several piers having been already carried, by the aid of coffer-dams, from four to fifteen feet above high water mark.

The river is 620 feet wide at water line, but the slope of the river banks adds an additional distance of 830 feet, making in all 1,450 feet.

The plan now in progress crosses the river with eight arches of 80 feet span, and on piers of 31 by 14 feet at the base, resting on the bed of the river, and 7 arches on piers on the land from the edge of the water up the two banks of the river.

The spring of one of the arches is 95 feet above the lowest foundation put down; the top of the parapet will be 149 feet from the lowest foundation. It is intended that the water shall pass over this bridge in pipes, to have it secure against the possibility of danger.

The interesting works at Clendinning Valley, being a bridge over a valley of 1,900 feet in breadth, the greatest height of the aqueduct is 50 feet from the bottom of the valley; beautiful archways are constructed for three streets, 34 feet for the carriage-way, and 10 on each side for side-walks.

Next in interest is the reservoir at Eighty-sixth Street, which might well be called the detaining or clarifying reservoir. It has two divisions, together thirty-two acres—greatest depth of water twenty-five feet, containing one hundred and fifty millions of gallons. Two lines of thirty-six inch pipes connect this with the reservoir at Fortieth-street, which has also two divisions, forming together an area of four acres—depth of water when filled thirty-six feet. From this point four and a-half miles to the Battery. Whole length of line from the Battery to the artificial lake, fifty miles. There are in this great work 55,000,000 of bricks and 700,000 cubic yards of stone masonry.

The water in the aqueduct is regulated at the entrance gate, so as not to flow under any pressure—it has not been permitted to flow in the division near the city at a greater depth than two feet, but the works at the Croton dam required a few days back that more water should pass through the first division (the distance between Sing Sing and the Croton River), being eight miles, and it was found to pass seventy-five millions New York gallons in twenty-four hours, and that its velocity was over two miles per hour.

The Croton Lake now retains, beyond the daily river supply, in reserve, five hundred millions of gallons; and a small expense would add other immense artificial lakes to hold back an additional supply; but the necessity of this is hardly conceivable. It is estimated that the London supply, from all their companies, is but twenty-four millions of gallons, and Paris four millions only.

On the 8th of June last the superintendents went through the aqueduct (32 miles in length) on foot, and the whole being found complete, on the 22nd the water was admitted to the depth of eighteen inches. "The Croton Maid," a small boat prepared for the purpose, and holding four persons, was then placed in the aqueduct, and navigated its entire length by some of the same party. This novel voyage was made sometimes at the depth of 75 feet below and then again 80 feet above the natural surface of the earth, at the rate of a mile in forty minutes, the velocity of the current. When four feet deep, this will probably reach two miles per hour.

On the 27th, the water was admitted into the immense receiving reservoir, in the presence of a large assemblage, including the mayor, governor, military, firemen, &c. &c. A salute of thirty-eight guns was fired, and the Croton Maid, soon making her appearance, was hailed with great enthusiasm, as the evidence that a navigable stream was now flowing into the city. The boat was then formally presented to the Fire Department, and she now lies safely moored in the distributing reservoir. To this basin the stream was admitted on the 4th of July, amidst general and imposing demonstrations of public joy, the Temperance Societies taking a prominent part.

Since then, the water has continued to flow about two feet deep through the aqueduct, delivering into the receiving reservoir twelve millions of imperial gallons per day, and, as yet, only five or six millions

in the pipes; nor has any defect been found in any section of the work.

Over twelve millions of dollars is the estimated cost of the entire work when done. From ten to twelve dollars is the rate charged per annum to families for the use of the water; its own force carries the stream into the highest stories of the most elevated buildings.

"An eminent clergyman (says the *New York Commercial Advertiser*), who has recently travelled in Europe and Asia, pronounces the Croton aqueduct the greatest work of our age, and says he has seen nothing to compare with it in all his travels. Its conception and design are worthy to form an era in history, from the utility, vastness, and simplicity of the undertaking. For centuries to come, it will stand a noble monument of the enterprise, art, and science of the present generation. No population of 300,000 ever before executed such a plan—not undertaken to mark a field of battle—nor like the vast walls of China, Rome, or of modern Paris, in preparation for defence in war. On the contrary, the Croton aqueduct regards the health, temperance, and happiness of myriads of the present generation, and of ages to come. None without seeing it can form an idea of its magnitude and importance."

Literature.

Adventures of Martin Chuzzlewit. Edited by "Boz." London: Chapman and Hall.

ALTHOUGH it is a part of our plan to conduct this Journal, to give it that varied character which shall constitute it the universal medium of instruction, information, and amusement for the class to which it is addressed, and therefore it needs no apology from us for introducing to our pages extracts from the writings of popular authors, such as those of the inimitable Dickens, yet we are impelled by a two-fold consideration to select from that source in this particular instance. That vein of withering satire in which the author has heretofore indulged in drawing out the character of Squeers, the Yorkshire school-master, is now, it seems, to flow afresh, in the delineation of Mr. Pecksniff, a Wiltshire architect. The broad dash of caricature with which he invests the portrait, is a peculiarity of the author that has no harm in it, since it is directed against a vicious practice, which deserves the strongest reprobation, and of which, as well as of the character of Pecksniff generally, it may be expected that our readers in particular will take an anxious cognizance. The very circumstance of the introduction of this worthy and his simple-minded pupil Pinch into the novel of Martin Chuzzlewit (for novel we suppose we must call it), will make us, and thousands of our class his readers, and eager expectants of the monthly issue which is to develop the workings of the miserable genius of Master Pecksniff. With this preface, we proceed with our purpose of drawing attention to the strong lights and shadows of the picture which arrest the eye of the architectural observer.

THE PARTING OF MR. PECKSNIFF AND HIS PUPIL.

"Come, Mr. Pecksniff," he said with a smile, "don't let there be any ill-blood between us, pray. I am sorry we have ever differed, and extremely sorry I have ever given you offence. Bear me no ill-will at parting, sir."

"I bear," answered Mr. Pecksniff, mildly, "no ill-will to any man on earth."

"I told you he didn't," said Pinch in an undertone; "I knew he didn't! He always says he don't."

"Then you will shake hands, sir?" cried Westlock, advancing a step or two, and bespeaking Mr. Pinch's close attention by a glance.

"Umph!" said Mr. Pecksniff, in his most winning tone.

"You will shake hands, sir?"

"No, John," said Mr. Pecksniff, with a coldness quite ethereal; "no, I will not shake hands, John. I have forgiven you. I had already forgiven you, even before you ceased to reproach and taunt me. I have embraced you in the spirit, John, which is better than shaking hands."

"Pinch," said the youth, turning towards him, with a hearty disgust of his late master, "what did I tell you?"

Poor Pinch looked down uneasily at Mr. Pecksniff, whose eye was fixed upon him as it had been from the first: and looking up at the ceiling again, made no reply.

"As to your forgiveness, Mr. Pecksniff," said the youth, "I'll not have it upon such terms. I won't be forgiven."

"Won't you, John?" retorted Mr. Pecksniff with a smile. "You must. You can't help it. Forgiveness is a high quality; an exalted virtue; far above your

control or influence, John. I will forgive you. You cannot move me to remember any wrong you have ever done me, John."

"Wrong!" said the other, with all the heat and impetuosity of his age. "Here's a pretty fellow! Wrong! Wrong! I have done him! He'll not even remember the five hundred pounds he had with me under false pretences; or the seventy pounds a year for board and lodging that would have been dear at seventeen! Here's a master!"

"Money, John," said Mr. Pecksniff, "is the root of all evil. I grieve to see that it is already bearing evil fruit in you. But I will not remember its existence. I will not even remember the conduct of that misguided person"—and here, although he spoke like one at peace with all the world, he used an emphasis that plainly said "I have my eye upon the rascal now"—that misguided person who has brought you here to-night, seeking to disturb (it is a happiness to say in vain) the heart's repose and peace of one who would have shed his dearest blood to serve him."

The voice of Mr. Pecksniff trembled as he spoke, and sobs were heard from his daughters. Sounds floated on the air, moreover, as if two spirit voices had exclaimed: "one," "Beast!" the other, "Savage!"

"Forgiveness," said Mr. Pecksniff, "entire and pure forgiveness is not incompatible with a wounded heart; perchance when the heart is wounded, it becomes a greater virtue. With my breast still wrung and grieved to its inmost core by the ingratitude of that person, I am proud and glad to say, that I forgive him. Nay! I beg," cried Mr. Pecksniff, raising his voice as Pinch appeared about to speak, "I beg that individual not to offer a remark: he will truly oblige me by not uttering one word: just now, I am not sure that I am equal to the trial. In a very short space of time I shall have sufficient fortitude, I trust, to converse with him as if these events had never happened. But not," said Mr. Pecksniff, turning round again towards the fire, and waving his hand in the direction of the door, "not now."

"Bah!" cried John Westlock, with the utmost disgust and disdain the monosyllable is capable of expressing. "Ladies, good evening. Come, Pinch, it's not worth thinking of. I was right and you were wrong. That's a small matter; you'll be wiser another time."

So saying, he clapped that dejected companion on the shoulder, turned upon his heel, and walked out into the passage, whither poor Mr. Pinch, after lingering irresolutely in the parlour for a few seconds, expressing in his countenance the deepest mental misery and gloom, followed him. Then they took up the box between them, and sallied out to meet the mail.

That fleet conveyance passed, every night, the corner of a lane at some distance; towards which point they bent their steps. For some minutes they walked along in silence, until at length young Westlock burst into a loud laugh, and at intervals into another and another. Still there was no response from his companion.

"I'll tell you what, Pinch!" he said abruptly, after another lengthened silence—"You haven't half enough of the devil in you. Half enough! You haven't any."

"Well!" said Pinch with a sigh, "I don't know, I'm sure. It's a compliment to say so. If I haven't, I suppose I'm all the better for it."

"All the better!" repeated his companion tartly: "All the worse, you mean to say."

"And yet," said Pinch, pursuing his own thoughts "I must not this last remark on the part of my friend, I must have a good deal of what you call the devil in me, too, or how could I make Pecksniff so uncomfortable! I wouldn't have occasioned him so much distress—don't laugh, please—for a mine of money; and Heaven knows I could find good use for it, too, John. How grieved he was!"

"He grieved!" retorted the other. "Why didn't you observe that the tears were almost starting out of his eyes?" cried Pinch. "Bless my soul, John, is it nothing to see a man moved to that extent and know one's self to be the cause? And did you hear him say that he could have shed his blood for me?"

"Do you want any blood shed for you?" returned his friend, with considerable irritation. "Does he shed any thing for you that you do want? Does he shed employment for you, instruction for you, pocket-money for you? Does he shed even legs of mutton for you in any decent proportion to potatoes and garden stuff?"

"I am afraid," said Pinch, sighing again, "that I'm a great eater. I can't disguise from myself that I'm a great eater. Now you know that, John."

"You a great eater!" retorted his companion, with no less indignation than before. "How do you know you are?"

There appeared to be forcible matter in this inquiry, for Mr. Pinch only repeated in an under-tone that he had a strong misgiving on the subject, and that he greatly feared he was:

"Besides, whether I am or no, he's thinking me ungrateful. John, there is scarcely a sin in the world that is in my eyes such a crying one as ingratitude; and when he taxes me with that, and believes me to be guilty of it, he makes me miserable and wretched."

"Do you think he don't know that?" returned the other scornfully. "But come, Pinch, before I say any thing more to you, just run over the reasons you have for being grateful to him at all, will you? change hands first, for the box is heavy. That'll do. Now, go on."

"In the first place," said Pinch, "he took me as his pupil for much less than he asked."

"Well," rejoined his friend, perfectly unmoved by this instance of generosity. "What in the second place?"

"What in the second place!" cried Pinch, in a sort of desperation, "why, every thing in the second place. My poor old grandmother died happy to think she had put me with such an excellent man. I have grown up in his house, I am in his confidence, I am his assistant, he allows me a salary; when his business improves, my prospects are to improve too. All this, and a great deal more, is in the second place. And in the very prologue and preface to the first place, John, you must consider this, which nobody knows better than I: that I was born for much plainer and poorer things, that I am not a good head at his kind of business, and have no talent for it, or indeed for any thing else but odds and ends that are of no use or service to anybody."

He said this with such earnestness, and in a tone so full of feeling, that his companion instinctively changed his manner as he sat down on the box (they had by this time reached the finger-post at the end of the lane); motioned him to sit down beside him; and laid his hand upon his shoulder.

"I believe you are one of the best fellows in the world," he said, "Tom Pinch."

"Not at all," rejoined Tom. "If you only knew Pecksniff as well as I do, you might say it of him, indeed, and say it truly."

"I'll say anything of him, you like," returned the other, "and not another word to his disparagement."

"It's for my sake, then; not his, I am afraid," said Pinch, shaking his head gravely.

"For whose you please, Tom, so that it does please you. Oh! He's a famous fellow! He never scraped and clawed into his pouch all your poor grandmother's hard savings—she was a housekeeper, wasn't she, Tom?"

"Yes," said Mr. Pinch, nursing one of his large knees, and nodding his head: "a gentleman's housekeeper."

He never scraped and clawed into his pouch all her hard savings; dazzling her with prospects of your happiness and advancement, which he knew (and no man better) never would be realized. He never speculated and traded on her pride in you, and her having educated you, and on her desire that you at least should live to be a gentleman. Not he, Tom!"

"No," said Tom, looking into his friend's face, as if he were a little doubtful of his meaning; "of course not."

"So say I," returned the youth, "of course he never did. He didn't take less than he had asked, because that less was all she had, and more than he expected: not he, Tom! He doesn't keep you as his assistant because you are of any use to him; because your wonderful faith in his pretensions is of inestimable service to all his mean disputes; because your honesty reflects honesty on him; because your wandering about this little place all your spare hours, reading in ancient books and foreign tongues, gets noised abroad, even as far as Salisbury, making of him, Pecksniff the master, a man of learning and of vast importance. He gets no credit from you, Tom, not he."

"Why, of course he don't," said Pinch, gazing at his friend with a more troubled aspect than before. "Pecksniff get credit from me! Well!"

"Don't I say that it's ridiculous," rejoined the other, "even to think of such a thing?"

"Why not, madness?" said Tom.

"Madness!" returned young Westlock. "Certainly, it's madness. Who but a madman would suppose he cares to hear it said on Sundays, that the volunteer who plays the organ in the church, and practises on summer evenings in the park, is Mr. Pecksniff's young man, eh, Tom? Who but a madman would suppose that it is the game of such a man as he, to have his name in everybody's mouth, connected with the thousand useless odds and ends you do (and which, of course, he taught you), eh, Tom? Who but a madman would suppose you advertise him hereabouts, much cheaper and much better than a chalker on the walls could, eh, Tom? As well might one suppose that he doesn't on all occasions pour out his whole heart and soul to you; that he doesn't make you a very liberal and indeed rather an extravagant allowance; or, to be more wild and monstrous still, if that be possible, as well might one suppose—and here, at every word, he struck him lightly on the breast, "that Pecksniff traded in your nature, and that your nature was, to be timid and distrustful of yourself, and trustful of all other men, but most of all of him who least deserves it. There would be madness, Tom!"

Mr. Pinch had listened to all this with looks of bewilderment, which seemed to be in part occasioned by the matter of his companion's speech, and in part by his rapid and vehement manner. Now that he had come to a close, he drew a very long breath: and gazing wistfully in his face as if he were unable to settle in his own mind what expression it wore, and were desirous to draw from it as good a clue to his real meaning as it was possible to obtain in the dark, was about to answer, when the sound of the mail-guard's horn came cheerily upon their ears, putting an immediate end to the conference: greatly as it seemed to the satisfaction of the younger man, who jumped up briskly, and gave his hand to his companion.

"Both hands, Tom. I shall write to you from London, mind!"

"Yes," said Pinch. "Yes. Do, please. Good bye. Good bye. I can hardly believe you're going. It seems now but yesterday that you came. Good bye! My dear old fellow!"

John Westlock returned his parting words with no

less heartiness of manner, and sprung up to his seat upon the roof. Off went the mail at a canter down the dark road; the lamps gleaming brightly, and the horn awakening all the echoes, far and wide.

"Go your ways," said Pinch, apostrophizing the coach; I can hardly persuade myself but you're alive, and are some great monster who visits this place at certain intervals, to bear my friends away into the world. You're more exciting and rampant than usual to-night, I think; and you may well crow over your prize; for he is a fine lad, an ingenious lad, and has but one fault that I know of: he don't mean it, but he is most cruelly unjust to Peck-sniff!"

PROFESSOR COCKERELL'S LECTURES ON ARCHITECTURE AT THE ROYAL ACADEMY.

This gentleman, who succeeded the late lamented Mr. Wilkins in the professor's chair of the Royal Academy, is labouring with all the generous energy for which he is distinguished, to lay the products of a well-stored mind before the students, so as to excite them to an emulation of the works and achievements of the great masters in Architecture who have gone before. We have had the pleasure of attending the course of lectures of this session, and were greatly rejoiced to find, from the numbers and character of the auditory, that the study of the art is being regarded with interest by many out of the pale of the profession. It would have been a grateful duty to us to have given a full report of these lectures for the benefit of our readers, but we felt to be precluded from doing so, by a previous announcement on the part of the *Athenæum* of the intention to do so, and which has since been very effectively carried out. In justice to that excellent periodical, we can, therefore, only refer to its pages those of our readers who may be anxious to give that attentive perusal of the lectures which they require and deserve, contenting ourselves with the liberty of making such extracts as we think will suit the purpose of our less ambitious readers, or to whet the appetite of the others.

There is one thing, however, in which even the comprehensive report of the *Athenæum* is necessarily defective. Such a display of illustrative drawings, so laboriously compiled, as were exhibited by the learned lecturer, it has never before been our good fortune to see brought together; and without these, or some more adequate representation of them than mere description, the spirit or essence of the lecture is greatly weakened, and in some instances lost. Two large sheets, or rather assemblage of sheets, were hung up, shewing in comparative juxtaposition most of the famous structures of antiquity, the one in elevation, the other in section, and over these the eye could wander and the mind could dwell with marvelings and delight that no words can express. How small appear those finished and exquisite gems of Grecian art, its temples, when compared with the developed boldness of the works of the successors to the Greek school, who have been charged with innovations and corruptions. These great sheets present to us a map or chart reduced, as it were, to a small scale, of the hitherto ascertained geography of building art, and suggest an endless train of reflection and inquiry.

But there were others whose assemblage and lengthened treatment would make up volumes, some embodying the ingenious speculations of the professor, but, in the main, rigid and critical delineations of the buildings of the ancients from measurement and other laborious means of research.

These, however, it would be quite in vain for us to attempt to enumerate, or to refer to in any more lengthened way of notice; we therefore proceed to our extracts.

After quoting the regulations of the Royal Academy in reference to the delivery of these lectures, and pointing out how much it is desirable to add to their provisions in this respect, on the model of the French Academy, the effects of which are visible in the advantages which the architects of that country enjoy; and contrasting the pains taken by the governments of the Continent in the encouragement and cultivation of art, with the niggard policy pursued in this country, he says—

"It is now more than a hundred years that Thompson, the best informed upon the Arts of all our poets, indignantly remonstrated on our national inferiority and neglect of this branch of intel-

lectual culture, and complained with grief, in his Ode to Liberty,—

'That finer arts (save what the Muse has sung,
In daring flight above all modern wing),
Neglected droop their head.'

"Foreigners have attributed this disregard of the rulers of an ingenious and a great people to various causes—to physical insensibility, to the sordid nature of our commercial habits, or the adverse propensity of the Protestant religion,—to which objections the history of the ancient dynasties of this country (never inferior in the fine arts), the abundant enthusiasm of individual artists of our own times, and the public sympathy, are direct contradictions. Finally, they have fixed the reproach on the government, by pointing at the Schools of Design established by parliament; for they say, truly, that so soon as the inferiority of our design in manufactures drove us from the foreign markets, we took the alarm, and immediately formed schools of design, à l'instar of those on the continent; not from a generous love of art, but, confessedly, from the well-grounded fear of loss in trade. The members of this academy hailed the measure with joy, as the harbinger of a better sense of what is due to our intellectual position in Europe, and they have willingly given their gratuitous attention to its conduct. But the instruction of youth must be accompanied with the higher prospect of employment and honour in national works; and we are happy in the reflection that the decoration of the parliamentary palace at Westminster, and the interest taken by an illustrious personage in that great object, hold out to us the hopes of equality at least in these noble studies with the improving countries of the continent, and the opening of a new career for genius and industry."

"Academies were established as depositories of learning and practice in the fine arts, and the means of their preservation and transmission through the vicissitudes of the times. The enlightened and commercial Colbert had seen how in Greece and ancient Rome, and in modern Rome, under his own countryman, the Constable Bourbon, a public calamity might disperse and ruin them for half a century, without some fixed and corporate body and abode. He never dreamt that, in the absence of the fostering patronage and employment of government, the Academy could do more than fulfil these negative objects. The Royal Academy had done much more than this—it had sustained the credit of the country in fine art, and had reared talents which were now part and parcel of English history. Through good and evil report it had nourished the flame; and it was consolatory to find that they had transmitted it to better times, through long and adverse circumstances; for now they had the happiness to see two Professors in the Universities of London, the British Institute of Architects, large public patronage in Art-Union, &c., and a growing interest in the Universities of Oxford and Cambridge towards fine art generally."

The professor next contended for the necessity of an intimate and active union of architecture with the sister arts of painting and sculpture, shewing how in Egypt, where these were less regarded than subsequently in Greece, a deficiency existed in the justness of proportions, and a seeming neglect of order and regularity.

Of his first course of two years back, he remarked, that as the history of art was the only safe foundation of study, so he had chosen that as the commencement of the discharge of his duties as a lecturer. "The second course (that of last year) had treated chiefly the literature of art." Books and the authorities that lived in them, such as Vitruvius, the old Italian and French authors, and, above all, the admirable Alberto, were not to be discredited, as is too much the fashion nowadays.

"As well," said he, "might the lawyer or the divine dispense with books, as the architect. In the very dawn of literature the architect required to be learned. In the Memorabilia of Xenophon, Socrates inquires, 'But what employment do you intend to excel in, O Euthedemus, that you collect so many books? is it architecture? for this art, too, you will find no little knowledge necessary.'

"A familiar example of the great utility of these references had been given in the quotation from Philibert de l'Orme (lib. ii. c. xi.), of the specification for concrete, written in the latter part of the sixteenth century, and corresponding precisely with the recent so-called discovery of this method of securing foundations. During the last century our architects had discontinued the ancient practice, having adopted the most fallacious fashion of wood-sleepers, to the ruin of many fine buildings. It was, then, the ignorance of this invaluable and most instructive and amusing author, Philibert de l'Orme, which had led to so fatal an error."

"In the present course the Professor purposed

the consideration of the more difficult, but no less important, injunction of the Academic regulations, 'that these lectures should be calculated to form the taste of the students, to instruct them in the laws and principles of composition, and fit them for a critical examination of structures.'

(TO BE CONTINUED.)

A PROBLEM.

We have been much pleased with a little geometrical puzzle, which has lately come under our notice, and, thinking that it may afford equal amusement (perhaps not unprofitable) to our readers, we have thought it worth while inserting it in our pages. The puzzle or problem, as we may term it, was thus proposed to us, and we give it to the public in the same words. A lady was desirous of covering a square room with a carpet, and wishing to employ an irregular piece (vide cut) which she had in her possession, and which was equal in superficial extent of surface to her room, was greatly at a loss how to fit it exactly. She mentioned her difficulty to a friend, who immediately put an end to her trouble by cutting the carpet with only two straight cuts in such a manner that all the pieces when united formed a perfect square, exactly covering the room.—Query, how was it cut?



Miscellaneous.

CONGRESS OF ARCHITECTS.—The first Congress of Architects held its meeting at Leipsic, on the 14th November, 1842. There was 547 architects present. Next year the Congress is to be held at Bomberg, in Bavaria, when it is expected that a considerable number of English architects will attend.

MONUMENT TO BURNS' HIGHLAND MARY.—This monument has now been completed over the grave of Highland Mary, in the West churchyard, Greenock. The erection is more of the Roman than the Grecian style of architecture, is pyramidal in form, and may be said to be divided into three compartments, the cornice-stones between which are beautifully and elaborately carved. The first, or lower compartment, contains the inscription tablet. The second bears a bas-relief of Burns and Mary Campbell, representing their parting scene, when they plighted troth and exchanged Bibles across "the stream around the Castle of Montgomery." The artist has been peculiarly happy in depicting the position of the loving pair at this hallowed parting; and few who have seen a correct likeness of the bard can fail to recognize upon the beautiful Ayrshire stone which has been used, although it has been necessary, to be in keeping with the truth, to impart to the features a more juvenile cast than those in which Robert Burns is usually represented. The third compartment contains a female figure, emblematical of Grief, bending over an urn, which her arms encircle, and upon which is carved the word "Mary." Above her head, and almost at the apex of the pyramid, a star, with rays is cut, in remembrance of the beautiful invocation in "Mary in Heaven." The inscription on the monument is simply couched as follows:—"Sacred to Genius and Love—to Burns and Highland Mary." The monument stands about seventeen feet high, was erected at the cost of 1,000*l.*, and is by a the most imposing object in this old churchyard.

DUKE OF ORLEANS.—A fine marble bust of this illustrious prince has been placed in the "Salle de Conférences" at the Chamber of Deputies. Its merits as a work of art are of a very lofty order, and its resemblance to the deceased is remarkably striking.

THE CITY ARTICLE.—In consequence of the late rain, umbrellas rose, and pattens were in demand. Consols were done at 90; and so was our reporter, at the White Horse Cellar, by a Jew, who sold pencils. We don't know much about India stocks, but we have been induced to invest a little capital in India handkerchiefs. We lately had an interview with a broker about a week's rent in arrear, and found him a regular "Bear." Tartans look lively, and broad cloth is flat, so is small beer. Feathers are buoyant, and tallow is low, especially at evening parties. We offered to make a purchase of sugar, but, tin being scarce, our offer was declined. This changeable weather, and the pressure of leather, affects our corn to some extent. The only time-bargain we have lately made was with a cabman, and he had the best of it.—Punch.

CRUEL ASPERSION.—Rivarol, speaking of Mirabeau, said—"That man would do any thing for money—even a good action."

ARCHITECTURAL COMPETITION.

Under this head we shall give notices of peeling competitions, and shall feel obliged by our friends forwarding us the accounts of what may fall in their way of this character. We shall also be happy to give engravings of the selected designs; and think that by such publicity, the present very defective system of decision may be amended. Publicity is sometimes a remedy when more direct measures have failed.

KINGSTON UNION—DESIGNS FOR AN INFIRMARY.—To be sent in by the 15th of March.
NEW CHURCH, TONKAT—11th March.
ALMSHOUSES, SPALDING—6th March.
ALMSHOUSES, RINGWOOD—1st March.
COUNTY ASYLUM, OXFORD—10th March.

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification, of which they may choose to avail themselves.

NEW CHURCH AT HILDESBOROUGH, NEAR TUNBRIDGE, KENT.—Tenders to be sent on the 2nd of March. Mr. Ewan Christian, 44, Bloomsbury Square, Architect.

RAILWAY STATION BUILDINGS, AND OTHER MASONRY, &c., HUNT'S BANK, MANCHESTER.—Plans open from 15th of February; tenders to be sent in on the 6th of March. Mr. Gooch, Oldham Road, Manchester.

Also, FORMATION AND COMPLETION OF THE BRANCH RAILWAY TO HALIFAX, 1 mile and 55 chains.—The same time and parties.

WEST LONDON RAILWAY.—Contractors to attend at 35, Great George Street, Westminster, at 11 o'clock of the 20th inst. Tenders to be sent in on the 3rd of March.

IRON BRIDGE, GREAT YARMOUTH.—Engineers, Messrs. Birch, 3, Cannon Row, Westminster, 20th February to the 11th of March.

PUMPS AND WELLS, METROPOLIS ROADS.—Tenders to be sent in on the 22nd inst.

GREENWICH LIONS, ADDITIONS.—Mr. R. P. Brown, Architect, Greenwich; time for receiving tenders, Feb. 23.

IRON DWELLING HOUSE.—A large iron mansion has been built by Mr. W. Laycock, of Old Hall-street, in this town, the inventor of a new principle in the application of iron to building purposes. The fabric, which has been made in separate plates, is now erecting for the purpose of public exhibition previous to its transmission to Africa, where it will be used as a palace by one of the native kings. This singular building has three floors exclusive of an attic. The basement story is 7 feet high; the second, 10 feet; and the third, which is the grand suite of state apartments, is 12 feet high. In these his sable majesty will give his state audiences. The principal reception room, the presence chamber, is 50 feet by 30, and ornamented throughout in a style of most gorgeous magnificence. To counteract any annoyance from heat, the inventor of air, which can be regulated at pleasure, to pass through an aperture left between the outer plate and inner panel.—*Liverpool Advertiser.*

The late appointment of Mr. Donaldson, as Professor of Architecture to the London University, Mr. Hosking being previously inducted to the similar appointment of King's College, are significant signs of the times as to the growing importance of architectural practice. Mr. Vignoles is Professor of Engineering at the former institution, Mr. Dyce is the appointed Professor at King's College of the Arts of Design and Architectural Enrichment, and is also Superintendent of the very important School of Design, founded by Government at Somerset House. It will be our business, as we proceed, to make our readers acquainted with the facilities and advantages offered by these and other institutions and appointments.

The terms of subscription to THE BUILDER are as follows:

UNSTAMPED EDITION.	
Quarterly.....	3s. 3d.
Half-Yearly.....	6 6
Yearly.....	13 0
STAMPED EDITION.	
Quarterly.....	4 4
Half-Yearly.....	8 8
Yearly.....	17 4

Monthly Parts, stitched in a wrapper, will be ready for delivery at the end of each month, price 1s.

Advertisements for THE BUILDER must be forwarded to the Office before Wednesday in each week.

NOTICES.

TO OUR READERS.

As it is our anxious wish to do all we can to serve our class, we have resolved to keep a registry of advertisements and notices to which an after reference may have to be made, in particular as to workmen wanted, and workmen wanting employment, by which means much good may be done beyond the mere period of advertising: as, for instance, in the case of any workman wanting employment, by calling at or writing to the office of THE BUILDER, he will have a good chance of ascertaining what may be open to him. On the other hand, masters and general employers may procure references to workmen, in cases of sudden emergency; both parties, therefore, will see it desirable to communicate information as it may arise. It is in this way that it is one great object of that real use to them which is one great object of our life and labours to be. Also, in the matter of the inquiries of our country friends respecting any goods or articles advertised, we shall be happy to act as their agents, or in procuring things suited to their respective departments from the various London houses. Of our London friends, therefore, we request such information as their circulars or other advertisements supply. Specimens of articles of a moderate size, if deposited at THE BUILDER Office, will be readily referred to, and shewn to the friends and purchasers who may call.

We have had a number of hand-bills printed by way of an advertisement of the character and objects of this Magazine. Our friends, and particularly the Workmen, can render us great service in the distribution of them, by posting up in workshops and buildings, as we remember to have seen in our younger days, in respect of notices in which the Working Builder was interested. It is the more necessary that we should request this aid, when it is considered how totally new a channel of publishing business it is into which we are thrown.

We must beg to refer our readers to much of that which is given in the precursor number, by way of explanation of our intentions as to the future. It would be an injustice to those who have already read that number, to reprint our remarks in this; more than which, we can do better than by mere stale repetition. At every point of progress we find new matter of comment, and an extent of working-ground that would be but poorly appreciated if we were to be constantly taking up a pre-occupied position. Our forward view abounds in interest, and the stirring incidents on every side are such as tax the pen to record. We shall, therefore, be excused calling attention to our previous number.

TO OUR CORRESPONDENTS.

The readers of THE BUILDER will be pleased to observe, that although it appears in the form of a Magazine, our own mind is not made up or reconciled to its continuing in that character, or at any rate in that character alone. We shall look forward with some anxiety to a period when we shall be enabled to make it a complete Weekly Journal, and this cannot be done without comprehending news; neither do we think it economy that if should be otherwise—economy of time and compass of means are involved in it, particularly with the workman. A newspaper is to him a desideratum, and why should he be driven to something like a double reading, and the purchase of two papers; one containing a good deal of matter of no interest in the world to him, when so ready a means of combining both is offered as in this instance?

It is requested that where there has been any irregularity in the transmission of THE BUILDER, notice will be forwarded immediately to the office.

Received, Mr. Freeman Roe's small tract, entitled "The Common Pump, &c.," which, as it may be practically interesting to many, we shall take an early opportunity of transcribing from.

Lithographic print of the Wesleyan Theological Institution, Richmond, Andrew Trimen, Esq., architect. We shall notice this structure at an early opportunity.

"Palmer's Patent Glyphography, or Engraved Drawing."

Kelly's Post Office Almanack.

Design and explanation of "A self-supporting Institution" for the Labouring Classes.

We are also preparing a weekly table of prices of Building materials; and a long list of Buildings in progress, and contemplated. All additions to our knowledge on this head will be thankfully received.

We have in preparation several articles—1st, On Wood Pavements. 2nd, "The Metropolitan Model Institution, for improving the dwellings of the Industrious Classes." 3rd, On Ce-

linoes in public parks and gardens. 4th, The Continuation of the Review of Bardwell's Temple. 5th, Notice of Palmer's Glyphography, &c.

TABLE OF AMUSEMENTS.

PLACES OF AMUSEMENT OPEN GRATIS TO THE PUBLIC.

BRITISH MUSEUM.—Monday, Wednesday, and Friday, from 10 to 4.
NATIONAL GALLERY.—Monday, Tuesday, Wednesday, and Thursday, from 10 to 5.
Sir J. SOANE'S MUSEUM.—Every Tuesday and Friday, till July.
HAMPTON COURT PALACE.—Every day except Saturday and Sunday, before 2.
WINDSOR CASTLE STATE ROOMS.—Daily, except Friday.
SOCIETY OF ARTS.—Every day except Wednesday.
EAST INDIA HOUSE MUSEUM.—Every Saturday, from 11 to 3.
ST. PAUL'S.—Every day, from 9 to 10, and from 3 to 4.
WESTMINSTER ABBEY.—Ditto.

ADVERTISEMENTS.

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Applications for the remaining shares, agencies, and prospectuses, to be made to the Secretary, 112, Cheapside.

Board days, Mondays and Thursdays, at half-past One o'clock.

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W. P. and CO. will be happy to forward prices by post, but decline to publish them, conceiving it to be injurious to the Trade.

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THE BUILDER,

NO. XII.

SATURDAY, FEBRUARY 25, 1843.

SINK or swim, we must sail in the boat of truth, neither concealing our colours nor carrying false ones. We have all to gain by the truth, at least all that we care to gain—we put our whole and absolute trust in it, and for such purposes as it appears to us to be called for, we publish it now concerning our paper.

Many persons may, for the moment, think that our leaders should have less of reference to ourselves and our project, and more of direct application to general building affairs; but it would ill become us to sit down, gravely assuming that we are fairly out at sea, when we are merely launched from the slips, and require all hands to assist in the equipment; or, to come nearer home for our similitudes, it would be as absurd as the conduct of one who would engage in trimming the slates for the roof, or cutting out his chimney tops, when his time and attention are imperatively called for in laying out and putting in his foundation. Our foundation is not yet completed, but the site is good, the aspects agreeable and promising, and we, as the architects of the work, beg to make our weekly report.

Those who are not in the secret of such matters will be surprised when we tell them of the smallness of our sale—those who are in the secret are astonished it should be so large. Eight hundred papers of Number II. have been purchased by our London friends, and about half that number have been called for in the country. O'Brien, of Dublin, sent for two hundred and fifty of the precursor number at the first venture; but he knows a good deal of the building class, and he has had two hundred of Number II. The blame, however, if blame there be, of our not having a larger sale, rests with ourselves. We have not advertised, or, at any rate, in not more than a dozen papers; we have not, or hardly at all, resorted to the ordinary means of puffing, as it is called, but perhaps, more properly speaking, proclaiming ourselves; and for this we have been reproved by several of our friends. The note of preparation, say they, should have been sounded for weeks before-hand; the public eye literally offended at every turn by "big black placards"; the advertising columns of our contemporaries encumbered with advertisements. Yet hardly one of these have we done, or could do, without some compromise of our position, or the tying of our hands. We said in the precursor number that our reliance was not on the leviathan power of capital; we now repeat it, and add, that it is on the infinitely greater power of candour and of truth-telling. We have had the offer of capital, but it was, as we have said, on conditions to which, if we had subscribed, we should have been unworthy of the honourable and dignified part that we aspire to fill. We do not blame our suitors in this respect; the temptations of avarice have been and are still rife in the highways of this crowded city, and are hard to be resisted. Our poor virtue and still poorer talent are things of small account, but yet, like the honour of the lowliest peasant girl, are not to be bartered for money. Our project has been regarded with various eyes; by some as of such promise as to excite the lust of possession, and by such, our honour has been cheapened; by others as a thing for us to build up, roof in, perhaps finish

to the turning of the key, and then, calculating on the necessities which the expenditure and exertion may cause us, that they may step in to occupy at their pleasure and our sacrifice; others, again, guided by an iron rule, under which they take their stand, and which iron rule is constantly eating and rusting down into the shoulders that so mechanically bear it, decline to admit us into their ranks until we shall have grown up to their measure and strength; and when we want assistance, refuse; when we want it not, obtrude it with a lavish hand; but how can we blame them? Confidence has been abused (perhaps by reason of her own blindness), suspicion has been engendered, and this state of things is working like a morbid or maniacal passion, feeding itself—suspicion begets suspicion—and the fear—the timid, palsied fear—of going wrong, prevents the progress of thousands in the path of right.

But this shall not, we pray that it may not, operate upon ourselves. Our calculations have been made in all the prudence we could command to our aid, in all the far-seeing of our vision. We put forth the Precursor as our "feeler"; we planned it so that it should lie before the public for a few weeks, telling its own tale, and trusting to its merits (if any) to produce that evidence of encouragement for us to proceed, which coming from ten sensible minds was as good as from ten thousand. But see how it would or might have worked, had we adopted a different mode of procedure. Suppose we had presumed mightily upon our own judgment, and, backed by a powerful purse, had taken the public by storm, giving them no time, nor alternative of reflection,—“Will ye, nil ye,”—you must have it; proclaimed ourselves as the best public instructors, our paper as the best public organ, vaunted of a circulation which we had forced, and so on; what proof would a success founded upon such a glittering sand-bed as all this have supplied? Why, only one to the many other instances described under the old adage, “Soon ripe, soon rotten.”

However we have astonished many, that with such a denial to ourselves as we have related, 800 papers should have been sold in London alone. They refer to other works of a somewhat similar character, which, after several weeks' existence, and the aid of all the “forcing system,” have not attained a larger sale than this, of our second, or as it might with full propriety be termed, our first week, seeing that the Precursor was little more than a mere advertiser.

And we, if not astonished, are perfectly satisfied. We know that we could name half-a-dozen building firms in London, who employ probably 3,000 or 4,000 men, and it is not too much to suppose that of these men alone, one-half will ultimately become the readers and supporters of our publication, since it must be assumed that these leading firms employ none but the best, and therefore the most intelligent workmen. We know that in what may be called the London district, there are from 20,000 to 30,000 members of the building crafts; and to say that one in five of these should be our readers and students, would perhaps not be saying too much. We know that in Manchester, Liverpool, Birmingham, and such large towns, the numbers of the builders are so great as that each place could, if properly disposed, support our work of itself. We know all this, and that thousands will ultimately make our cause their own, as in fact it is, and as we would have it—thousands for the hundreds now, aye, and for the tens—but yet we are not

so unreasonable, or so wildly sanguine, as to suppose that this conclusion is to be jumped to at once. We are satisfied; and inasmuch as this public approbation is gratifying to our hearts, we are deeply and sincerely thankful.

And we should have hearts of stone, or heads of wood, if we were not so. On every side there pour in the most pleasing testimonials—from the remote and obscure quarters into which our paper by some curious accident has found its way—subscribers in the lofty stations, and in the lowliest. For ten long years this opportunity has been yearned for by us; we longed to open this grand communing book; our hand has diffidently touched the clasp at last; the page is unfolded, and we read delighted what in our dreams alone we had before read and written.

It is not in any affectation of humility that we tell of our misgivings; we know full well that there are many who, in regard of their gifts and acquirements, are much more fitted than ourselves to discharge the duty which this work imposes; but the engagements of business, the turn of their inclinations, and it may be, that being also our superiors in modesty, prevent it. A paramount obligation superior in its suggestions to all the under-whispers of a love of retirement, spoke loudly and imperatively to our ears. The post was vacant, it appeared to us wrong that it should be so, and we have stepped forward, we trust with becoming humility, as well as a becoming confidence, to fill it.

One word as to some prudential suggestions in reference to our saying so much. “Tell the truth,” says one friend; “but what need of telling the whole truth? you will only stimulate competition, by the display of the merits and advantages of your case.” But this is our answer: Let competition come, so that it come in the guise of a better service to the public, we care not, and we leave the matter in the hands of the builders and our readers. If any one steps forward prepared to do more, and to do it better than ourselves, and the public think that his merits in that respect are not outweighed by any piratical audacity, then we say, let them support him, as we ourselves are prepared to do; but he must bid high if he has more of honest zeal to offer, and if he has that more, he will hesitate between the considerations of public duty and private injustice.

No, we have no fear—we know that this paper is calculated to be one of the best properties of its class, and we stand as the public trustees, prepared and resolved to give our friends the full benefit of these our exertions in supporting it. Let them put it on a sale of 5,000 weekly copies, and look for the evidence in the increased attraction and usefulness of the work; but we know it will not stop at five, nor ten thousand; nor in any measure of utility and value, short of the best publication of the day. Let the builders and the builders' friends look to it,—the matter is for the most part in their own hands.

OUR CORRESPONDENCE.

We put at the head of the extracts which we think it necessary to give this week, the letter of a working man, because he holds out the hand in the right spirit, calling upon those of the wealthier ranks of society, not in the language of adulation on the one hand, nor in that of base servility on the other, to commune with those of his class. Let him and his colleagues take comfort—it is so, and it shall be so. Along with the revival of that genuine spirit of devotion to art which we seek to promote, will of a certainty come that

generous sense of brotherhood and consanguinity among all classes, which characterized the times we are desirous of emulating, and in principle imitating.

We have better proof of this than our own speculations or conjectures, for while we have letters such as these, we have others from perfect strangers to us; nay, our first subscriber was a dignitary of the Irish church, who wrote promptly, on the appearance of the precursor number, and every day brings to us similar kind, and—as we profess the advocacy of the workman's cause as much as any other—grateful evidences of approbation from the titled and the learned.

W. M. is quite right. Who can be surprised at the diversion into channels of a disreputable notoriety, the exercise of talents such as those he gives instances of, when the honest courses were frowned upon, or at least looked at with indifference? Human beings have implanted in them an ambition, which would not have been, unless it were intended to be exercised,—but how exercised?—Tempered with a truly rational sense of our vocation and character, a looking beyond ourselves instead of within ourselves, except for the purpose of comparing our littleness with that which is without; ambition thus directed and thus exercised, will lead to right ends, and ennoble, rather than degrade, those who are born with or imbibe its ascendant impulses.

The practice which our correspondent speaks of as general, in the selection of foremen, is not so bad as he would have it inferred, or rather as his letter would cause to be inferred, for we collect from the admission of his own experience, that it was otherwise in a shop wherein he himself worked: but we do know instances of the prevalence of the strange notion that an overseer of works must be a man of driving—and we will not mince the matter any more than our correspondent—of “bullying propensities.” This is an evil, however, that has its correction in the very same principle that we prescribe to all classes—proper self-respect. Neither master, foreman, nor workman, when they know their true position, will degrade themselves into the character of tyrant or slave, which the task-master, the bully, or the cringing undoubtedly are—one or the other, if not both, for tyranny and slavery are foul sprouts from the same root.

Self-respect, good friends, is our signet of protection; it will save us from self-degradation, and having done that, it will protect us from the degradation, if any such could be attempted towards us, by others.

Our correspondent will perceive, if he reads the precursor number, that politics—party politics at least—are shut out from our discussion, as they are from our inclination. Party views and passions are the bane of social happiness, and we seek to administer the antidote. But what may still be termed politics will in all probability frequently engage us. Suppose to-morrow it were proposed to take off the duty on foreign-made furniture and joinery (we believe it is 30 per cent.), does any one consider it would become us to be silent, to look on in apathy at the threatened destruction of 160,000 carpenters and joiners and cabinet-makers, by the sudden free importation of German labour products? Certainly not; and had we been on foot before the passing of the last tariff, we should have discussed its provisions, and done our best to avert the evil which, we understand, has fallen heavily in many instances; but the most grievously, as we are sorry to record, upon a class who could almost least of all afford to bear it,—we mean the poor-labourers. We have heard of serious privations that these poor men have been exposed to in the town of Hull, and we dare say the case is much the same in other of our timber-importing districts. So far we shall and must be politicians—but no farther—party we hold to be “the madness of many for the gain of the few.”

“Sir,—I had not an opportunity of reading THE BUILDER until the appearance of the second number; and I venture to affirm that success is sure to be attendant on the exertions of the proprietors, if they undertake the advocacy of the physical and mental interests of the labouring portion of Builders.

“Superior minds are wanted to direct the vast amount of intellectual energy which exists among the working classes. Look to the different systems which are being advocated to remove the universal prevailing distress, and you will find that working builders are among the principal leaders. I need

only mention the name of A. Fleming (the editor of the *New Moral World*), who obtained such notoriety as leader of the deputation which waited on the present ministers relative to the Ten Hours Factory Bill, who a few years back was a journeyman painter, and Armstrong, the chariot, to show that if the ability, zeal, and perseverance which they now display were directed in more legitimate channels, what bright ornaments they might become. It is then my conviction that if, by the establishment of your journal, a means might be adopted by which the working classes might commune with the elevated and enlightened portion of our class, much of the tyranny which now exists would be removed. The poor have few advocates, and when an appeal is made through the unprofessional (as far as regards building) press, they, from ignorance of the necessary details, in general decide against them. But in a Builder's journal, should the necessity of an impartial decision between master and man arise, an opportunity is offered for the different statements, and there is no doubt (if the truth is maintained on both sides) of an advantageous result.

“I have spoken of tyranny existing. It may be argued that it is necessary to enable the masters to fulfil their engagements and contracts, with the ignorant and drunken workmen they are obliged to employ. But all are not so, and it is only by the diffusing of practical knowledge in an engaging form, with their interests blended, that their ignorance can be removed, and when that is done, drunkenness will soon follow.

The general practice of selecting foremen of bullying propensities causes these remarks. It is not my purpose to individualize, because there are many exceptions: a shop I worked in above five years is one; but where they are employed, talent, sobriety, and industry are not of much value in that shop; consequently we want a class magazine, for all parties to express their feelings, to receive and impart instruction, that we may progress with more unity of feeling than has been the case for years past.

I should advise you to have nothing to do with politics, for the differences of opinion are so great. Those who are politically inclined can easily refer to the papers suited to their taste at the different coffee-houses. Would not the division into sections, in which consecutive papers on Drawing, Mechanics, Architecture, Literature, &c., particularly notices of works commenced or completed, would appear, be most advantageous? for if gentlemen with talent will condescend to be our instructors, and endeavour to improve us in the means of getting a living less precarious than at present, the character of our class would be amended. Let not our ignorance be the cause of our being punished for that very ignorance which it is our desire to remove. If gentlemen will do this, they will receive the aspirations of gratitude from many who wish to wipe away the degrading epithets which are so often cast upon them.

“Lambeth,
“January 19th, 1843.”

We deem the following letter as one of great importance. An exhibition room so arranged, and architectural subjects displayed as suggested by “W. H.,” would, so far from failing in attraction, be the very magnet of our exhibitions. What could compete with it? An architectural hall, or rather a series of halls, is what we require, and we are not at all astonished that architecture should have been treated in our other exhibitions as it has been. It was indeed morally impossible that it could have been otherwise. How could the less contain the greater?

A grand suite of architectural exhibition rooms would enable us to assert a sovereign claim to public attention; if drawings, models, specimens, and the relics of our art were collected and arranged in an appropriate manner, where, let us ask, would be the museum or exhibition to be named in the same day with this? Surely the architects, who build academies, halls, and colleges, for all classes, know how to build one of such for themselves. This is a subject upon which we dare not trust ourselves to dilate—its vastness and consequence in almost overpowering; but we predict that this is its beginning. Many thanks to “W. H.”

“Sir,—I very much wish you would call attention to the very scanty accommodation afforded to architectural drawings at the Royal Academy, and suggest that the profession ought now to establish a separate annual exhibition of their own, upon an adequate scale, and not confined to merely elevations and perspective views, but for drawings and subjects of every kind belonging to architecture, decoration, furniture, &c. &c. At the time the Royal Academy was founded, a single moderate sized room sufficed for the architectural department of its exhibitions; but architecture is now in a very

different position among us. The profession has greatly increased in numbers, and the public are beginning to take more and more interest every day in architecture and the study of it. Formerly there was not a single architectural journal of any sort, and very rarely a paper upon any architectural topic in other periodicals; whereas at present, publications of the latter class often contain architectural articles of considerable interest—although Mr. Gwilt would fain make it appear that being anonymous, they must one and all be worthless, and further, holds in contempt all non-professional writers on the subject, be they anonymous ones or not,—all such scribblers as Thos. Hope, Whewell, and Willis.

“Surely architecture can now afford to be quite independent of the Royal Academy. I do not mean to be in hostility to it, but amicably so, in like manner as the ‘Institute of Architects’ now is. Even could adequate accommodation in regard to space for architectural drawings be provided by the Royal Academy, they would always be in the eyes of the public but a merely supplementary part of the general exhibition, consequently attract comparatively very little attention or notice. Very different would the case be in an exhibition exclusively architectural, because then there would be nothing else to attend to, and people would have time for deliberate inspection of such drawings, which now seldom obtain from the majority of visitors more than a hurried glance, begrudgingly bestowed on them in proceeding to or returning from the ‘pictures.’ But then you will perhaps say, the public would not go to a merely architectural exhibition; but I think that the novelty of one would prove a sufficient attraction at first, and by the time that had worn off, people would go out of a real liking for it, or because other people went, and among them those who are looked up to as persons of superior taste.

“Were there an exhibition of the kind suggested, and should there ever be one, instead of the walls being covered, there should be no more than two lines of drawings placed above the level of the eye, so that every one of them might be distinctly seen. Were there such an exhibition, it would cause architecture to be talked of, and would excite more interest in regard to it than exists at present. The exhibition of the designs for the new Houses of Parliament was of material service in this way; it forced architecture upon the public attention in a degree till then unprecedented; partly, it must be confessed, on account of the particular importance of the occasion, but if not precisely of the same kind, nearly equal interest would, no doubt, be excited by the establishment of an annual architectural exhibition; at all events it is worth while making the experiment, not with a view to pecuniary profit, for if it barely paid its expenses, it would be sufficient, but because it would show that architects were disposed to exert themselves, and to encourage in the public a taste for architectural study.—I remain, &c., “W. H.”

Our correspondent, signing himself “An Ardent Admirer of Architecture, and all that pertaineth thereto, and a Student of the Royal Academy,” is thanked for his communications; and in reply to his several suggestions, we have to state the following:—

1st. As to excluding all advertisements unconnected with architecture and building, we refer him to what we said on this head in our last number. And again to so much of our leader of to-day as bears upon the question of the support which we have a right to claim from that class of advertisers who directly appeal to the builders. Our correspondent says, and says justly, “If the building community cannot furnish advertisements enough to support a publication for their own immediate and mutual advantage, the spirited task which you have undertaken had, I am certain, better be abandoned without the slightest delay.” Now, there is no “if” in the matter; the building community, and those who cater for them, can, and will support it; but there are some, as we have said, very slow to move—they will wait awhile they say—and we shall see them dropping in by degrees, as they find the paper getting established independently of any aid from them. We have therefore to be particularly thankful to those advertising friends of another class who give their unreserved support at this crisis, and the builders ought to feel with us equally thankful, and to mark their sense of it in the proper manner.

As to binding up the magazine part distinct from advertisements, he will see we have attended to that.

He objects to the extracts which we gave in the way of light reading, but he must bear in mind that all are not probably disposed like himself or ourselves, and will object to over-

much of "the shop," as it is termed; and this again refers to his next remark, and to the remark of others, an objection, indeed, to making *THE BUILDER* a newspaper; we are no bigots to our opinion, and are content to be guided very much by the public in this respect, but we have many correspondents anxiously calling for it in the newspaper shape, and we have taxed our ingenuity to be prepared to meet both calls at a suitable period. We will give both, the newspaper and the magazine, let our circulation only attain the point to justify it.

"Vigil" is particularly thanked; his suggestions are truly valuable, and we hope to hear from him again; we claim for ourselves to be partially tolerant, and put in a similar claim to his toleration and that of our many esteemed friends who, like "Vigil," may differ from us occasionally in the selection of articles and our management of the paper; they will not be too critical or arbitrary, nor wish to have every thing to their own mind and in their own way. With regard to the strong objection that he appears to entertain to the constitution and proclamation of the "Free Masons of the Church," we have to observe that we welcome every labourer in the great cause of architectural resurrection, and can readily pardon any little peculiarity in the manner of setting about it, even when we differ, about which we say nothing in this instance.

That which "Vigil" would have us make our paper, is what we have planned it to be for years, and with such good support as he tenders we shall be materially assisted. He is perfectly correct as to the value which this paper may and ought to be to the country builder; we believe it will be incalculable. It is from this spot, this mart as it were, of improvement and excellence in building art, that we propose to issue our bulletins of advance and progress, and we know well, from our whole experience, almost up to this date, what country building is—there is too much, as he says, of the "rule-of-thumb" in it. Although "Vigil" objects to our publishing his letter, we are sure he will excuse us for making an extract when we find so much pertinent matter as is contained in the following:—

"Take an instance of the kind of ignorance I meet with. I propose blue cobble for a wall, in preference to an exceedingly porous sandstone. 'Oh, no,' says the builder, 'cobble attracts wet.' It was not a little difficult to shew him that the cobble was wet in damp weather because it repelled wet, while the sandstone seemed drier, solely because it imbibed it. He saw at last the difference was that of a Macintosh and cloth coat; but he had lived a long life in the error. Here, then, is one subject—the properties of stone, their different porosity, how to deal with porous stone, how to obviate its effects within, how to turn (if it be possible) the wet from penetrating from without, say by some cement, and if so, by what cement.

"But pray think of another body, to whom you may make your paper acceptable; I mean the public. I think you may do so, by copying the example of the *Gardeners' Chronicle*. Ten thousand things every one is interested in; though not actually building a house, a damp house may have to be made dry—a house, infirm in its wood-work, may have to be repaired—a house may have to be warmed—outhouses may have to be added—a byre, a piggery, a manure-tank—a house may have to be furnished. Admit questions, and take care to give full and accurate answers,—or take subjects into your own hands which are interesting to all readers. Thus: promise a paper on the different sorts of ventilation which are advertised—ditto as to stoves—ditto as to stucco paints—ditto as to the various cements, Hall's, Keene's, Martin's, Musgrave's, and how they are made—ditto as to carpets, woolen, cotton, and hemp, in all their varieties."

When we say, for the benefit of our readers, that "Vigil" is not a professional gentleman, but one who gives considerable employment to builders, we shall have secured for him a grateful estimation of the favour he bestows upon us by his communication.

OUR SERMON.—No. II.

TO APPRENTICES.

Would that it were in our power to command the words that would give expression to our anxiety and solicitude in behalf of that rank of the building fraternity which we are now about to address—would that we could marshal together to hear us all that class of the hope of the building art, who range from the age of fourteen to eighteen years, we mean the junior

apprentices (those above that age we class with the men); these youths, probably fifty thousand in number, have a most important duty to discharge, and perhaps, more than any other fifty thousand living beings, have devolving upon them the weight of directing that great change—nay, we may call it that revolution—in building art, which these times are evidently designed to bring about.

Could they be made to feel and understand the importance of the part they have to perform in the great workings of the next half-century—in bringing back the handicraft skill and the love of art, the devotedness which characterized the workmen of the middle ages; could they imagine—which is much like the fact—could they imagine themselves banded together, as it were, fifty thousand strong, setting out on the mission for the recovery of long-lost excellence and the discovery of farther good, led on by one who humbly seeks to direct them in the path of honest fame—could they see and feel all this, our work would be half done, and the tide of fortune, in this affair of a nation's retrieval, would have reached its flood.

It is sufficient, however, for us to work on in the well-grounded hope that our motives entitle us to success—so far, at least, as human motives are an ingredient or an agent in such matters. If our words fall upon the ear of the docile,—of but one in that fifty thousand,—and should happily influence that one only, to think and act for the future in something of the spirit in which our remarks are couched, we shall have effected a good, the ultimate ends and benefit of which it were impossible to estimate; but if such should be the case with more than one, with some hundreds, or with thousands, how much more rapid, how much more signal, will be the return to right principles of thought and action.

Let us hope that the reluctance which many feel to reading sermons may not deter them from conning over this of ours; we promise them, none will repent of the time necessary, or regret to have had his attention thus engaged.

What is it we would preach to them about; what wisdom, what morality inculcate? The wisdom we would teach would be to secure content, to make the time of their apprenticeship pass on, not heavily or painfully, but cheerfully; the morality would be that of a principle which, like the governor of a steam-engine, would regulate their every purpose, and cause an end of unqualified satisfaction.

Let us beg of these young men, first of all, that they give us their attention, and that they will consider it a matter of duty to do so. We are going to plead their cause with their masters and superiors; but we shall also plead it with themselves. We shall plead that those above regard them with affection, and that they regard themselves with respect. These are something like new pleadings and novel language, but they include the secret of that success which we are in pursuit of. Remember that you are fifty thousand! Remember that you have your whole career of business life before you; that your business is in the exercise of a calling, which, however low it may have yet appeared to you, is in truth one of the highest and noblest, and has engaged in all time past the master-minds of their periods, and contributed more, as it still remains to contribute more, to the earthly comfort, happiness, and delight of your species, than perhaps any other art that man may or can exercise. Read over the pages of this work in its series, and collect from them how great is your vocation, and for what high purposes you are destined; raise your minds to the consideration of this inspiring truth—let each one of the fifty thousand say, who knows but that I may have the honour and the pride to have my name associated with some master-piece of the Carpenters', Masons', Bricklayers', Plasterers', Painters', Glaziers', Cabinet-makers', Sculptors', Carvers', Mechanics', or Designers' art, with something that posterity may look on with as much of admiration and delight, as we now look on those glorious examples of works of similar arts in days gone by? Remember that every one of those innumerable fine specimens were the production of men who once, like yourselves, were apprentices, and who arrived at the excellence that distinguished them, by some secret of inward working to correspond with the greatness that was without—they had a principle to guide

them, which if you also follow, will infallibly lead to the same results.

You are fifty thousand!—you are in that period of the age of human beings which has most promise; from 14 to 18 is an age that seems intended by your Maker for permanent designs to be founded in—he has so ordered it that death shall least disturb, or very nearly so, the human pursuits of that period—that is, the number of deaths at your age is less than in any other four years of the period of human existence, with a very trivial exception; this then is the period of bright hopes and the determining of destinies. Parents and friends looking on, anxious to note the promise and turn of your ability; masters' intent on giving that drift to your talent which they have engaged for and are interested in—the genius of your respective arts presiding over this entrance-fold of the boundless territory of fame,—the genius of your country invoking you to gather for it laurels and chaplets of evergreen to weave with the garlands that have been preserved to her—the master-spirits of the past, calling upon you, through their works, to emulate them—to wipe away the reproach that has been thrown upon the period of their devoted and generous labours—to rescue the gems of their workings from the attempted oblivion of barbarism, to collect and enshrine them in suitable niches of your own, to set them off in the precious mountings of more than silver or gold—the sterling, the chaste, the invaluable gatherings from the mine of mind and honourable purpose which you are now commencing to explore.

For these ends, then, it is, that we come amongst you, to give you the first anxious outpourings of honest and affectionate advice. Listen to us, and accompany us in that spirit, which your hearts, in all their simplicity, truthfulness, and energy, can give of a giant and irresistible force for all the ends of good. Do this, and we will promise you again, rewards, solid, and satisfactory, and bright, such as have not been exceeded by any of the gifts to men. Young men of hope and promise—you of the corps of fifty thousand! you of the arts most distinguished—make up your minds, we entreat you, and give us your hearts and hands pledged to the glorious combat. Soon you will hear from us again.

ANCIENT SEAL.

TO THE EDITOR OF THE BUILDER.

SIR,—The annexed is a representation of a seal lately found in the ruins of Reading Abbey; it is not of any importance, but is supposed to have been the private seal of a monk, this kind of seal having been frequently used by them; it is therefore interesting only as a specimen of ancient art, the execution being very rude. The legend is, "Ave Maria gracia plen,"—"Hail Mary, full of grace;" the seal is about an inch and a half in length.

Reading Abbey was founded by Henry I., in the year 1121, for 200 Benedictine monks; its income, at the dissolution, amounted to 2,116l. 3s. 9d., now worth 42,323l. 15s. 10d.; and was granted in the fourth year of Edward VI. to Edward, Duke of Somerset. It was discovered, whilst blowing up part of the ruins, in order to form the foundations of a house for the governor of the prison, by Mr. White, the clerk of the works, and is now in possession of the authorities of Reading.

ALPHA.



We regret that the draughtsman in copying on the wood merely transcribed the seal impression, so that the reverse is here given of what we intended.

DWELLINGS FOR THE WORKING CLASSES.

In directing our attention to the very important subject of the improvement of the dwellings of the labouring classes, we have had brought to our consideration many plans and propositions emanating from various quarters. The subject is one of surpassing interest to the philanthropist—to the political economist; but, above all, to the workmen themselves: nor can any section of society plead indifference to it, since so much of the general well-being in health, wealth, and morals, is dependent upon it.

We purpose to treat this section of building economy in a deliberate and careful manner, by reviewing what has been already done, and is now proposed to be done, by the various parties who have turned their attention to the subject; and since we know that a good deal of information lies yet beyond us, we will thank our various friends who can do so, to favour us with references and contributions that bear upon the question. There is at this present time a scheme on foot of a "Metropolitan Model Institution for improving the Dwellings of the Industrious Classes;" and when we consider how much the public were startled and shocked by the late disclosures of the condition of the workers in the mines and factories, and how powerfully the publication of the facts tended to rouse attention to the remedies, we think we cannot do better than quote from the prospectus of the "Model Institution," in reference to the condition of the dwellers and dwellings of the crowded districts in the metropolis and other large towns.

"The evidence produced before the Parliamentary Committee appointed to inquire into the Health of Towns, and appended to their valuable report of the year 1840, embodies a mass of information, connected with the domestic habits and dwellings of the poorer classes inhabiting the metropolis and other densely populated districts, which excites the most painful feelings in every benevolent heart.

"It appears from the above evidence that many districts tenanted by the industrious classes do not possess a single sewer, or any means of drainage. In numerous cases whole families, parents, sons, and grown-up daughters, and in some even two or three families, reside together day and night in a single room. An eminent physician states, 'that in a room not more than seven feet long and six broad there were four women and two men sleeping every night.' Many of the statements given in evidence disclose the existence of a state of filth, disease, and demoralization, which is utterly unfit for general perusal, but it may be well to quote a portion of the evidence given by Dr. Southwood Smith, who is probably more fully acquainted with the state and condition of the lower classes of the metropolis than any other individual. Speaking of the evils the poor are liable to, and the pestilential places in which they are compelled to take up their abode, he says, 'They have no choice; they must live in what houses they can get nearest the places where they find employment; by no prudence or forethought on their part can they avoid the dreadful evils of this class to which they are thus exposed; no returns can show the amount of suffering which they have had to endure from causes of this kind, during the last year (1859), but the present returns indicate some of the final results of that suffering; they show that out of 77,000 persons who have received parochial relief from the Metropolitan Unions, 14,000 have been attacked with fever, one-fifth part of the whole, and that out of the 14,000 attacked, nearly 1,300 have died.' 'The Parliamentary Committee on the Health of Towns, in their report, state 'that in addition to the physical evils entailed upon the poorer classes by the state of their dwellings, it is impossible to deny, from the evidence before them, that their moral habits are affected by the same causes; that a constant residence in a tainted and polluted atmosphere, while it predisposes them to disease, and renders them less able to repel its attacks, also produces a degradation of moral character, an indifference to the common decencies of life, and an utter recklessness of all those comforts which persons in their station might be expected to enjoy. The effect of this utter prostration of energy, and of all the better feelings of the mind, has been to reduce multitudes, who might otherwise have passed with credit through their humble spheres, to have recourse to ardent spirits as a desperate alleviation of their wretchedness; and your Committee need hardly point out, how surely this irresistible temptation leads, step by step, to habitual dissipation and debauchery.' It is but too certain that we have amongst us in this great metropolis sinks of corruption continually fostering and spreading abroad the seed of disease and death, both physical and

moral, and it is hoped sufficient has been said to convince the most sceptical, that without a total change in the physical condition of the industrious classes, it will be in vain to expect much moral improvement. The causes of the evils at present operating upon the condition of these classes, then, appear to be, want of drainage, want of ventilation, want of proper provision for warmth, want of water, and the crowding together of numbers of persons, of all ages and both sexes, in a manner utterly subversive of decency."

It is strange that this state of things should be, as it is, true, palpably and offensively true—obtruding itself upon the attention of every observer, and at every turn, in this crowded city—inquired into—reported upon—shown in its tendencies to lead to crime, disease, and the general impoverishment, and yet that nobody—no vigorous and influential body of men, sanctioned or unsanctioned by government, is seen to step forward, and with a determined hand to sweep out of the heart and vitals of this great city and others, these plague-spots, these pestilence-breeding institutes—for such we may term them—that appear to be nourished, and cherished, and clung to, with a pertinacity that better things, and truly good things, fail to secure.

It were a curious question to determine how much per cent. in these profit-calculating times would be gained in the two-fold way of abating evil and promoting good, upon a plan of rooting out on the one hand, and improvement on the other. Put fifty for the one, and fifty for the other, and if cent. per cent. will not induce us with its usury, let us try to cast up the items of profit and loss, on the account of human suffering, misery, and degradation that we debit ourselves with, and of ameliorating influences for which we may obtain credit.

Medical science has confessed itself at fault. We have before us now a number of the *Medical Times*, which for its class makes that confession in full—"The scientific labours, the self-devotion of our medical brethren, have done nearly all that human powers can avail to do in detecting and combating death in every case where he is expugnable. The third duty

In the *Encyclopædia* (§ 493.), we have shown with what economy combinations of dwellings might be built, and how greatly the comforts of the individuals occupying them might, in various ways, be increased by co-operation. It does not appear, however, that mankind is yet in a fit state for entering on this stage in the progress of improvement. To be able to do so men must have been educated from infancy to live in society; and when this shall have been the case, then the increase of comforts and enjoyments that may be obtained by living together in masses will be duly appreciated by themselves. In the meantime, the working classes of society, in common with every other class, appear to us to have a much greater taste for isolation than for co-operation; more particularly in every thing relating to domestic arrangements. In short, we are inclined to think that little good will be effected by arrangements of this kind, till those classes for which they are intended, in consequence of superior education, see themselves the beneficiaries which would accrue from them. They will then endeavour to procure their establishment.

A College for single Working Men.

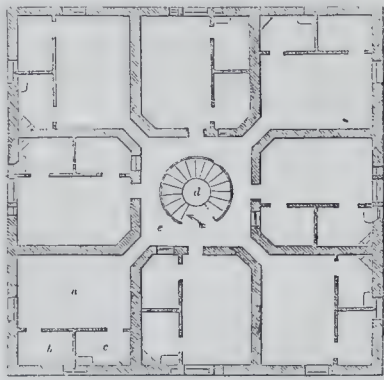
The only addition that we shall make to what we have already advanced on this subject is a design, fig. 2053, taken from one which we made in 1819, and published in the *Mechanic's Magazine*, vol. xvi., for what may be called a college for single working men. Each floor will contain eight distinct dwellings, and each dwelling will consist of a living-room twenty-one feet by thirteen feet, a; sleeping-room, ten feet by seven b; and washing-room, with a sink and water-closet, ten feet by seven c; the circular stair is shown at d, and the landing to each floor at e. The building is supposed to be of a cubical form, of eight or ten stories high, with a staircase in the centre, and a series of fire-proof rooms on each floor, communicating with a common gallery.

The whole building we propose to be heated from one stove at the bottom of the stairs; and in each separate apartment might be placed two jets of gas for cooking, and one for lighting. As there would be a gas-meter to each apartment, no individual would pay for more gas than what he consumed. The floorings of all the rooms would be of flag-stones, the under side of which would form the ceiling to the room below; and as all the partitions would be of brickwork, or might also be of flag-stone, the first cost of the building would be comparatively low, and the expense of repair very trifling. On the lowest floor a house-keeper might reside, who would have the general charge of the building, and who, if it were thought advisable, might lay in a stock of such articles as were generally wanted by the occupants, and retail them to them at nearly cost price. There might also be a restaurant and dining-room on the ground-floor, arranged so as to supply food on the most economical terms. The building, however, would be chiefly valuable as supplying lodgings of the most comfortable kind at a very moderate expense. As no fires would be wanted in the different rooms, there would be no occasion for fuel, which would be a great saving both of labour and expense; and as water would be laid on to every apartment, to which also there would be a water-closet for waste water, the labour of cleaning would be reduced to a mere trifle. In short, for large towns, there could hardly be a more economical and comfortable mode of lodging single men, such as clerks, shopmen, working mechanics and artisans of every description, and even literary men and artists.

—the duty, not theirs—but the duty of highest importance, viz. to prevent disease, has not yet been performed; and it becomes the necessitated office of our profession—still continuing its unfamed but noble mission of utility—to make known again and again to our rulers, the evils originating in the present system of public neglect of health, and to point out the best means by which this greatest of social boons—prevention of maladies—may be secured."

It is thus that this organ of the medical faculty speaks—calling upon us, whose province it is—and upon whom else should they call?—to take up this grand question at the point where they are compelled to abandon it—nay, rather, should we not feel such language as uttering a grave and solemn rebuke that we have not before done it—that we have not before arrested the progress of the fell destroyer—that we have evoked a power of medical science as if to be the mere hack to our blunderings? It is confirmed and avowed on all hands that our bad buildings, our miserable street speculations, our selfish, sordid scheming, as developed in alleys, galleys, and court-yards—our diving into the earth's bowels for caverns wherein to thrust poor humanity—our cooping up in dark and noisome tanks of tenements those of flesh and blood like ourselves—our undrained, unkenneled, black and hideous wynds, unfitted as receptacles for dogs, or viler beasts—these we cram thousands and hundreds of thousands of our fellow-beings into, out of sight and out of way, and then boast of our western squares and one or two main arterial streets—while dense and solid blocks, and ramifications of thinly drawn inferior veins of coagulated evil breedings lie around and flow inwards at every turn.

But this must not continue—public attention is awakened, and it shall not be our fault if it be caught napping again. We shall receive and publish plans, and in the mean time we now insert one of Mr. Loudon's, that may have a limited range of applicability—and we subjoin his remarks from the supplement to his *Encyclopædia of Architecture*.



2053

Fine Arts.

ARCHITECTURE AND SCULPTURE.
(Extracted from the British Queen.)

It is so rarely that we find the weekly press going out of their way to notice subjects connected with building art, that we cannot resist the pleasure of transferring to our pages the following long extracts from the *British Queen*. Of course it will not be supposed that we subscribe to the remarks which accompany this report, though we know of no material difference, or at any rate have none such that we care to record. It is too grateful to our feelings to find this or any other paper leading the public attention in this direction, to permit us to carp at the manner of a thing so well intended, and on the whole so well done—it is in strange and pleasing contrast with the most of what we see in the contemporary press. We have wandered over the whole broad sheet of many provincial papers, and several of them crowded with builders' advertisements, and have not found one solitary paragraph devoted to building art. What greater proof can we want of the necessity of a publication like our own, to assert the title of the Builders to their fair share of attention and consideration?

In London we may shortly expect to see commenced the splendid new residences of Lord Francis Egerton (by Mr. Barry), and of the Duke of Cleveland and Lord Wilton in Grosvenor-place.

The facade in front of the mansion of the Marquis of Westminster is already in progress. A new suspension-bridge is about to be erected from Milbank to Lambeth, and we could swell our list by adding the names of several other public works which we hope to see shortly commenced; amongst others we might mention—

The New Law Courts.
The new Public Offices in Downing-street (by Mr. D. Burton); and what is of more importance, an extensive improvement on the banks of the Thames.

The new Lock Hospital in the Harrow-road is in a forward state, and the Infant Orphan Asylum at Wanstead is approaching towards completion.

At Richmond, the Wesleyan Institution promises to become a creditable building.

At Eton, most extensive buildings and improvements are contemplated, for which a splendid subscription has been raised.

At Oxford there is the "Taylor and Randolph Institute," the Protestant Memorial, and the new Fellows' apartments added to University College, by Barry.

At Cambridge—The Fitz-William Museum, the new University Libraries, the County Courts, two new Churches, and the restoration of the fine Old Round Church.

At Bath—The repairs of the Abbey Church, Queen's College, Mechanics' Institute, and New Savings' Bank.

At Bristol—Catholic Cathedral, two new Churches, new Railway Station, and Victoria Rooms.

At Liverpool—St. George's-hall and new Asseio Church, by Mr. H. L. Elmes. This building is the most chaste, classical, and perfect specimen of modern architecture which we have yet seen.

Liverpool Collegiate Institution, by the same talented architect.

Brunswick-buildings, by Messrs. Williams. A very beautiful building.

At Manchester—The Independent College and the Unitarian Chapel, the latter by Mr. Barry.

At Glasgow—The repairs of the Cathedral, the new Corn Exchange, the column to Sir Walter Scott, the Memorial to the Duke of Wellington, and the New Cemetery.

At Edinburgh—The Cross to Sir Walter Scott; the Statue to her Majesty; and the Wellington Testimonial.

There never was a period in this country when so many public buildings and national monuments were at the same time in course of erection—works, too, of a character and magnitude which mark this as an important era in English Architecture. Considering, therefore, that a complete list of them could not fail to be acceptable to the majority of our readers, we subjoin the following:—

In London we behold the New Houses of Parliament, the Royal Exchange, British Museum, Nelson Column (and the improvements in Trafalgar-square, now carrying on under the able direction of Mr. C. Barry).

Hungerford-bridge.

Terminus at London-bridge for the Dover and Brighton Railway, at the cost of 160,000.

New Club in St. James's-street.

New Front to Crosby Hall, in Bishopsgate-street.

The Catholic Cathedral in St. George's-fields (by Mr. Welby Pugin).

New Churches at Camberwell, Broadway (Westminster), and at Kentish Town, displaying considerable architectural beauty, and some twelve others without any such pretensions.

STATUES.

We find two to the Duke of Wellington, by Wyatt and Weeks, both in a forward state.

One to William IV. by Nixon, to be placed on the north side of New London Bridge.

Likewise to Admirals Viscount Exmouth, Lord De Saunarez, and Sir Sidney Smith, by McDouall, Steele, and Kirke.

To Lord Holland, the Earl of Leicester, and Sir David Wilkie; and we are gratified to be able to state that it is in contemplation to open a subscription forthwith, for the purpose of raising funds towards the erection of an equestrian statue to the memory of the late popular Commander-in-Chief of the Army, Lord Hill.

We can also add that Sir Robert Peel will (in consequence of what passed towards the close of the last session, on Mr. Benjamin Hawes's motion) feel himself justified in proposing public monuments to the memory of those distinguished civilians, Mr. Watt, Sir Humphrey Davy, and Sir Walter Scott.

But perhaps the most striking buildings are those being erected by the English Roman Catholics, both as regards magnificence of design and beauty of execution: buildings of which very little is generally known. The most remarkable are St. Barnabas, at Nottingham (a superb edifice); the Cistercian Monastery of St. Bernard, in Leicestershire; the Benedictine Priory of St. Gregory, Downside, near Bath; Hospital of St. John, near Alton (built at the expense of Lord Shrewsbury); the new Catholic Church at Derby; and the recent additions to Stonyhurst, near Preston.

We believe that the principal merit of these really imposing edifices is due to Mr. Welby Pugin, a gentleman who may certainly be regarded at present as the first *Ecclesiastical Architect*.

Catholic churches of great beauty have also been erected at Dudley, at Bury, by Mr. J. Harper, of York (very good), Pomfret, Mableborough, Macclesfield, Southport, Keighley, Kenilworth, and St. Oswald's, near Liverpool.

Our Church Building Societies cannot too soon avail themselves of the talents of Mr. Pugin.

Having now drawn public attention to the unprecedented encouragement which these numerous and extensive works hold out to our modern architects, we will conclude by expressing an earnest hope that they will soon attain to French or German excellence.

Our determination is to make known, foster, and uphold, *notice talent, but not at the sacrifice of truth*. We have seen (and we are grieved to write it) few buildings in this country which can be at all compared with those at Munich, Berlin, and, we fear, we must add, Paris. We will not, however, allow their architectural beauties to dazzle our eyes too much; nor the painful recollection of the designs for the New Houses of Parliament and the Nelson Testimonial to chill our hopes as to the future.

One of the most agreeable features of the present day, is the respect paid by the living to the memory of the departed great. This is an age of testimonials. We wish our native artists to be equal to the exertions required of them. Let them, then, compare their own designs, exhibited in the National Gallery and Waterloo-place, with those submitted at Berlin and Paris, as designs for monuments to Frederick the Great and Napoleon. They cannot but benefit by studying them.

THE CLERGYMAN BLACKSMITH.

We have been quite charmed with the little narrative which follows. We suppose Mr. Hurst was a whitesmith as well as a blacksmith, and if so, was one of us. We rejoice, as every builder will rejoice, in the appreciation of his merits, and join in grateful thanks to Dr. Maltby for the generous and delicate exercise of his patronage and friendship.

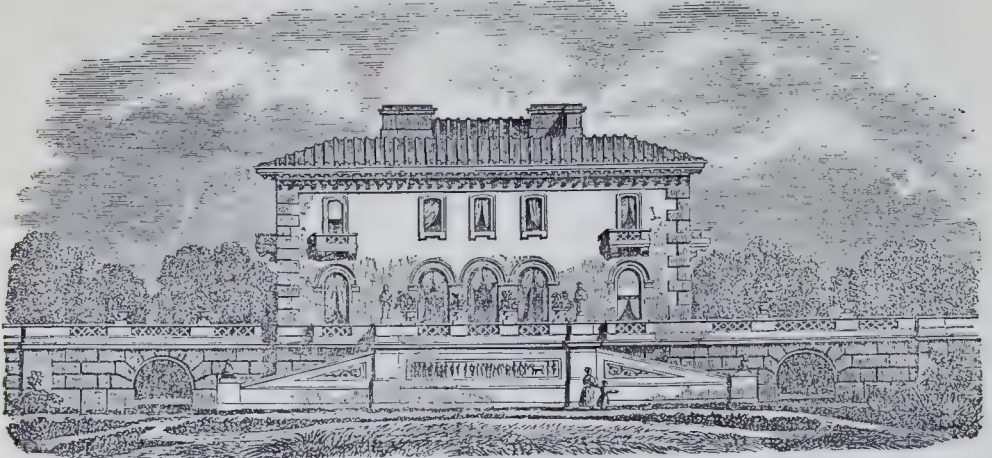
THE BISHOP OF DURHAM AND THE BLACKSMITH.—At the last ordination held by Dr. Maltby, the Bishop of Durham, in Auckland Castle, one of the successful candidates was a Mr. Blythe Hurst, who until then, and from boyhood, had followed the occupation of a blacksmith, in the village of Winton, in the county of Durham. The circumstances under which this humble but most deserving artisan has been thus suddenly unearthened as it were, and raised to the rank of a clergyman of the Church of England, are extremely interesting, and alike honourable in the highest degree to both parties. Mr. Blythe Hurst is a native of Winton, and was put to the trade of a blacksmith at the early age of seven years. At that time he had received little education. He could read the Scriptures, but could write only imperfectly. After he went to trade, he attended Archdeacon Thorpe's Sunday-school, where he made some progress. Writing, however, was not taught in the school. When he had entered

his teens, his mind was directed to the study of languages, beginning with his own. Afterwards he acquired six others, viz. Latin, Greek, Hebrew, Arabic, Syriac, and French. The immediate cause of his attracting the notice of Dr. Maltby arose out of his having written a pamphlet, entitled *Christianity no Priestcraft*, which he caused to be printed and published. The Rector of Winton, Mr. Wardell, enclosed a copy of this pamphlet to the Bishop of Durham, as the work of a common man, a labouring blacksmith. The Bishop wrote back, expressing the great satisfaction with which he had read the book, and observing that if it was written by a common man, it was the production of no common mind, and he was anxious to learn some further particulars of the author's life. These were not mere words of compliment. The Bishop was in earnest, and wrote to Mr. Douglas, the rector of Whickham, wishing him to see Mr. Hurst, and ascertain his ability to make a ready application of his acquirements. Mr. Douglas visited him accordingly, and found him toiling the whole day long to support his family. He pursued his studies while at work, having his lesson on his "flame-stone," a stone suspended before the eyes of the workman to protect them from the flames. Mr. Douglas conversed with him, and subsequently made a report to the Bishop. His Lordship next wrote to Mr. Davis, the rector of Gateshead, on the subject of Mr. Hurst. Mr. Davis visited Mr. Hurst, at Winton, and stated the result in a letter to the Bishop. Dr. Maltby afterwards corresponded with Mr. Hurst, and advised him as to his course of reading, recommending to his attention the most suitable books. His Lordship did more than this—he enclosed Mr. Hurst the means of following out his recommendations. Some time afterwards, the Bishop having occasion to visit Newcastle, he had a personal interview with Mr. Hurst, and arrangements were then made for his ordination. When the time for this ceremony was at hand, Mr. Hurst received a kind letter from Auckland Castle, intimating that apartments had been provided for his accommodation. His Lordship also presented him with a silk gown, through Mr. Wardell. His reception at Auckland Castle was kind in the extreme. He is represented as having passed his examination with great credit to himself, and much to the satisfaction of his examiner. It is customary for the candidates for ordination to dine with the Bishop; on this occasion the Bishop, on looking round the room for Mr. Hurst, found that he was at the opposite end. He asked him to come to him, met him, took his arm, and introduced him to Mrs. Maltby and all the ladies. When they were in the dining-room, he said, "You must come and sit beside me." It is believed that through the Bishop's patronage Mr. Hurst will shortly enter upon his ministerial duties as curate of Carrigill, near Alston. Such is the narrative, slightly abbreviated, of the circumstances which have resulted in the promotion of a most deserving man to a position more favourable to the exercise of his extraordinary acquirements, whilst it is fitted to reward the industry and perseverance by which alone they could have been achieved, as these circumstances were recently related by a Mr. Laycock at a public dinner in the county of Durham, in preface to a toast "The Bishop of Durham and the clergy of the diocese." It is seldom that we meet with such an extraordinary instance of unwearied constancy and devotion, exhibited in the pursuit of learning under the most adverse circumstances, as this displayed on the part of Mr. Blythe Hurst, nor one capable of being so well authenticated. It is not less rare that such unexampled merit meets with any thing like so appropriate a reward from those who are best able to confer it. The narrative, in fine, is one which exhibits both parties in a light equally honourable, and is calculated by its dissemination to operate in the encouragement of industry and constancy in every laudable pursuit, however much such pursuits may be thwarted by circumstances of an adverse or unfavourable kind.

IMPROVEMENTS IN WINDSOR GREAT PARK.

It having been suggested to the Woods and Forests that an ornamental palisading, in lieu of the present iron fence which now divides that portion of the Great Park in the Long Walk known as the double gates, would be a great improvement, especially when viewed from the Castle, the Commissioners immediately decided upon the suggestion being carried into effect, and tenders were requested to be sent in for the execution of the work. The palisading will be nearly 170 feet in length, with an ornamental gate in the centre of the Long Walk, embellished in the Elizabethan style, to harmonize with the architectural character of the keeper's lodge. On either side will be two smaller ornamental gates for foot passengers, the whole of which will be Kyanised, and then painted in imitation of wainscot. The pillars, which will be nearly ten feet in height, and ornamented, will be of old English oak, and the contract will be completed in the course of next month.

DESIGN FOR A VILLA IN THE ITALIAN STYLE.



In our notice of the Supplement to Mr. Loudon's "Encyclopædia" last week we omitted the foregoing illustration, being a design for a Villa in the Italian style, and from the prolific portfolio of Mr. Lamb.

PALMER'S PATENT GLYPHOGRAPHY OR ENGRAVED DRAWINGS.

We are enabled this week by the kindness of the patentee to procure a double gratification for our readers; the one in presenting to them a drawing of the beautiful western door of Rochester Cathedral, the other in demonstrating the value of this new discovery in the graphic arts. Lithography, photography, gypsography, and now glyphography—when will these wonder-working powers of reproduction have an end?

There is an article in the *Athenæum* of the 21st of January in reference to the art of wood engraving, and we join most cordially with the writer in deploring the decadence which is exhibited in it, by reason of the ascendancy of the mechanical over the mental and intellectual processes. An artist who shall engrave his own design will be more likely to give it that just expression and character which is essential to its fidelity than by a transference of this duty to a number of mechanical manipulators, who, with the labour of engraving a wood block divided amongst them, will give to each part of the draught an individuality instead of to the whole an essential unity. Happily this species of division of labour is not capable of being applied to the higher sections of art, any more than it is to poetry. Would it not excite a smile, or a horse-laugh, if it were proposed to train poets as we train artists, without regard, in most instances, to natural gifts or qualifications, and to assign, as is done in the manipulations of a factory, this portion of the theme to one poetaster, and that to another, and so on for a third and a fourth, and for some fifth to dress up the salmagundi into one "tasteful" and composite union?

It was on account of the prevalence of this system of translating and interpreting the works of artists by means of the go-between who may be no artist at all, that we hailed, on its introduction, the Lithographic process; but notwithstanding the many admirable examples of artistic skill which it now and then secures to us, it has not, and, in this age of transition and restlessness, perhaps never will engage the attention of any master mind, so as to give his life to the study and perfection of a style and the formation of a school in lithography; the objection also, which exists to lithography, because of its inapplicability to typographic working, must be noted as tending to restrict its advance; but in this last discovery we appear to regain some lost ground, and along with it an addition of territory. Wood engraving, as we have already shown, has its disadvantages, and certainly, when the artist himself is not the author of the transfer of his own work, it is liable to much of mutilation and marring of effect; but

in glyphography we have presented to us the probable union of the advantages of wood engraving and lithography, since it admits of all the facilities of type printing on the one hand, and of the draughtsmanship of the artist on the other.

There is necessarily much to be done in the mechanical system of this new style of art—we mention this because we have heard it objected to on the score of some peculiarities—perhaps they may be called defects—in these its first workings; but what discovery in art or science ever displayed its perfections at first? Artists will have to study the handling and operations, and from expe-

rience learn the management of this new process. After this we may calculate on the production of very superior effects, and a development of advantages which it would at present be idle and vain to speculate upon.

The economy of the process is also a ground of recommendation.

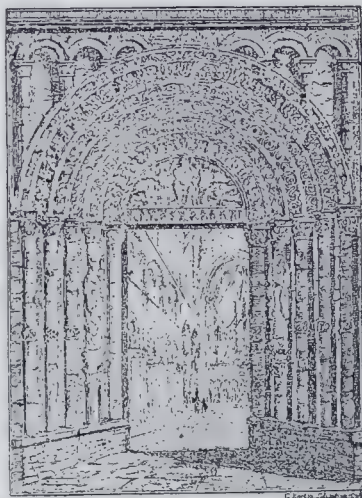
Mr. Palmer has published a nicely illustrated tract, explaining in his own way what he considers the advantages of his invention, and we learn from this that the necessary tools and plates prepared for working upon with the copper glyphographic blocks mounted for printing are all supplied at the rate of two shillings per square inch, when the size of the drawing runs above four square inches; and at ten shillings the block, for blocks of that size and under. But we must make our readers more familiar with the process.

"The artist first spreads upon a blackened plate of metal a very thin layer of white composition: through this he makes the drawing required, either elaborately or otherwise; and from it is taken, by the electrotype process, a perfect cast, which must, of necessity, when printed, transfer to paper a facsimile of the original drawing."

Directions are given in the tract that we have alluded to both as to the matters to be observed in drawing, and as to taking off and proofs from the blocks, and it is truly remarked in one place, that

"Glyphography presents the readiest means of artistic and intellectual amusement, by which a skilfully sketched portrait of a relative or friend, or the scenes of childhood and youth, of voyage and travel, may be multiplied at pleasure by the parlour fire-side; for the Glyphographers may even take the proofs themselves as hereafter described."

We conclude, in the full consciousness that we shall, by calling the public attention to this interesting discovery, contribute to the delight of many, and we refer for further explanation to Mr. Palmer's own publication.



Western Door-way of Rochester Cathedral.

MR. BARRY THE ARCHITECT.—The distinguished architect of the Parliament Houses has had the honour of being elected a member of the Academy of St. Luke, at Rome. This following hard on his election as a Royal Academician at home, is more than gratifying to us, and may be regarded as the augury of other distinctions to which Mr. Barry, by his great industry and talent, has so well entitled himself. Happy that he has thus early as it were in life succeeded in attaining so near to the crowning point of professional competence and fame, let us conjure him, if needs be, to make the power

of his elevation conducive to that good for his brother and junior associates, who are struggling in a path, the difficulties of which he knows so well; let him make the height and influence he has attained to favouring circumstances in the great duty of procuring a proper recognition of the claims of Architecture and its professors to national encouragement and patronage. But we fear him not in this respect, and predict that farther honours await him, of which he will have proved himself as worthy as of those he now enjoys.



Circular Window, West Front, Church of St. Ouen, Rouen.

Gothic Architecture.

BEFORE we enter upon this subject, we beg to correct an error into which we fell last week in ascribing the introduction of the term "pointed" to Mr. Pugin. It ought to have been in our recollection that, twelve years ago, Mr. Hosking, in the article "Architecture," in the *Encyclopædia Britannica*, adopted or originated that designation.

We this week present to our readers an outline drawing of a circular window from the Church of St. Ouen, at Rouen, in France. Will it be believed, or rather, would it be believed, if we had not cognizance of the fact of its existence, and of similar works of the masons—we had almost said the magicians'—art—would it be believed, we say, that such things could be?—and we can almost put the question in sober gravity—so long have we been shut out from witnessing the realization and production of such things.

In the drawing we have given, we have merely included the circle of the window; but the original drawing, in Pugin and Le Keux's *Normandy*, shews the accessories above and below, which are all in full keeping and equally elaborate with this matchless window. The circle is thirty feet in diameter! and may be said to be a huge wall of glass—for the stone has such aerial and almost perplexing lightness, that we may term it a mere filament or threading of fantastic lines—the recreations of the luxuriant fancy of some geometric idler of the monastic cell.

There are other beautiful windows of the same class in this cathedral; and an affecting tale is told concerning their production, which we transcribe from our authority in the following words:—

"In the chapel of St. Agnes" (one of a series of chapels or oratories which enclose and almost surround the choir), "is an inscribed stone, commemorating the melancholy death of Alexander Berneval, the master mason of the building, who, it is traditionally said, murdered his apprentice from jealousy, he having executed the very splendid circular window in the northern transept, which is generally allowed to be superior to that on the southern side, which was the workmanship of the envious master."

Pity that jealousy had room for entrance in the breasts of men who could do such works as these. One would have thought, that if the

mind had not been wholly absorbed and lost in the consideration and contrivance which their construction called for, the passion of the poet—for masons, such as these, must have been poets—would have quelled the suggestions of the darker ones of envy and revenge; but, no! Alas, how true it is, that the highest heights and the lowest depths are invaded by the enemy of the happiness of man!

The six main branching ribs of this window carry a section of 10 inches on the face and 1 foot 9 inches deep; the secondary ribs are $5\frac{1}{2}$ inches on the face and 1 foot $2\frac{1}{4}$ inches deep; and the minor or smallest ribs are $3\frac{1}{2}$ inches on the face by $9\frac{1}{2}$ inches—so light and frail in substance is this frame-work of masonry.

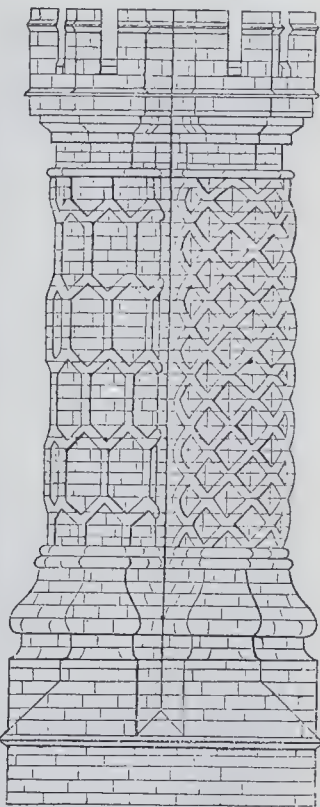
The moulding of these ribs, again, is of a character to still further reduce the substance, in fact and in effect; and as if not content with all the evidence of daring which this noble design supplied in these respects, there is a farther effort—one would have thought it an exhaustion of power—to ornament the inner circle. It might be termed the pupil of this wondrous eye, with radiating cusps, floriated and enchased, as is also the case with a facial ring of this inner circle.

This, then, in continuation of our plan, is one of the marvels in masonry which we promised. How many of our brethren of the craft, of the 60,000 working masons of Great Britain and Ireland, will look lightly or disparagingly upon this? Is there one that would not grasp his mallet fiercely, or be tempted to do it, if he could hear the whisper of a shallow brain in contempt of such as this—but we are forgetting ourselves and poor Alexander Berneval!

We invite the attention of the Bricklayers in particular to the specimen which we have selected from the chimneys of Hampton Court, to show how their craft in the middle ages exercised their calling. We see chimney-shafts of this class continually re-produced now-a-days in Roman Cement, and we are not about to join in any fierce, unmeasured strictures on the practice, any more than we would question the propriety of the brick fabrications before us; our purpose is to show what has been done in the way of handicraft excellence, and to stimulate, by such means, to equal

merit in that respect, and where it is needed, to superior, in point of design or appropriation. The bricklayer's art has sadly grown out of late years, so much so as to have reduced the workman in that craft to little better than the character of a mere waller. We could almost invoke the day of tuck-jointed brickwork and rubbed and gauged arches should continue to us, rather than see every vestige of pains-taking disappear, as it is doing under the dominion of stucco and compo. We have some splendid examples of ancient brickwork in our own country, but abroad they abound. One instance we may mention, which we were talking of the other day with a travelled friend, and that is at Pisa, where the whole front of a house is elaborated in cut and moulded bricks, and the bricks themselves of a material and make, equalling in fineness and closeness, a marble texture; but we have modern instances also of very superior efforts in the making, cutting, and laying of bricks. There is a magnificent scale of display at Cossey Hall, the seat of the Marquis of Stafford, from the designs of Mr. Buckler. Corbelling's, panelling, tracery, shields, and armorial devices, parapets, chimney-shafts, and all done in brickwork; it is an immense building, and you hardly perceive a stone, and certainly not a patch of plastering in the whole exterior.

Our duty is to promote the study of this branch of the building art in common with the rest, to show that brick-making is a much higher branch of the craft than it is usually taken to be, and that the humblest drudge in the brick-yard has something to excite him above his toil. He must be made to understand that he can play a more important part than is at present recognized in the erection of fine structures. It would surprise many to see the hitherto humble and almost despised brick-maker handling between whiles his pencil, and studying the chemistry of earths and their composition, or, which is the same thing, to see the artist and the chemist descend, we were about to say, but ascend to the brick-yard—but this we hope to bring about without any serious delay.



Chimney Shafts, Hampton-Court Palace.

PORCH OF ADEL CHURCH.

We have before us a lithographic impression of this consummately beautiful porch, from the press of Messrs. Day and Haghe, after a drawing by Mr. Nevins Compton, architect, of Leeds. We cannot say too much in praise of the faithful and spirited manner of the draughtsman; it is, if possible, worthy of the subject he has delineated; but a more beautiful Norman porch does not exist. We extract the following note in reference to it:—

"This Church, which was probably completed early in the twelfth century, is situated in the village of Adel (vulgo Addle), in the West-Riding of the County of York, about 5½ miles N.N.W. from Leeds, and is confessedly one of the finest existing remains of the Norman style of architecture in the kingdom. Rickman, in his 'Attempt to discriminate the styles of English Architecture,' briefly describes it as 'a small and very beautiful Norman Church, with very good details.' The exterior has, however, been much injured by injudicious alterations, &c., which, fortunately, the exceedingly rugged porch has almost entirely escaped, and remains to this day unsurpassed in beauty by any of its period."

ST. MARY'S CHURCH, REDCLIFFE, BRISTOL.

We have before us the printed report of the churchwardens and vestry, in reference to the proposed restoration of this superbly interesting church. To say that that veteran in the archaeology of Gothic art, BRITTON, presides over this great purpose, and to add that, associated with him is Mr. Hosking, the Professor of Architecture at King's College, is to offer all the warranty that the most jealous mind can call for that it will be conducted in a solemn spirit of truthful adherence to the invaluable beauty of

"this maystrie of a human hande,
The pride of Brittonne and the western lande."
"Well maist thou be astounde, but view it well;
Go not from hence before thou see thy fill,
And learn the builders vertues, and his name,
Of this tall spyre in every countrey telle,
And with thy tale, the lazing rich man shame;
Shewe howe the glorious Canynge did excell;
How he, good man, a friend to kynnes became,
And glorious pavel at once, the way to heaven and saue."

So sung the boy poet of this wondrous fane, and in truth we could sing, or cry, if we doubted the Bristolians and their friends, or could for a single moment mistrust them as to the raising of the necessary funds. What is it they have lately done in the equipment of that floating prodigy of the shipwright's craft, that adventurous cast of mercantile ambition, the Great Western steam-ship?—with thousands and hundreds of thousands involved, to secure a few days' gain in the crossing of the Atlantic—and great praise to them for it—what, in commanding, at an expense of six or seven millions (enough almost to build a St. Mary's in gold), the lying of London at their own doors, or within a few hours' ride? Have they done these things, or had a hand in doing them, and shall it be surmised that they will begrudge the peddling sum, peddling, while we talk of their ample treasury as above employed—a sum barely more than sufficient to deck out the state-cabin of their boasted steam-ship, or build a station for their "Western Railroad;" shall it be surmised, we say, that this "tall spyre," the best memorial of the past, as well as present worth of Bristol, will want its crowning stone, or the church its decencies, its garniture and repair, for any forty, fifty, ay, or sixty thousand dirty pounds of their abounding coffers? Nay, we tell them that if they leave too much of this subscription-list to the making up of distant contributors; if they wait for or tolerate more than the voluntary largess of the zealous and jealous participant in this too long delayed work of reparation and preservation, they deserve not to possess the St. Mary's of Redcliffe; and to say this were reproach biting and bitter enough.

But it is 40,000l. that is required, and the committee have taken the prudent resolve not to commence till the sum of 7,000l. is in hand.

The report of Messrs. Britton and Hosking, judging from the extracts we have access to, is one of the clearest and ablest documents of the kind we ever remember to have read—

is a masterly one; they set out in a distinct manner the nature of the injuries which the fabric has already sustained, by reason of the imperfect gutters, spouts, and drainage; they describe the defective condition of the roof covering; and call attention to an original bulging of the great tower, which, as arising from a cause to which sufficient attention is not paid now-a-days, we dwell upon to extract nearly in the words of the report.

"This bulging outwards of the external faces of that part of the structure has been produced by an inequality of strength and resisting power between the finely-wrought and closely-jointed masonry of the faces and the rubble backing which constitutes the main bulk of the walls."

Messrs. Britton and Hosking represent the solid structure of the tower as "generally sound and trustworthy, though its exterior surface has almost wholly perished," and they recommend, or rather "urge most strongly, the necessity of restoring that perished surface, as well as the immediate apses; and adapting it to receive the completed spire, and carrying on to completion that beautiful feature of a master-work of architectural composition, which in its truncated state is but an unpicturesque deformity." They afterwards go on to report that the complete reinstatement and restoration of the tower, with its pinnacles and all its decorations, in the manner and with the stone they contemplate adopting, will cost about 8,200l.

The reconstruction and completion of the spire, for it will be remarked, from the last paragraph, that it is, as the architects in the report describe it, in a truncated state, that is, a portion only of the spire had been originally erected—will cost 3,600l.

The "hydraulic arrangements," as they are termed, that is, the provisions for carrying off the water, will cost 1,850l.

The substantial repair and reinstatement of the interiors, and the repair, reinstatement, and restoration of the exteriors of the church, lady-chapel, and porches, including the reworking of the whole of the external decorations in the stone alluded to, together with the alterations and presumed improvements recommended in the general report, is estimated will cost nearly 21,400l.

The rearrangement and refitting the interior of the church, as proposed by Messrs. Britton and Hosking, will cost 2,600l.; the whole presenting a total outlay of 37,650l.

We must now close our extracts, for the present at least. It would have given us great satisfaction to have inserted a wood-cut illustration of this superlatively beautiful edifice, but we hope to recur again to the subject, and to treat it more satisfactorily to ourselves, our friends, and readers.

Literature.

PROFESSOR DONALDSON'S Preliminary Discourse on Architecture, delivered at University College.—London: Taylor and Walton.

We have in Mr. Donaldson's (may we say inauguration) discourse an earnest of vigorous and talented occupation of the academic chair at this university. His sketch of the salient beauties of the art is rapid and comprehensive, and, we should say, well devised to stimulate the energies of the student.

Discourses or lectures delivered by theselect of a profession are, in fact, first; brochures of the acquirements and opinions of the individual; secondly, they furnish indications of his views in the cultivation and advancement of his art. A degree of importance must, there-

fore, always attach to the faithful performance of our duty in bringing before our readers these periodical essays on architectural history and science; we shall do so, rather avoiding the intrusion of competitive opinion than seeking opportunities for egotistical gratification.

The lecture opens with some well-timed remarks upon the increasing interest which the progress of architecture excites, and of the inducement to higher aims. The origin of building art in the necessities of mankind is then touched upon, and gradual improvement justly deduced from the union of the principle of taste.

A coup d'œil of Rome in the reign of the Emperor Augustus, an enumeration of the principal structures of Paris, and of the great buildings at St. Petersburg, are well introduced.

"Augustus boasted that he had found Rome (built) of brick, and left it of marble; nor was this a mere vaunt, for he well knew how deeply the minds of the citizens were affected by the contemplation of the refined monuments of art which he had erected. The ambassadors of foreign nations, as they passed along the Appian Way, lined on each side with sepulchral monuments, when they came within the city walls, and all the splendour of ancient Rome burst upon them with the rich assemblage and pomp of architecture, felt themselves overwhelmed with the magnificence of the people, and from that circumstance no less than their victories, felt the superiority of a nation whose arts of peace could raise such exalted emotions in their minds."

Such was indeed the effect likely to be produced by a view of Rome in the Augustan age. The stern and iron-sceptered mistress of the world, its wealth, and its treasures of art, aided by the talent of the vasa artists and artisans of Greece, had achieved these works. No period of the imperial vassal equalled that of Augustus in splendour. Having closed the temple of Janus, as emblematic of universal peace, all the appliances of the state were put into requisition to gratify the passion for vastness of structure and decoration that characterized the Roman people.

The public edifices of Paris are next enumerated, and the alternate magnificence and squalidness of the buildings at St. Petersburg instanced. Both Louis XIV. and Peter III. were great builders. The impress of super-luxurious monarch in his patronage of super-added decoration to a style essentially Roman is well contrasted by the gigantic efforts of the semi-barbarous despot to rear a capital upon the swamps of the Neva.

A short paragraph follows in elucidation of a question put by the professor, "and shall our own capital be passed over?" It is evident, however, that the subject is upon this occasion merely incidentally mentioned; we therefore pass on to the general notices of monuments of art so widely distributed over the ancient sites of art, and here we are bound to add our tribute to the aggregate of approval with which this discourse will be remembered and preserved. The diction is clear and stimulating, the objects well selected, and the authorities and quotations appropriate. We had wellnigh been tempted beyond our limits by entering upon transcripts, from this division of the discourse before us, a portion of the concluding paragraph is, however, so entirely to our taste, that we cannot omit it.

"Such then are the emotions inspired by the ruins of the ancient monuments of architecture, and such the claims she has upon the gratitude of ancient and modern times, as forming one of the main links that unite us with those who have gone before us. LANGUAGES BECOME OBSOLETE, BUT THE LANGUAGE OF ARCHITECTURE ENDURES FOR EVER."

Gothic Architecture.—"Those sublime edifices," says Mr. Donaldson, "due to the genius of our fathers," is briefly mentioned, but with a commendatory feeling and spirit.

—The tall pile,
Whose ancient pillars rear their marble heads,
Bearing aloft the arch'd and ponderous roof,
By its own weight stands steadfast and immovable,
Has indeed claims to our veneration, while, to the profession, the science of construction and ornamental art combined render this style perhaps the most fertile source of exposition and illustration, one which we trust to see reviving under the present race of architectural students.

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The necessary connection of civil engineer-

ing with architecture is well explained and enforced in the following text:—

"Engineering and architecture are so intimately connected, if not to a certain degree identical, that it seems strange that they should be considered distinct, as are medicine and surgery. But this artificial division arises from the great and numerous works carried on in each department, and for the attainment of a mastery in which the life of man appears to be almost inadequate. But in truth the scientific principles which prevail in architecture equally direct the engineer—their practice should be the same, their studies the same, and the buildings and constructions in which they are engaged common to both. It may be conceived, and justly, that a line may be drawn between the mechanical engineer and architect, the branch of science relating to machines and machinery being so distinct. But whenever construction is concerned, the architect can only be worthy of his important mission who possesses the science now sometimes considered to be exclusively appropriate to the engineer; and that engineer can have little hopes of pleasing the taste in his warehouses, viaducts, bridges, and other hydraulic erections, who has not studied in those schools which impart elegance, dignity, and character to the monuments required by the necessities or the luxuries of the nation."

These sentiments entirely coincide with our own views and practice. A right direction in educational courses of all descriptions is on the eve of establishment; and we may anticipate extraordinary results from mental power thus trained to embrace the constituents of the various branches of science.

The programme of study traced out in pages 26 to 29 is worthy of a school of architecture. The importance of the cultivation of first principles and the vacillating condition of the art are thus forcibly pointed out:—

"A recurrence to first principles was never more essential than at this moment. For not only our own school, but those of our continental neighbours, have reached a most critical period. We are all, in fact, in a state of transition. There is no fixed style now prevalent here or at Paris, at Munich or Berlin. There is no predominant predilection nor acknowledged reason for adopting any one of the old styles of art. We are wandering in a labyrinth of experiments, and trying by an amalgamation of certain features, in this or that style, of every period and country, to form a homogeneous whole with some distinctive character of its own, for the purpose of working it out into its fullest development, and thus creating a new and peculiar style. This movement has placed the schools of all countries in a state of great uncertainty; as yet we have no fine leading principle as a guiding star."

Speaking of *imagination and reason* as the elements of proficiency in architecture, the cupola of St. Peter's, Rome, is in-tanced. Of this gorgeous structure, unparalleled in extent, and in the science applied in construction, it has been said—

—Thou, of temples old or altars new,
Standest alone, with nothing like to thee—
Worthiest of God, the holy and the true,
Since Zion's desolation, when that he
Forsook his former city, what could be,
Of earthly structures, to his honour piled,
Of a sublimer aspect?—majesty,
Power, glory, strength, and beauty, there are
aisled.

"The cupola of St. Peter's is one of the sublimest productions of the imagination. Originally conceived by Bramante, carried on by Michael Angelo, and completed by successive architects; the interior, at all events, with its graceful lines, its judicious divisions and splendour of decoration, seems another world enchanting beauty suspended in mid air. So far the mind of the general spectator is more than satisfied. But the man of science investigates its construction, and the portentous rents and crumbling walls, held together only by iron ties, have for three centuries occupied the anxious care of the Papal government, and leave a consciousness of unsoundness and probable destruction."

* * * The Tower of Pisa, with its seven-storied peristyles, is now an object of wonder only that, with its great declination from the perpendicular, it has not fallen entirely down. The principal buildings of Bramante, erected, as they were, in haste, to satisfy his impatient employers, all afford evidence of faulty construction, and thus disappoint the architect. Need I allude to a striking instance of modern times in this capital?—I mean the old Pantheon Theatre in Oxford Street. The original appears to have been a master-piece of the kind, and a brilliant example of the taste of James Wyatt; but when rebuilt after a fire, by inferior hands, it was rendered a ruinous property to the proprietors, from the want of sufficient strength in the construction; and the authorities forbade any spectacle to be held within its walls. Yet, although it be a great error,

on the one hand, to put too little strength, still, on the other, it is also an error, involving the character of the architect, if he be extravagant in the use of means, and needlessly squander money."

Some interesting observations follow upon contraction; the qualities of materials; heating, lighting, and the ventilation of buildings; the Professor then proceeds to say:

"Sewerage and drainage are also of vital importance to large and densely-populated towns, and perhaps there is not, nor ever has been, a capital in which so much attention has been paid to this branch of science. Some of our main lines of sewers are from eight to eleven feet wide, and from seven to ten feet high; and the crowds who hurry along are little conscious of the torrents of water and filth which are carried into the Thames by the stupendous subterraneous galleries beneath the spot they are traversing."

We fully assent to the efficient manner in which the direction and construction of public sewers is managed. Mr. Donaldson is an authority on this subject, being, we believe, himself chairman of the commissioners. The importance of drainage was anxiously attended to by the ancients. *Plutarch* was a superintendent, or commissioner of sewers.

With some extracts upon the qualifications necessary to the architect, from the well-known work of Vitruvius, the recommendations of Sir C. Wren for the maintenance of high-minded integrity, and a few well-chosen observations upon his assumption of the chair, the Professor closes his first discourse. Those that may follow we shall await with interest, and endeavour to render them useful to those of our class, who, though without the pale of academic instruction, are fully capable of appreciating the *dicta* promulgated at our seminars of art.

Introductory Lecture delivered at King's College, January 25, 1841, to the Class of Civil Engineering and Architecture. By PROFESSOR HOSKING.—London: John Weale.

We have before us two lectures delivered by this gentleman; it is to that bearing the date in the head-line that we now invite the attention of the reader.

It occurs that in our present number we offer three of these papers to notice, and we recommend our friends, particularly those at a distance, not to pass too hastily over these important transcripts. Separately considered, they are specimens of the degree of talent and spirit with which the Professors have entered upon a career of generous emulation, while in the aggregate they form, as it were, a barometrical index of the academic atmosphere of the institutions for the cultivation of our art which now grace this metropolis.

May we, without umbrage, set up a comparison between the modes of address and reasoning adopted by the Professors at King's and University Colleges? Is it not, kind reader, a *critical* question to propound in the infancy of our journal? Assuming, however, that we have a majority of affirmatives, we proceed.

Those amongst you who may have heard Lords Brougham and Lyndhurst from the judicial seat, and remarked the difference in diction and manner of these eminent personages and profound lawyers, will recognize the parity of our remark. Mr. Hosking is the Brougham of King's College, while, by a somewhat singular chance, in this world of mutation, Mr. Donaldson is the Lyndhurst of the sister lecture-room.

Looking to the date of this lecture, we are late in our notice, but early in the welcome we tender to Mr. Hosking as a competitor in the arena of science—but to business.

Mr. Hosking, with little prelude, rushes to the question of professional education, and the best modes of cultivating it. The fascinations of ancient art, so beguiling to the ear and to the senses, are on this occasion abandoned, and give place to homely examples, to the business of the day, to the works of British artists and artisans: Here is the text:—

"We cannot hope here to make young men carpenters or masons, but we hope to make them better qualified to compose, describe, estimate, and direct works of carpentry and masonry than they can be without such assistance as that we offer them. In becoming proficient as a carpenter, a mason, or a smith, a young man is apt to overlook the importance of other handicrafts in favour of that in which he has acquired confidence; but a sound,

and indeed a somewhat extensive, practical knowledge of the modes of operating in all the leading crafts, of which the three I have mentioned, together with the bricklayer's craft, are the most prominent, is essential to the civil engineer, who only exists independently of the architect on the one hand, and of the machinist on the other, through his presumed superior practical skill in applying the operations of the carpenter, mason, bricklayer, and smith, in connection with those of the navigator or earthworker and miner.

"The late Mr. Telford attained the highest eminence in his profession from the most humble commencement, and late in life—with the experience of more than half a century—he thus recorded his own history and impressions:—'The early part of my life,' says Mr. Telford, 'was spent in employment as a mason in my native district of Eskdale, in the county of Dumfries. Wherever regular roads were substituted for the old horse-tracks, and wheel-carriages introduced, bridges, numerous but small, were to be built over the mountain-streams; these, however, furnished considerable employment to the practical mason, and I thus became early experienced in the requisite considerations and details.' In such works," Mr. Telford goes on to say, "in farm-houses and in the simple parish-churches of the Scottish border,—convenience and usefulness only are studied, yet peculiar advantages are thus afforded to the young practitioner; for, as there is not sufficient employment to produce a division of labour in building, he is under the necessity of making himself acquainted with every detail,—in procuring, preparing, and employing every kind of material, whether it be the produce of the forest, the quarry, or the forge; and, thus, although unfavourable to the dexterity of the individual workman who earns his livelihood by expertise in one operation, is of singular advantage to the future architect or engineer, whose professional excellence must rest on the adaptation of the materials, and a confirmed habit of discrimination and judicious superintendence."

"Such was the early education, and such were the matured opinions of a man who hardly left a corner of our island without some important work to record his name;—of the man who made the Highland and Holyhead roads with their centuries of bridges,—who drained fens, and built docks and harbours,—who carried the Ellmere Canal over the vale of Llangollen, and the Holyhead road over the Straits of Menai,—who connected the Irish Sea with the German Ocean by the Caledonian Canal, and the German Ocean with the Baltic Sea by the Götha Canal;—for Telford's advice and assistance were sought by foreign nations, and Norway, Sweden, Russia, and Poland bear witness to the skill and fame of the Eskdale Mason!"

The brilliant achievements of that estimable and single-minded man, the late Mr. Telford, are the most striking facts on record that could be selected to stimulate students in the class to whom the lecture was addressed. We believe that it will not be wanting in effect in a far wider circle; a circle within which we would attract the talented and aspiring of all ranks in the building art.

Other quotations follow from Mr. Telford's works, pointing out the advantages he ultimately derived from his laborious occupations in handicraft; and his summary should be remembered by every artisan in the empire, he says,

"For this reason I ever congratulate myself upon the circumstances which compelled me to begin by working with my own hands."

The following observations on the present and future prospects of the combined sciences of civil engineering and architecture, have not been exceeded in point or in truth. The student may well adopt them as a beacon, in his study, to acquire proficiency in the exercise of his art; and they will originate, or we mistake, more of inquiry into qualification than has heretofore been instituted.

"Whilst the practical knowledge of Telford and Rennie,—the mason and the millwright,—exists in its effects upon those who had the advantage of working with and under those eminent hydraulic architects, the practice of civil engineering as at present constituted will continue, but those who seek to engage in and follow it must qualify themselves by direct application to the sources from which it sprang, and upon which alone it can rest a further continued existence. The civil engineer who attempts to compose, specify, and direct a work, without knowing how the materials to be employed are to be shaped and put together, or otherwise applied, connected, and secured, and how they will operate upon one another, and be acted upon by the agents with which they are brought into communication or contact, must fail. It is, indeed, the

combination of the workman and the man of science that forms the civil engineer. The mere workman is to be found everywhere—I mean the men who understand the various operations of the workshop and yard, the class from which Brindley, Smeaton, Telford, and Rennie emerged, who by the native force of their minds became *architectes*—chief, originating, and directing workmen. The man of science may be formed independently of the workshop, but it is through the workshop alone that the man of science can become what the men I have enumerated were; he may possess himself, in the office, and in the service as an assistant, of the established practitioner, of the routine of business, of the habit of using technical terms, of repeating working and other drawings, and of using set phrases and forms in the composition of a specification; he may learn to estimate and to describe the items of an estimate as they are usually described, and to attach prices to the items according to the established usage; and having made these acquisitions, he may consider himself fitted to practice as a civil engineer. He will feel himself competent to investigate any question that may arise in practice when the *data* are supplied, but he will find that questions continually arise upon which no *data* are to be obtained, and in default of practical knowledge of the matters involved, of their combinations, and of the accidents and changes to which they are liable, he must seek the judgment of others to form assumptions upon which to base his investigations;—he will readily lay out and design any class of work within the range of engineering practice, and proceed to specify and estimate the designs he may prepare, and to arrange contracts for their execution, but he will learn from the contractors as the work proceeds that this cannot be done as he may appear to have intended,—that that will not do in this particular case,—that such and such things are necessary and such others essential;—and when the works are completed he will have the mortification of finding that the variations made, and the alterations and additions effected, have made his contract a dead letter, whilst the new operations have to be paid for at such rates as custom may warrant, and which he will feel his own incompetence to check or restrain, whilst his works will have cost thirty, forty, fifty, or perhaps a hundred per cent. more than he contemplated, or had advised his employers of."

The context is equally fertile and happy in recommendations in favour of practical acquirements,—those of the use of the tools and implements of the workman,—as inducing an enduring knowledge of construction, and of the qualities and quantities of material. We are then treated to a pithy analysis of the sciences of engineering and architecture, wherein they are alternately separated or combined with reference to the different views and objects in which they have been employed, and the deductions are satisfactory and valuable. There is nothing of assumption or pretence about Professor Hosking; every thing is matter of fact, and plainly given. He says to his class:—

"In promising you information that will be useful to you in the pursuit of your professions respectively, I must beg to be understood not to promise to qualify you here to practise as architects, or as civil engineers. We offer you information whereby you may become qualified to avail yourselves more effectually of the practice of the engineer's or architect's office, and thereby to become *better* architects and *better* engineers, to your own confidence, comfort, and advantage, and for the advantage of society, to whom your services will be hereafter offered, than you would have been without such instruction and information as we offer."

And again, after a slight notice of architectural blunders and blunderers,—

"However ordinary architectural works may be directed vicariously, hydraulic architecture cannot be practised successfully by any but practical men acting upon their own responsibility, and if you do not bring science backed by practical skill to your work, you will find yourselves driven from the field by masons and millwrights, whom the time will call from obscurity to perform the duties for which you will have shewn yourselves unfit. I would say, then, acquire superiority over the merely practical man,—the rule-of-thumb engineer,—by the attainment of sound scientific knowledge, in addition to the mere practical skill with which he tenders his services; but do not depend upon scientific knowledge alone if you propose to become civil engineers and hope to gain your bread by the practice of civil engineering as a profession."

We think this lecture should be generally known and read; the style of the speaker, it is true, generally accords with the quality of his discourse, which is rendered more impressive by the identification of the mental and oral faculties at the moment of delivery. This

may be the cause why, on the one hand, so many very indifferent lectures are tolerated, and, on the other, of their being so frequently classed among the ephemera of the day. That which we have just gone over with so much pleasure is of a different character, and may be read with advantage in every school where civil engineering and architecture are taught.

We shall recur to these lectures at an early opportunity.

THE NEW BUILDING ACT.

TO THE EDITOR OF THE BUILDER.

"Sir,—I should neither have intruded myself on your notice or that of the public, had I not found myself bound to do so in justice to a large and deserving class of persons, who have every thing to fear from any *hole and corner* alteration of the Building Act, as announced in a letter from one of your correspondents, a Mr. John Reid, Surveyor, 90, Canterbury-buildings, Lambeth, on the 18th inst.

"Now, Sir, although there may be objections urged against the present Building Act, I feel quite convinced that if the district surveyors were to do their duty properly to the public by enforcing upon all builders a rigid fulfilment of the conditions of the various clauses contained therein, there would not only not be the slightest ground for complaint in the erection of new buildings, but not even the slightest pretence for altering the building laws as at present established.

"It may not be known to the many, but it certainly is to the few, that a new bill for regulating building was introduced into the House of Commons last session, but from some cause or other, probably the bungling of some of its framers, it was not proceeded with, and subsequently it has been submitted for revision and improvement to certain architects, &c., with the intention, when they have maimed and mutilated it sufficiently, of giving the abortion birth in a covert manner this session.

"My object in troubling you with this communication is not only to draw the attention of the builders of England, and London in particular, to the fact, but to exhort them to meet at once, and, as an intelligent body, concert means for the prevention of any unfair and underhand meddling with the present act, and the keeping a watchful eye upon the progress of that which is intended to be smuggled through the House.

"I am, Sir, your obedient servant,

"February 23rd, 1843.

"KEYSTONE.

"P.S. In confidence I give you my address, and may trouble you again on the same subject."

STAINED GLASS WINDOWS.

We have been much gratified by the inspection of two stained glass windows which have been recently placed in the new church of St. Peter in this town, the work of our talented townsman, Mr. Wailes. In cleverness of design and brilliancy of colour they will bear comparison, we suspect, with the best specimens of the art. One is in the chancel, and is adorned with the figures of the apostles St. John and St. James the Greater; and as this part of the church contains six windows, of two lights each, an excellent opportunity is presented of collectively depicting the twelve apostles, towards which a good beginning has been made with the two sons of Zebedee.

The other specimen of Mr. Wailes's art is an *obituary window*, to the memory of the late Vicar of Newcastle, the first of the kind, we believe, in this diocese. The Archdeacon of Northumberland, at his late visitation, very judiciously recommended this species of memorial, which forms at once a pious testimony to the departed, and a rich and appropriate ornament to the building where it is placed, and thus makes the indulgence of affectionate regret on the part of the survivors subservient to the permanent decoration of the house of God. In this view of the case we cannot but wish the example may be followed, more particularly in churches of Gothic architecture, where the introduction of Grecian tablets and monuments is in all cases incongruous, and most commonly prejudicial to the general effect of the building. The window we are describing is about seventeen feet in height, by nearly six feet in breadth, of the decorated style of the early part of the fourteenth century, and consists of three lights surmounted by three *quatrefoils*. In the highest *quatrefoil* is represented the Annunciation of the Blessed Virgin, and in the two lower ones, the adoration and offerings of the Magi to the infant Saviour. In the centre light, the principal figure is our Lord holding in his hands the emblems of universal dominion, and in the other two lights stand St. Peter and St. Andrew, each of the brothers being marked by his proper ecclesiastical distinction. Below the principal figure is a representation of the late vicar, in

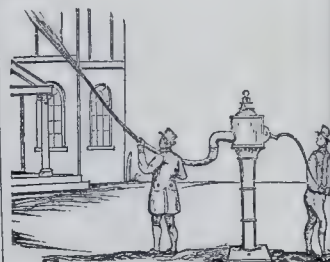
stole and surplice, kneeling before a litany desk, and on each side are two angels bearing scrolls, on which is inscribed out of the Vulgate, "Quod cogitasti domum edificare nomini meo, bene fecisti hoc ipsum mente tractans." At the foot of the window, and running continuously through the three lights, is the following inscription:—"In ipsam memoriam patris desideratissimi Joannis Dodd, Novi Castri super Tinam per XIV. annos Vicarii cujus consilio, patrocinio, ope hæc Sancti Petri Ecclesie ædificatio cepit æst, A.S. MDCCCXL. fenestram hæc picturam sua impensa psonendam curavit, A.S. MDCCCXLIII. Gulielmus Dodd, Ecclesie Sancti Andree in eodem municipio Curator Perpetuus." The window is placed at the extremity of the south aisle, and whilst it is most creditable to the skill and ability of Mr. Wailes, it forms, at the same time, a remarkably interesting feature of the internal decoration of the building.—*Newcastle Journal*.

IMPROVED FIRE-ENGINE PUMP.

THERE is a little essay published by Mr. Freeman Roe, of No. 70, Strand, in which he describes, for the benefit of those uninitiated, in the mysteries of hydraulic machinery, the various qualities of pumps in ordinary use, and their peculiarities. His object, he states, is to solicit particular attention to the advantage of an improvement which he has made in the stuffing-box of the third class of pumps, viz., the lift pump, which improvement consists in the use of a flexible cup or cap of leather, india-rubber, cloth, webbing, &c. so placed in connection with the joint of the handle of the pump, as to form an air-tight interior cover, and to enable him to dispense with the ordinary stuffing-box, and thereby save that loss of labour which arises from the wearing and enlarging of the hole in which the piston-rod works, and the consequent waste of water or leakage, and also in diminishing friction.

By means of this invention, Mr. Roe is enabled to convert the lift-pump into a fire-engine, for the improved joint, being fixed on the side of the pump-barrel, admits of an air vessel being formed on the head of the pump, and so that it becomes also a force-pump. It appears that Mr. Roe has fitted up one of the pumps at the House of Commons in this manner, to act as a fire-pump.

We could have wished that the accompanying diagram had been a little more explanatory, but in that which we have written will be so far illustrative of his improvement, as to give a fair general idea of it, and for the rest we must refer to Mr. Roe's own essay, which, being printed in a little pocket size, can be transmitted by post for the farther enlightenment of the more curious inquirer. It contains other matter in reference to water-closet valves, &c., and being explained by small diagrams, is instructive to the general reader. The illustration given in our pages exhibits the patent pump in use as a fire-engine; but we will add another remark concerning it, which applies to a large class of graphic works and embellishments. The pump may be tolerably well drawn, but who will say so much for its workers? Any thing in the shape of a man, it is thought, will do in such cases. We insist upon it that more attention should be paid to these little particulars. We could not help noticing this neglect of the proprietors even in the handling of *The Times* newspaper on our breakfast-table the other morning; the royal arms at the head of that important broadsheet is as commendable in point of draughtsmanship as any primitive effort of aboriginal art. Surely, if these things are to be given at all, some correctness should be observed.



Patent Pump.

Miscellaneous.

NEW BUILDINGS IN LINCOLN'S INN.—Preparations were commenced on Monday week for the new buildings which the benchers of Lincoln's Inn are about to erect in their garden, under the superintendence of Mr. Hardwick. A great portion of the fine terrace walk, which was raised in the time of James I., and also of the avenue of trees, which has so long afforded shade and ornament, must be demolished. From an article in the *Law Magazine* of the present month we collect the following particulars of the intended improvements:—The new buildings will consist of a dining-hall, a drawing-room, a council-room, and a library. The structure will be of deep red brick, interspersed with brick of a darker colour. The quoins and dressings will be of stone. The style of architecture which Mr. Hardwick has selected may be referred to about the middle of the Tudor period, more inclining to the highly decorated perpendicular of the time of Henry VIII. than the *cinque cento* mixture of the reign of Elizabeth. In the adoption of the red brick, says the reviewer, Mr. Hardwick has shown good taste and judgment: for no material is so little deteriorated by the smoke of the eternal fires of the metropolis, and according to general rumour there is no place smokier in London than Lincoln's Inn-fields. The two principal façades will front Stone-buildings on the east, and Lincoln's Inn-fields on the west; each will have some different features which will possess an interest of their own. While the eastern front will differ from the west in exhibiting the entrance up terraced steps, the western front will have an elegant canopied turret, terminating the northern end. The gable ends of the two chief buildings, the hall and library, will be unlike—that of the hall on the south end consisting of two square turrets, with a large central perpendicular window, as in Westminster-hall; whilst the ends of the library, which will stand east and west, will terminate in bay windows. In both apartments the roofs will be formed of beams of oak, springing from corbels, with panels and pendants. The hall roof will be the more decorated of the two, and something like that of Hampton-court, though less elaborate. The dimensions of the hall will be 120 feet in length, by 45 feet in breadth, and 54 feet in height. The dimensions of the library will be 80 feet in length, by 40 feet in breadth, and 48 feet in height. The building will occupy about two years.

HANBURY CHURCH.—This church has recently undergone considerable alteration and repairs, which were designed and superintended by Mr. Fradgley, of Uttoxeter. The project originated with John Holt, Esq., of Coton Hall, and to his liberality and exertions the parishioners of Hanbury are mainly indebted for the restoration of the church in which their forefathers worshipped. 100*l.* was contributed by the Queen, and other liberal sums by the Queen Dowager and the surrounding gentry. In taking down the old south wall, a number of stones in excellent preservation were found, carved in low relief, in the Anglo-Saxon or Anglo-Norman style: these are now exposed to view by being let into the wall of the interior as panelling.

ST. MARY-REDCLIFFE, BRISTOL.—The subscription progresses most favourably. The Bishop of Gloucester and Bristol has just presented 100*l.* towards the restoration of this splendid specimen of Gothic Architecture.

PICKFORD'S WAREHOUSE AT CAMDEN TOWN.—The area of this warehouse is almost exactly double that of Westminster Hall; being about 230 feet long by 140 in width. The roof, divided into three sections, and supported by two rows of pillars, exhibits nearly an acre of slating, and a hundred skylights. The whole warehouse is vaulted beneath; and so enormous are the weights which these vaults have to support, that more than three millions of bricks were used in their construction. —*Penny Magazine.*

IMPROVEMENT ON THE BANKS OF THE THAMES.—The Lords of the Treasury, the Commissioners of Public Works, and the Corporation of London, caused some time ago a report and estimate to be made on embanking some portion of the River Thames. A select committee of the House of Commons took up the inquiry upon a more extensive scale, and engineers were employed to examine the river within the whole of the jurisdiction of the Lord Mayor, and to report upon the entire question of making the river advantageous in every respect to the public. On Wednesday special Courts of Conservancy were held at Westminster, the Borough, Greenwich, and Stratford, for the several counties whose lands embank the Thames, by the Lord Mayor, with the view to forward the great object. The Recorder addressed the jurors at considerable length, and the 11th day of March was appointed for the next courts, on which day the several presentments will be made by the jurors.

CHURCH OF ST. BARTHOLOMEW THE GREAT, WEST SMITHFIELD.—This beautiful specimen of Norman architecture is fast falling into ruin from decay and neglect. Though wofully shorn of its splendour, it is still worthy of a visit from every lover of antiquity and admirer of church architecture. It is now the oldest architectural building in London, with the exception of the chapel (now the Record-room) in the Tower. We are, therefore, glad to learn that a subscription has been entered into by some pious and patriotic gentlemen, to preserve it from destruction in the same way that a few years since the noble choir and beautiful *Lady Chapel* (and would we could add the nave also) of St. Saviour's Church, Southwark, were rescued from impending ruin. We feel assured that such meritorious exertions will meet with all the support and encouragement they deserve.

OLD SHOREHAM CHURCH.—It is with great concern that we allude to the present deplorable condition of this beautiful and venerable edifice. Two years ago the Oxford Architectural Society undertook the repair and restoration of a part of it; but from the want of adequate funds the works could not be proceeded with. The recent gales have, in consequence of its unfinished state, done considerable injury to the roof, which has been partly carried away. Many of the new ornaments have been injured and broken, and the church itself will shortly become little better than a ruin, if prompt and effectual measures be not taken to close in the roof, so as to prevent the damage which is being occasioned by the wind and wet. Divine service has not been performed there for some time, and the inhabitants are consequently deprived of the consolations of religion. We are sure that a proper representation to the Bishop of Chichester would lead to some of the funds belonging to the Chichester Diocesan Church Building Society being appropriated to this most laudable object. Neither can we believe that the Oxford Architectural Society will refuse to continue the aid which it so creditably afforded in the first instance. We are also led to believe that if the clergy of Brighton were to make known the real state and condition of this interesting specimen of ecclesiastical architecture, private subscriptions might be readily obtained towards the preservation, if not the perfect restoration, of this neglected and forsaken house of God.

CHICHESTER CATHEDRAL.—The designs for the new stained-glass windows have been recently exhibited in the Lady Chapel of this cathedral, and it was most gratifying to see the admirable taste which characterized the whole of them. They were at once chaste and ecclesiastical. The commission has, however, been intrusted to Mr. Ward, of London, whose design is worthy not only of the high commendation which was bestowed upon it, but of the splendid cathedral it is intended to ornament.

THE INSTITUTE OF BRITISH ARCHITECTS.—A meeting of this society was held on Monday evening, T. L. Donaldson, Esq., V.P., in the chair, when a paper on church-building was read by Mr. G. Godwin, fellow, being a *résumé* of the present state of feeling on the subject, and a commentary on the opinions recently put forth by the Cambridge and Oxford ecclesiastical writers. It excited considerable interest. A description of the Walhalla, at Ravensburg, near Munich, recently erected, from the designs of Leo Von Klenze, was read by Mr. John Woolley.

CHINESE TEMPLE AT BUCKINGHAM PALACE.—The new Chinese temple in Buckingham Palace-gardens is now completed, and will be forthwith elegantly furnished. During the sultry season, when in town, her Majesty and her illustrious consort are expected to lunch and breakfast in this retreat.

CITY ANTIQUITIES.—In the course of the last few days, while making the excavations for the formation of the sewer which is to pass through Cloth Fair, West Smithfield, on the site of the ground formerly attached to the monastery of St. Bartholomew the Great, a variety of relics have been found, but nothing of either much interest or value. —*Athenæum.*

The Great Western Railway Company propose to erect a new church at the Swindon station, on their line, for which purpose 500*l.* was left by the late Mr. Gibbs (one of the directors of the Company). A subscription is now going forward in aid of this object, and to include the endowment of the church, as well as to build schools, and an establishment for the instruction of children, and a residence for the minister.

Mr. Carpenter Smith, the vestry clerk of St. Saviour's, Southwark, mentioned incidentally at the Borough Petty Sessions, that a gentleman now living at Northfleet has purchased for himself an annuity of 500*l.* a-year, and the residue of his property (about 200,000*l.*) is to be appropriated to the building of 40 almshouses, the inmates of which are to receive 12*s.* a-week.

The New Royal Gardens at Frogmore, which have already excited much curiosity in the horticultural world, are progressing very satisfactorily, and bid fair to surpass all existing establishments of the kind. The splendid range of metallic hot-houses and green-houses, which, when completed, will be nearly a thousand feet in length, begins to make a conspicuous figure; several of the most able workmen in the employ of Jones and Clark, of Birmingham (the contractors for the whole of the horticultural buildings), having been for many months past actively engaged on the spot. The west wing of the range, to the extent of more than 300 feet, is already nearly completed; and the corresponding portion on the other side is being rapidly proceeded with. In the centre of the range is a neat gothic structure designed for the residence of her Majesty's gardener; and it is intended to form a noble terrace or carriage drive in the front of the buildings, and which, being raised above the general level of the garden, will greatly heighten the effect of the whole. When the several works now on hand are completed, they cannot fail to attract a large number of visitors, and particularly such as take an interest in horticultural pursuits.

There are several national schools in the course of erection in Bethnal Green parish: and a very large building for the education of 500 children is now building immediately behind the new church in Arbour-square, Stepney.

The choir of Strasburg minster is about to be restored. The work is to be commenced next spring, and a sum of 15,500*fr.* is already subscribed for the purpose. The committee for completing the cathedral at Cologne have met, and devoted 30,000 thalers to enable the architect to begin the nave, and 10,000 for the north tower. King Louis, of Bavaria, has promised four painted windows, to be executed in Munich, and ready for the cathedral in 1847.

At a meeting of the Metropolitan Improvement Society on Thursday last, it was announced that the new commission appointed by Sir Robert Peel had commenced its inquiries, but had determined for the present to confine its attention to the question of the Thames embankment. It was resolved to summon a meeting of the general committee for Wednesday next, to discuss this branch of the subject, and to consider how the object of the commission and the public could be promoted by the efforts of the society. —*Athenæum.*

—A letter from Amsterdam, February 4th, states that the tower of the church of Westzaan, in Southern Holland, one of the most remarkable monuments of the middle ages, had just fallen down. Last year it was observed that the upper part was slightly out of the perpendicular, and orders were given to prop it up. The architect to whom this operation was intrusted took up his residence with his family in a little wooden house, constructed at the foot of the tower. The fall took place during the night, and the whole mass came down on the house, in which were the architect, his wife, three children, and four workmen. Of the nine persons only four bodies, horribly mutilated, have been found, two of these being the architect and his wife, locked in each other's arms. The tower was built in the ninth century, and its height was about 200 feet. —*Athenæum.*

ROYAL AND PARLIAMENTARY TELEGRAPH.—We are enabled this week to make a communication interesting to men of science and curious and most important in itself. Mr. Cook, the joint patentee with Professor Wheatstone, of the Voltaic Telegraph, has been commissioned to lay down a line from the Paddington station of the Great Western Railway to Windsor Castle, and carry it thence to the Parliament Houses and Buckingham Palace. The effect of this will be, that on important occasions, when the Sovereign may be at Windsor, any intelligence of extraordinary interest can be transmitted to her Majesty in a second, nay, in less time. The voltaic electricity, which governs the motion of the telegraph, travels at the rate of two hundred and eighty thousand miles in a second! This has been proved by the delicate instrument invented by Professor Wheatstone. The new and most singular arrangements will be of great value in connexion with the public service. When cabinet councils sit on momentous questions, her Majesty can be acquainted with the result of their deliberations as instantaneously as if she were present. When the Queen presides over the meetings of her ministers in person at Windsor it not unfrequently happens that information on a particular subject may be required from the departments in London; and hitherto when this has been the case, it of course became necessary to send an express to town to obtain what was called for before the business could satisfactorily proceed. Now it in most cases will be procured while the Council is sitting, and indeed in the course of four or five minutes, which before would have caused a delay of

as many hours. This will not only be of use on great occasions, but in a common way its every day value will be considerable. During the session of Parliament, for instance, on every question of interest her Majesty can learn the division, or the progress made in a debate, one moment after the house has divided, or any particular orator has risen to speak, or resumed his seat. Thus a more rapid communication between the Sovereign and her ministers for the time being will be established than has ever been known or thought of before. How desirable this is, seeing the immense accumulation of business which the course of events has produced in this great nation, need not here be descanted upon. We can scarcely anticipate that it will be undervalued by any one. Those who hold that second thoughts are best, will surely admit that the first cannot be dismissed too soon by correct information; and this scientific contrivance largely contributing to the rapid despatch of public affairs, must tend to the further aggrandizement and well-being of the country.—*From the Mirror.*

RAILWAY AXLES.—A series of highly interesting and important experiments was made at the Camden Town Station, on the London and Birmingham Railway, on Tuesday last, in the presence of Major-General Pasley, Mr. Bury, Mr. Gregory, and about thirty other engineers and gentlemen connected with railways, on the comparative strength of Youll's patent hollow axle, and the most approved solid ones now in use. The result was highly satisfactory, showing an immense increase of strength in favour of the hollow ones. The mode or process of manufacturing also appears much more certain, and a firmity of quality can be depended upon. The axles were submitted to a twisting strain of nearly twenty tons, and a weight was caused to descend upon the axle, the deflection in the hollow axle being far less than in the solid one, although the former was nearly 20 per cent. lighter. But the greatest improvement is in the ends or journals of the axle, which are also made hollow, but of no larger diameter than the solid ones, two or three blows with a heavy hammer being sufficient to break off the ends of the latter, and the hollow ones requiring thirty, forty, and even fifty blows to cause a fracture. When it is remembered that among other accidents, the dreadful one which took place last spring on the Paris and Versailles Railway was caused by the breaking of a solid axle through the journal, too much importance cannot be attached to this fact. Many parties present went with a strong impression in favour of the solid axles, but at the conclusion of the experiments there was a universal admission of the superiority of the hollow ones. We are given to understand that these axles can be manufactured at a price not exceeding the solid, and there can therefore be no objection to their use on the score of economy.—*Railway Times.*

HEIGHT OF SOLDIERS.—In consequence of arguments respecting the height for soldiers, we have taken some pains, at various times, to ascertain the relative height of English, Irish, and Scotch recruits. As far as the line regiments are concerned, the Irish have a decided advantage in height. It must be, however, taken into account, that the guards, the marines, and the majority of the cavalry and artillery, are English, and the recruits for these are all of superior standard. It may then be doubted, if an equal number of tall men were deducted out of the total recruits raised in Ireland, whether any difference would exist. In weight, the English recruit has the advantage, the heights being equal. A regiment of the line that consists wholly of Englishmen will generally be found to average shorter than either the Irish, Scotch, or the mixed corps.—*Naval and Military Gazette.*

ZEUXIS AND PARRHASIUS.—Apollodorus, one of the earliest of Athenian painters, said of Zeuxis, "That he had stolen the cunning from all the rest." Zeuxis himself made no difficulty of boasting of his pre-eminence. He painted a wrestler or champion so much to his own mind, that he wrote below it, "Invisurus aliquis facilius quam imitaturus." "Sooner envied than equalled." Parrhasius of Ephesus had the boldness to challenge Zeuxis to a trial of skill. Zeuxis brought forth a tablet, on which clusters of grapes were represented in so lively a manner, that the birds of the air came flocking to partake of them. Parrhasius, on his part, brought a tablet, on which he had painted nothing but a curtain, but so like reality, that Zeuxis, in exultation that the birds had given such proof of the power of his pencil, exclaimed, "Come, Sir, away with your curtain, that we may see what goodly affair you have got beneath it." On being shown his error, he felt much abashed, and yielding the victory, said, "Zeuxis beguiled poor birds, but Parrhasius hath deceived Zeuxis."

A bed of variegated marble has been discovered whilst working a limestone quarry, belonging to George Pybus, Esq., of Middleton Tyes, near Richmond. A small part has been dressed by a skillful workman; the polish is beautiful, and the marble is likely to be brought into general use.

CHINESE TOOLS AND CHINESE MECHANICS.—Though their iron-work is not good, yet their tools, such as chisels, planes, axes, &c., are excellent, and kept very sharp. They make use of the circular instead of the hand-saw. They have a saw for particularly fine work, which, if we had not seen them using, we should have imagined that the work had been done with a chisel. The blade of it consists merely of a single piece of brass wire jagged with a sharp instrument. The pattern to be carved is traced on the wood, and a hole is bored in it, through which the wire is passed and made fast to the handle, which is kept outside the wood; the drawing is then cut with the greatest care and accuracy. For all rough work, they make use of a small sort of axe, slightly rounded on one side. This answers the purpose of an adze. In peaceful times, the streets of a Chinese city must present a very fine appearance, from the way the front signboards are painted and gilded. The insides of the shops are protected from the sun by screens extending across the streets, supported from the roof of the house. These are either of matting, or, in order to admit the light, are made of oyster-shells scraped fine, set in frames like panes of glass.—*Murray's Doings in China.*

ALCOHOL.—An experiment has been made, at the theatre of Montpellier, of a new principle of lighting—from alcohol—said to be successful, and important to the vine-growing districts of France, as a fresh vent for their produce. The light is stated to be of dazzling brightness, and without either odour or smoke.

ALLAN CUNNINGHAM.—Chantry had caused a splendid vault to be built for himself, and, with much kindness, proposed to Allan Cunningham that he also should be buried in it. "No, no," answered Allan, "I'll not be built over when I'm dead; I'll lie where the wind shall blow over, and the daisy grow upon my grave."

The bust of the Duke of Newcastle, executed by Mr. Behnes, at the expense of the members of the College, is about to be put up in the Library at Eton. This is the fifth lately contributed—Lord North, presented by Lord Guildford; Charles Fox, by Lord Holland; Lord Greville, by the Duke of Buckingham; and the Marquis Wellesley, by himself.

MATRIMONIAL MARKET AND COURTING INTELLIGENCE.—But little business has been doing since our last, and terms may be considered a trifle easier; for really good and useful descriptions there has been some demand; which demand, though far from great, has exceeded the supply, so that these cannot be quoted at lower prices. Ready-furnished houses, with or without small annuities, have been freely offered, and in some instances accepted; but cash terms seem generally preferred, as it prevents many mistakes and much disappointment. Papas, bachelor uncles, and maiden aunts, not always cutting up as expected. In ordinary descriptions there is nothing doing, and prices nominal. All are eagerly looking forward to the results of the Christmas flirtations, when, unless things assume a livelier appearance, thousands of our fellow-creatures will have to sigh away their lives in perpetual celibacy. In the Foreign Market, although things are dull at present, owing to the Colonial Market being overdone, and the Australian in bad repute, yet it is confidently expected that a reaction will shortly take place, in consequence of our late successes in the East. Chinamen (to whom Providence allows two, a privilege of which they seldom avail themselves) will no doubt gladly avail themselves of our superfluity; whilst Afghanistan offers an unlimited market, numbers being no object—provided the ladies are approved of. There has been a proposal for exploring the Polar regions.—*Punch.*

AN IRISH BULL AT NEW YORK.—About a mile up Broadway is the Park. This is a small enclosure of a few acres, encircled with an iron railing, divided into walks, planted with trees, furnished with seats, and made every way as agreeable as it is possible to make a small oasis of verdure, situated in the centre of a populous city. At the upper end of the Park stands the pride of New York—the City Hall. It is a fine marble structure certainly, but it did not strike me as possessing that magnificent appearance that I expected from a building composed entirely of marble. But tastes differ. One of our company, on this occasion, related an anecdote of an Irish gentleman, whom he had conducted round the city. After surveying several of the public buildings, and many streets presenting architectural attractions, all of which the Irishman had dismissed in succession with this remark,—"Very good, indeed, but not like Dublin," he was suddenly brought within full view of the City Hall. The Irishman appeared struck with astonishment, and unguardedly exclaimed, "But was this built here!"—*Mrs. Feltou's American Life.*

"What," inquired the schoolmaster, "was the plural of penny?" "Twopence!" shouted the sharpest lad in the class.

Architectural Competition.

Under this head we shall give notices of pending competitions, and shall feel obliged by our friends forwarding us the accounts of what may fall in their way of this character. We shall also be happy to give engravings of the selected designs; and think that, by such publicity, the present very defective system of decision may be amended. Publicity is sometimes a remedy when more direct measures have failed.

KINGSTON UNION.—DESIGNS FOR AN INFIRMARY.—To be sent in by the 6th of March.
NEW CHURCH, TORQUAY.—11th March.
ALMSHOUSES, SPALDING.—6th March.
ALMSHOUSES, RINGWOOD.—1st March.
COUNTY ASYLUM, OXFORD.—10th March.

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification, of which they may choose to avail themselves.

NEW CHURCH AT HILDENBOROUGH, NEAR TUNBRIDGE, KENT.—Tenders to be sent on the 2nd of March. Mr. Ewan Christian, 44, Bloomsbury Square, Architect.

RAILWAY STATION BUILDINGS, AND OTHER MASONRY, &c., HUNT'S BANK, MANCHESTER.—Plans open from 13th of February; tenders to be sent in on the 6th of March. Mr. Gooch, Oldham Road, Manchester.

Also, FORMATION AND COMPLETION OF THE BRANCH RAILWAY TO HALIFAX, 1 mile and 55 chains.—The same time and parties.

REPAIRING THE PAINTED GLASS OF THE EAST WINDOW IN LEIGH CHURCH, ESSEX.—Rev. R. Eden, Leigh Rectory, Rochford.

REPAIRING SEVERAL STREETS OF ST. PANCRAS.—7th of March.—Mr. Tattersall, 42, Pall Mall.

FOR FINISHING A NUMBER OF HOUSES.—Z. Y., 122, Mount-street, Berkeley-square.

BUILDING A NEW SEWER IN CHANCERY LANE.—March 10th.—Sewers' Office, Hatton-garden.

The terms of subscription to THE BUILDER are as follows:

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Quarterly.....	3s. 3d.
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NOTICES.

TO OUR CORRESPONDENTS.

Our subscribers will observe we have arranged our advertisements in such a form as to serve all the purpose of a wrapper, keeping the contents clear. The folios of the pages will follow on in succession from number to number, omitting altogether the advertisements, by cutting off which, the work will then be complete, and ready for the hands of the binder.

It is requested that where there has been any irregularity in the transmission of THE BUILDER, notice will be forwarded immediately to the office.

We beg again to impress on our friends that they may render us much service, and so contribute to the general interest, by forwarding us country papers which contain paragraphs or advertisements relating to Architecture, Engineering, and Building Science.

We are obliged to postpone a solution that has been sent us of the problem given in our last; and here we will take occasion to remark of the diagram and proportion, that they were not sufficiently clear. It should have been stated and shown that the figure was a square, with a smaller square on half the side of the larger one.

Mr. Hunter's communication came to hand, for which we thank him, and through him his six co-subscribers.

Mr. Chamberlain also, and for his subscription.

THE BUILDER,

NO. IV.

SATURDAY, MARCH 4, 1843.

We have to report a fair rate of progressive improvement since the last week, and to add to our list of purchasers and subscribers. Not a day occurs but it brings an accession, and in some instances we have remarkably gratifying evidences of the interest which our project excites among the country workmen—to them, indeed, more than to the town workman, this publication is calculated to convey, as it really does, a higher amount of gratification and service; the London workman has access to so many publications, and sees the progress of building improvement day by day, and has, therefore, less need of the reading and information of this Journal, so far at least as we have at present proceeded. When we shall have assumed the full working attitude that is intended, then it will be that neither town nor country workmen will be able to dispense with it, at any rate without loss and disadvantage to himself.

We shall take occasion in this place to remark on what has fallen to our ears from one or two quarters in reference to what certain of our London friends are expecting and calling for from us, even at this early stage of our position. They require us to commence at once on the system of laying down practical directions in constructive drawing, after the manner, as it is urged, of Mr. Peter Nicholson's books. Now although, as we have observed before, and also in this number, that something of the kind is our intention, we think we should be very imperfectly fulfilling our purpose if we were to commence at this period; it would be not only a waste to a great extent of our own efforts, but a great injustice to many who have not yet had the chance of falling into our ranks. Suppose we were to begin now with a complete series of instructions in practical geometry, mensuration, carpentry, and masonry, when our readers are but ten in the hundred of what they may be expected to be; the consequence would be to deter many of those who do not start from the first from entering on the subject at all, or to compel them to do so at great disadvantages, first, as to buying up all the back numbers, and next as to reading through or studying the previous propositions contained in them. Neither do we think this ought to be asked of us; we have already been tolerably explicit, and think it is pretty well understood, that unless we receive that support in the outset which such a work requires, that it will not be our duty or inclination to force the publication forward. The public have so far very generously responded to our appeal; but many workmen, we are enabled to say, and many of those who have much to say on the point of what they think *THE BUILDER* ought to contain, and the like, are the last to put their hands to the business of supporting it, at this time when it is so essential that a manifestation should be made of what is required, both on their parts and our own. Perhaps we are warranted in saying that no single work that ever issued from the press was marked by more encouraging symptoms of approbation, or more welcomed than this appears to be. This remark applies to all those who have already so generously stepped forward as purchasers and subscribers; but the thousands of working men for whose benefit it is specially

intended, owe it to themselves to exercise that promptitude in marking their encouragement of our efforts which alone can be regarded as the true criterion of the existence of a legitimate demand for this class of publication.

There never was a period in the history of the building art wherein more was required to be done in the way we are proposing to do than this present. Great changes are on the eve of progress; indeed, we are entered upon them. Machinery and the iron manufactory on the one hand, and the demand for ornamental structures on the other, will make up an amount of variation from the present practice of building that it would be difficult to exaggerate. Engineering science is exerting an influence quite foreign to the most of our preconceived notions and habits; iron-work is entering into the structure of every thing; iron-roofs and floors are making great inroads into the province of the carpenter, and what we have said in another place with reference to machinery in masons' work has almost its parallel, in its application to carpenters' and joiners' work: doors, windows, and general moulded work is now being done, and by degrees will much more be done by machinery. The way in which all this is to be met is a question that cannot brook to be blinked much longer.

We would not have ourselves misunderstood if it were possible that any misunderstanding could exist after what we have already said. The policy we would pursue is in all cases the prudent, the conciliatory, and the pacific. Science will not be checked in its advance without a damage to her combatants, but there is a way of extracting good from the pressage of adversity. Nay, it is said of adversity itself that it "is, like a toad, ugly to the view, but wears a jewel in its head."

Another ground of hope for us is the growing demand for ornament in our public and superior private structures; the restoration of our fine old cathedrals and churches, and the building of new ones in a similar style of enrichment, will beget a taste that will extend itself to every other class of edifices. Our ordinary masons and carpenters, therefore, will be called to exercise the vocation of carvers, and thus a large amount of elbow room, as we term it, will be given to the rest; but yet how necessary it is that mechanical science and ornamental design should be studied, to prepare the presentrace of workmen for the new school of practice in their several callings.

It is consolatory to us to know and feel that there is this turn or shift of things to be calculated on, added to all which is the certainty of great public improvements in forming our streets, expanding our cities by clearing out the interiors; the destruction by fire, and the threatened destruction to follow, will compel many rebuildings that would otherwise be postponed to a much later period. These things united will provide an aggregate of promised employment that we may hope will be sufficient for the wants of our increasing population; but it is necessary, as we have already said, to be prepared for it; and the timely workman in this respect will, in all probability, be the successful one.

PATENT STONE-CUTTING MACHINE AND
PATENT IRON MASONS!

We were at first perfectly appalled as we brought our eyes to the reading of two circulars that had been sent us, headed as above, and containing drawings of the apparatus so designated.

We have heard of the age of gold and of brass, and of a verity we are now in the age

of iron. It was remarked to us once in a jesting humour, in reference to the common introduction of iron-work now-a-days, that we should have iron men very shortly; but we little dreamt of a reality to be thus typified and avowed—here, then, is no mincing the matter, nor need there be, for the machine that it applies to is in fact and in truth an "IRON MASON."

We have been accustomed to regard as a fabled monster that Briareus of the ancients, with his hundred hands, but now we begin to see that such inventions are not of the imagination alone; this "iron mason" has thrice the gift of hands of the giant son of Titan—the prospectus literally states that one of the machines is calculated to do the work of 300 men!

But now seriously to discuss this question, wishing, as we cannot avoid doing, all success in life to men of minds so ingenious as the inventors of these machines—being indebted to them for the favour they have shown to our journal, for their subscriptions and good wishes in its behalf; amazed and delighted as we are with the wonderful ingenuity which the drawings reveal, convinced also as we are of the efficacy of action which the machines possess, or may possess—seriously and solemnly, we are appalled at the thoughts it suggests. On the one hand, we see mechanical science, a giant power of human intellect thus embodied, promising great gifts and endowments to the commonwealth; but on the other hand, we see sixty thousand masons! sixty thousand trained and disciplined handicraftsmen, whose province this machinery will invade—sixty thousand men, who have served an apprenticeship and invested their lives in their calling—whose prescriptive right it is to live by their calling—whose families depend upon them—we see this aggregate of at least a quarter of a million souls threatened, not with instant or total annihilation it is true, but with this gaunt and powerful competitor for their bread—he will tithe their loaf at least; and who shall say that this can be borne—we say it cannot—we say there is no such surplus in the working man's cupboard. We shudder to see every tenth mouthful of food intercepted in its passage to the mouth of so many (whatever it may do in transferring to yet uncreated cravings); we shudder to see the shredding of garments to clothe this portly invader, the pulling down of the poor man's roof-tree to house and tenant him. We are great admirers of mechanical science and machinery—we know that England owes a great deal of what is called greatness and an undoubted deal of wealth to these; but may we not and do we not pay, and have we not paid, in many instances, "a great deal too dearly for our whistle?"

We know that this is a dangerous, or as we usually say, a *ticklish* question to approach—but can we, or ought we to shrink from it? It is as much our duty to warn against danger as to point out the course of profit—as much to call attention to pitfalls as to guide to eminences—and for whom should we be solicitous. Assuredly for our class. It cannot be shown to us that any general public denial or suffering is experienced which the introduction of this machinery would remedy. An increase of masons is not wanted, wherefore then, these iron ones? But it will not do for us to be merely asking ourselves these and the like questions,—the matter must be argued gravely and dispassionately; and we are not sorry for this occasion of bringing us forward on a ground which so much requires to be probed, and bored, and tested; let us know what we are building upon, and we can the better answer for the security of the structure.

It is alleged, that this machinery will save four-fifths of the cost of preparing and working stone, that for every square foot now wrought by hand, at an expense of 4d., a saving will be effected to reduce it to something short of a penny, and that the work is done in a very superior manner. Granting all this, granting the benefit to the public from this great diminution in the cost of house building in the department of the mason work; granting that an increase will be given in the consumption of stone, and therefore a benefit to proprietors of quarries; granting that cheaper houses will be erected, and probably more of them in which the working-man will reap a share of advantage in more ways than one; granting all that the advocates of machinery

urge in these and in other respects, we still say that all these benefits may be very dearly purchased, and would be so, if by any sudden inflection, for we call it an *inflection*, of this new machinery, a reduction is to be made in the wages and somewhat stunted comforts of the great bulk of the working men.

There is a common proverb to this effect, that we may "buy gold too dear," and this of a truth is what is said we are doing, literally as well as metaphorically. But our business is with the buying of the benefits of this machinery, and these, we are afraid, it will be made clear are only to be had at a cost which is expressed by the fable of the frogs,—the masons may exclaim to the capitalist, and to certain sections of the public, who pelt, or propose to pelt them, with these stones, these machine-wrought stones, "Gentlemen, it may be fun (or profit) to you, but it is death to us."

Yes; we use the words "*capitalist*" and "*certain sections of the public*," because we would limit our admission of its advantages thus: the patentees or inventors, we will undertake to say, will not reap any large or adequate proportion; if they do, then will the exception prevail and not the rule,—and the large bulk of the public will have to calculate the re-action of loss, as well as the direct loss, which they will encounter by a large measure of injury inflicted on their customers, the working-men; first in their reduced means of consumption, and next in the pauperized dependence which it may enforce.

We will not travel over the common argument of those who defend machinery and its applications; we know well that in the long run a certain balance of advantage is derivable from it—that it is in the nature of these things, like water, to find their level—that demand and supply adjust themselves. But this leveling and this adjustment is not brought about till many other things are drowned in the torrent, or jerked off the beam of adjustment; and these things are not inanimate, senseless, soulless objects, but *precious human beings*, and we must talk of matters in which their lives and souls are interested, not as we discuss the axioms of a mathematical process, or solve a problem—we have no right to do so. Capital is not, with all its keenness of vision, the most acute calculator of risks and profits—it not infrequently makes gross blunders, and "runs amuck" for its own interests as well as prejudicially to the community. To be sure, the community become the wiser for such experiments; but then there are the *little things*, the *little precious things*, that are lost and destroyed in the process—the bodies and souls of men, and women, and children—the physical and corporal deterioration and suffering, and the still worse demoralization that attends the rude and violent trial of these experiments—these issues, are incalculably serious and fearful. Who thrusts his hand in the fire to convince himself of its heat? And have we not played sufficiently long this game of experiments, this leaving of waters to find their own level? or must we, like the desperate gamester, seek to retrieve our losses by still more desperate throws? Who wants this machinery, let us ask, at this period? Is it not a "carrying our coals to Newcastle: our blankets to the Indies."

But while we are mooted all this serious matter, does it not suggest itself to us to ask how we are acting towards the ingenious and so far meritorious inventors of this machine—are we not uttering a language prejudicial to their interests, and to the interests of those who have embarked in the speculation, and this we have no right to do. How, if our words shall take effect, are we to compensate them for the probable profit of which we may have thereby deprived them—we say probable profit, for it is by no means certain, judging from common experience, that profit will attend it. We do not deny the truth of their calculations; assuming, therefore, that profits are to be made, founded on these calculations, how, we say, shall we be able to compensate the parties for any damage they may suffer by our words? We trust we shall be able to acquit ourselves in this respect, and also to throw out hints in a proper spirit, and for practical ends; but as our present paper has extended over the limit we had set ourselves, we will defer to a succeeding number what we have to say in addition, and merely subjoin for the present a few

extracts from the circulars, that may serve to explain more as regards the character and the power of these machines than anything we have written in the foregoing.

In describing the "Patent Stone-cutting Machine," the following has reference to—

"The length of train which can be passed through the machine in ten hours, reckoning 2 feet 3 inches per minute, is 1325 feet, which at 3 feet 3 inches broad, gives 4306 feet of surface dressing. Then suppose the sides are cut the whole depth—say 12 inches—they give 2650 feet more, which, without reckoning that the ends can be dressed at the same time, gives 6956 superficial feet; but to make allowance for the spaces between the stones, for setting tools, and other losses and delays, take off a half of this, and we have still 3500 feet left for a day's work, or equal to the average performance of above 300 ordinary masons. This quantity, done by hand-labour, will cost 4d. per foot, or about 58l. for a day's work; while making every allowance for the expense of day labourers, loading and unloading, tear and wear of machinery, &c., it cannot, by the new method, cost above one-fifth of that sum, besides being much more accurately done.

"The following is an example which may be palatable to the mind of every reader:—Suppose the double line of foot pavement from the cross to the head of Washington-street, in our city of Glasgow, contains 120,000 feet of hewing, the saving on the cost of preparing this quantity would be 1,000l., reckoning at 2d. per foot, and it would be all polished, a process which has at present to be performed at an expense of shoe leather to the good citizens, which, if counted fairly, would astonish them.

The following refer to the "PATENT IRON-MASON."

"In the 4th part of the 1st vol. of the Magazine, there were given a plate and description of the first and principal one of a series of patent machines for cutting, dressing, and preparing stone-work. The annexed plate contains drawings of some of the others. The first was for preparing plain and parallel blocks for walls or solid buildings; these are for cutting out columns, either whole or in pieces, with the mouldings on them, also grindstones and other articles of a cylindrical form. The plans of the machinery for fluting columns will be given at a future period.

"It will be obvious on comparing the several machines, that the same principle is adopted in all; namely, the employing of wheels with tools fixed in them to cut the stone, the parallel work being produced by moving the stones forward in carriages running on a horizontal plane, and the cylindrical being produced by causing the stones to revolve on an axis while under the operation of the tools. The greatest difficulty in the way of dressing building stones by machinery was presumed to be the preserving the corners and edges unbroken and unharmed. This difficulty, however, has been effectually obviated by giving all the cutting-wheels a slight inclination, or in other words, by giving the plane, in which the points of the tools revolve, a slight dip where the tools first strike into the stone, so that in passing away off the stones the tools are elevated so as not to touch them. It may be noticed that the use of a cylinder with tools attached to it is not new. A rude attempt to dress a flat surface of stone with one was made near to Edinburgh about fourteen years ago, but it failed. Its application in the present form for dressing columns, together with all the arrangements of the machinery for this purpose, are claimed by the present patentees.

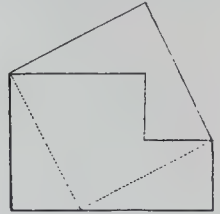
"The time occupied in dressing both sides and the periphery of a grindstone 5 feet in diameter, and of 10 inches thickness, will be 15 minutes; and if to this be added 30 minutes employed in setting the stone preparatory to dressing the first side, and for afterwards turning and setting it for the second, there are 45 minutes, at which rate 13 grindstones will be produced in 10 hours—and reckoning that the tools will stand as they do in the machine for plain work in Mr. Neilson's quarry, Wodside, 2 sets will serve for the 10 hours. 30 minutes are amply sufficient for shifting a set of tools. The attendance of one active man and a boy, with the assistance of a stout little crane, and a duplicate carriage to load while the other is in use, will be sufficient to keep the machine fully at work, and superintend the steam-engine also."

PROBLEMS.

TO THE EDITOR OF THE BUILDER.

Sir,—I beg to offer the following solution of the problem given in No. II. of THE BUILDER. The figure there shown is not, I presume, quite accurate, having apparently been formed by the compositor out of rules, for by dividing the extra piece by a vertical line through the centre, and placing the

figure thus obtained in the space which would be left, a square would be formed, only one cut having been employed; but supposing the figure was intended for a square, with a smaller square, equal to one-fourth the area of the larger placed at one corner, the mode shown in the accompanying figure will perform what is required. The dotted lines show the cuts, the strong lines the original piece of carpet, and the thin lines the pieces cut off and placed in their proper places to form the square.



The lady who proposed this problem is evidently an ingenious person. Perhaps the or some of your correspondents would explain the way to proceed in a case where the carpet was of the form shown in

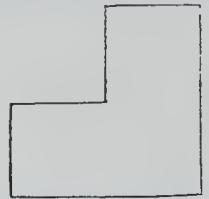
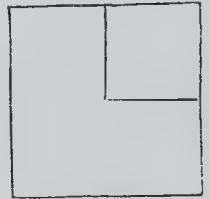


fig. 2, namely, a square with one-fourth removed I remain, Sir,
Your obedient servant,
E. MARKS.

Sir,—My father has given me a large square field, which I wish to divide in the manner following:—I shall retain one quarter of it for a cottage and garden, the remainder I want dividing into four fields, all of a shape and all of a size. A plan of the above will probably not be denied to
Your obedient servant,
W. B. S.



EMPLOYMENT OF CHILDREN—METAL WARES—GLASS, AND EARTHENWARE.

THE second report of the commission appointed by Parliament to examine into the condition of the children employed in mines and manufactories is just come to hand, and we have hardly had time to look into it. It is true that builders are fortunately removed from the category of trades wherein abuses as to the employment of the young are prevalent, with the exception of such branches as may be said to be in alliance with us, as those of brick and general earthenware, the metal-works, and glass-works; these we have chosen to select from, and we are sure the great body of the building fraternity will join with us in sympathizing with the sufferers—nay, not alone this, but in doing all in their power in their proper places and in a proper way to alleviate their sufferings. Lord Ashley's motion on Tuesday evening last, in the House of Commons, is, however, the most important feature of promise in this respect; we invite attention to it, and cordially express for ourselves, and our class our grateful thanks to that estimable nobleman for his exertions in behalf of suffering children.

SIR JOHN SOANE'S BEQUEST.

WE perceive by an advertisement in the *Athenæum* of the 18th of February, that the annual distribution of the interest of 5000*l.* in the 3*rd* per cent reduced, is to take place on the 24th of this month. This amount was left by the late Sir John Soane, with instructions in his will, that it should be appropriated to the relief of distressed architects, and the widows and children of architects, left in destitute or distressed circumstances.

In calling attention to this munificent provision of the will of the late Sir John Soane, we cannot forbear to express a hope that it may not remain the only solitary instance (with, we believe, one trivial exception) of such a fund being devoted to alleviate the sufferings of the members and the families of members of this profession.

We regret to know that there are many at this present time applicants for the relief which this fund affords; but however small the dole, it will be found important in the mitigation of distress. Many of the children of the fatherless will have the bread of Sir John's bounty broken to them, and may, as in innumerable other instances of the working of similar bounties, be saved from the present anguish of want, and reared to their country its ornaments.

We regard Sir John Soane's bequests with considerable affection, as the nucleus around which may be formed a broader scheme or provision for the succour and service of the profession, and as furnishing an instance worthy of imitation on the part of the kindred and subordinate branches of the building art. We look back on the period of the founding of hospitals, alms-houses, and colleges, and sigh to think how little provision is being made in these days to meet the forthcoming pressure of a wearing out of the energies of the weakly-struggling, for whom this world has too many sinuities and opposing circumstances. Would that a retreat for honourable old age, and schools for the ill-provided offspring of the unfortunate, could be reared up amongst us as of old, stimulating and encouraging to the exercise of the humbler virtues of the industrious citizen, instead of exciting to the desperate competitive strife, and its unholy concomitants, which the cold philosophy of our modern times sets forth.

We have gone a little out of our way to indulge in these our fond aspirations, but we return to the resting-point or fulcrum, as we regard this legacy of Sir John Soane, and the accompanying bequest of his museum for the benefit of art, artists, and the public. Those who have not seen his house, and the collection of antiquities and other rarities with which it is filled, can form no idea of the extraordinary value and interest which they present, nor of the great consideration that is due to the memory of the man.

It falls not in our way at present to undertake the task of eulogizing or defending,—we have simply to point out as a part of our duty, and for the benefit of the public, what are the advantages to which they are entitled by virtue of Sir John's intentions as defined in his will. It will be seen, on reference to our list of public places of resort, that the museum is open on Tuesdays and Fridays, and we should advise every one, especially of the building craft, to put themselves in the way of obtaining the profit of an inspection. We believe it is only open to country visitants at present, but in April, May, and June, to general ones. The admission is by card, to be obtained as will be directed at the museum.

LABOURERS' COTTAGES.

ON estates of moderate extent, where the proprietor looks into everything himself, much may be done by his personally examining, along with his carpenter, the *Labourers' Cottages* already existing, and ascertaining their present state with reference to the list of essential requisites. This being done, the next step is to devise improvements by draining; by additions of garden ground; by putting the garden and the cottage, if practicable, in a ring fence; and by such alterations and additions to the cottage as may appear necessary for health and comfort. To assist in this manner of improvement the following particulars may be found useful.

Situation.—It ought to be constantly borne in mind, that the main object in building a cottage is to produce a comfortable dwelling; and that for this purpose a dry airy situation, in which, if possible, the ground falls gently from the cottage on every side; an aspect that will allow the sun to shine on every side wall of the cottage a portion of every day in the year; thick walls, and thick or double far-projecting roofs of high pitch, are most desirable requisites. Whether the front, the end, or one side of the cottage is parallel to the adjoining road, ought to be considered a matter of no consequence; indeed, so far from a parallel position being desirable, an oblique one is in general preferable.

Garden.—The garden ought always, if possible, to surround the cottage, and it ought never to be less in extent than a sixth of an acre; but as in cottages already existing it may often be found impracticable to surround the cottage with its garden, the next best arrangements are, to have the garden before, or behind, or on one side; or partly before and behind and partly on one side. If the main body of the garden must of necessity be separated from the cottage, then there should be a direct communication with it by a path, so as to diminish as much as possible the inconvenience and discomfort of an isolated garden. Cottage allotments, by which are to be understood portions of ground in a field allotted to cottages at some distance, are much better than no gardens at all; but they are far from producing the comfort and enjoyment of a garden in close contact with the cottage to which it belongs.

Materials.—When the walls are of pisé, mud, cob, clay lumps, or any other description of consolidated earth, the thickness of two feet may be obtained in solid materials; and this may also be the case where stone is abundant; but where brick must, of necessity, be used, the thickness of eighteen inches or two feet is to be attained most economically by building the walls with brick on edge hollow, and filling them up with concrete. By this means we form a mass of solid material, which will, of course, have a greater capacity for heat than a hollow wall, and consequently give out more when it is wanted for heating the air of the rooms. The advantages of thick walls, and of thick or double roofs, of high pitch, and projecting at the eaves, with reference to retaining heat, are greater than can well be conceived by those who have not dwelt in a cottage. A high and dry floor is essential, whether this be obtained by placing the cottage on a terrace, or by raising the floor inside, and ascending to it by outside steps.

Designing Cottages.—We have summed up the essential requisites for a labourer's cottage, with a view to convenience, comfort, and other directly useful properties. The following rules are to be considered as additional, and as having for their object to superadd to comfort and convenience the beauties of architectural design and taste.

1. Every exterior wall should shew a plinth at its base, and a frieze or wall plate immediately under the roof. In the case of earthen walls, the plinth should be of brick or stone, and the wall-plate of wood. The stones of the plinth should be larger than those used in the plain parts of the wall which are above it; and the upper finishing of the plinth may be the outer edge of a course of slates, flagstone tiles, or bricks, laid in cement, extending through the entire thickness of the wall, in order to prevent the rising of damp; the appearance of the edge of this course as a moulding or string course crowning the plinth, will, therefore, be highly expressive of utility: or the entire plinth may be built in cement, which will be equally effective in preventing the rising of damp, as well as expressive of that important use.

2. The pitch of the roof, whatever may be the material with which it is covered, should be such as to prevent snow from lying on it; and for this purpose the cross section should generally be an equilateral triangle. Cottages which form gate-lodges in the Grecian or Italian styles form exceptions to this rule; but such lodges never express the same ideas of comfort as high-roofed cottages, with high and bold chimneys. Such lodges, indeed, are commonly called "boxes;" and in fact many of them are so deficient in height, and in every other dimension, that they give rise to ideas the

very opposite of those of freedom and comfort.

3. When the wall of a house is built of rubble-work, small stones, or bricks, the sharp right angles formed at the sides of the doors and windows, and at the corners of the building are liable to be injured by accident or the weather, so that first the mortar of the joints, and afterwards the stones or bricks, drop out. To guard against this evil, or the idea of it, larger stones are used in building jambs and corners, or the jambs are splayed or rounded off, while the lintels and sills of the doors and windows are formed of single stones. Hence all doors and windows in such walls should be surrounded by casings of some sort, or have the jambs, sills, or lintels, splayed. Hence, also, the propriety of quoins-stones at the angles or corners, of coping-stones to the gables, of cut and dressed stones to the chimney-tops, and of larger stones to the plinths than those generally used in the plain parts of the wall above them. In the case of earthen walls, the jambs, sills, and lintels may be of timber, or formed of brick carried up from the plinth.

4. Every stack of chimneys should consist of four parts: a plinth, which should be distinctly seen above the roof; one or more base mouldings, or splayed weatherings resting on the plinth; a shaft rising from the base mouldings, of analogous proportions to the doors and windows; and a capital or cornice moulding and cap or blocking, as a termination to the shaft. The materials of the chimney-tops ought in general to be superior in quality to those of the walls; for example, if the walls are of rubble-stone, the chimneys should be of stone squared and dressed. When the walls are of earth, the entire stack of chimneys will, of course, be built of brick or stone.

5. When the flues of the chimneys are carried up in the outer wall, there ought always to be a projection outwards in that wall, beneath the chimneys, carried up from the ground, so as to give the necessary space for the flues, the strength of a buttress to the wall, with a sufficient breadth for supporting the chimney tops, and the architectural expression of all these purposes.

6. Eaves-gutters, and ridge and hip coverings, with similar details essential as "finishings," as well as for habitableness and comfort, should never be omitted. The eaves-gutters should be properly supported by brackets, these being of stone or brick, except in the case of earthen walls, where they ought to be of wood.

7. Over the front door or porch of every cottage, there ought to be a worked stone, on which should be cut the name of the cottage, the initials of the first occupant, a number, a sign, or some distinctive mark of the cottage, by which it may be registered in the book of the estate.

8. In rendering cottages ornamental, the most important parts and members of structure are those on which most decoration should be bestowed; such as the porch, entrance door, window of the principal room, upper parts of the gables, chimney-tops, &c.: and, in ornamenting each particular part, the most important details of that part should receive the highest degree of decoration; for example, the hinges and latch or lock of a door, should be made richer than the muntings and styles, and the muntings and styles richer than the panels; and hence, a door in which no ornament is bestowed on the latch or the hinges ought not to have the muntings, styles, or panels, studded over with ornamental nail heads as is often done.

9. Nothing should be introduced in any design, however ornamental it may appear to be, that is at variance with propriety, comfort, or sound workmanship. The mind revolts at the idea of ornaments that have no connexion with construction or use, tacked on the walls of houses.

For the *Labourers' Cottages on Estates managed by Agents*, we would recommend a tour of inspection by a competent person, and a report drawn up on their present state, and on the means of their improvement. The Report should include the character of the surface soil and subsoil on which each particular cottage stands; the state of surface and underground drainage; the aspect of the different sides of the cottage, and its shelter or exposure; the sources of water and of fuel; the state of the back-yard, &c., if any; the state of the garden;

and the connexion of the cottage with the nearest public road. The cottage itself ought next to be examined as to plan and accommodation, height of the side walls, thickness of the walls, roof and gutters, floor, windows, stair, fireplace, bed-rooms, exterior appearance, &c. The Report should then point out the additions and alterations necessary to render the cottage what it ought to be, illustrating these by plans, sections, and sketches, and giving lists of fruit-trees and shrubs, where these are wanting for the garden. Would that we could hear of some of the first landed proprietors in the country having such Reports made on the labourers' cottages, and the school-houses, on their estates? The practice would soon after become general, and the good that would ultimately result to the cottager and his children, and the accession of beauty, and appearance of comfort, to rural scenery, would be immense.

To be a possessor of landed property, we consider the greatest worldly privilege which any man can enjoy. No other kind of property is calculated to afford to the possessor so much rational enjoyment whether in the occupation required for its cultivation and improvement, or in the recreation which it procures in its embellishment. In many, if not in most, cases, landed property enables its owner to contribute, in a more immediate and direct manner than many other kinds of property, to the happiness of his fellow-creatures, by improving the dwellings of those who reside on it; and it enables him to procure the applause of the public, by combining improvement with embellishment in such a manner as to render his estate an ornament to the country in which it is situated. There are few or no landed estates which do not include a number of habitations, more or less scattered over the land, occupied by the humblest and most helpless class of society, common country labourers. These dwellings are in many places miserable within, and in few are they respectable without. Now our earnest desire is, to direct the attention of landed proprietors to this subject. On some estates the cottages may be already sufficiently comfortable; but in much the greater number we know that this is far from being the case; and what is lamentable, but nevertheless proved to be true beyond all doubt, is, that on those estates in which agriculture is arrived to the highest degree of perfection, for example, in the North of England and the South of Scotland, the cottages of the farmers' labourers are far worse than they are anywhere else. We would entreat landed proprietors to examine the cottages of their labourers themselves, or institute inquiry into their condition by competent persons. We would suggest that increasing the comforts of the labourer's home is the most effectual means that can be taken, not only for rendering him a better member of society, but a better labourer; and there is, also, no doubt that he will be more likely to bring up his family in moral and industrious habits. It used to be alleged by some that increasing the comforts of cottagers only increased their numbers, and ultimately added to the mass of misery among this class; but this opinion has more recently been found to be erroneous, for thinking parents, who possess a strong sense of comfort and enjoyment, will not risk the diminution of the sources of happiness by burthening themselves with large families. As a proof of the effective working of this principle, we refer to those parts of Germany where the labouring population are highly educated; as for example, Austria, Bavaria, Wurtemberg, and Prussia.

The power of improving the health and adding to the comforts of a number of individuals, who in a great degree look up to and are dependant on us, must surely be a source of happiness to every rightly constituted mind. The increased attachment of the benefited party that will thus be produced ought surely to be a source of gratification; independently altogether of the increased value to the property, by more durable habitations, stronger and steadier workmen, and by families less likely to become paupers, vagrants, or pilferers.

The improvement of labourers' cottages recommends itself to the landed proprietor in another point of view, *viz.*, the ornament which such cottages will confer on his estate. What can have a more miserable appearance than a wretched cottage out of repair, and

without a garden? No one blames the cottager for this state of things; but the idea of a thoughtless or inhuman landlord, or of an unfeeling mercenary agent, immediately occurs. What, on the contrary, gives a greater idea of comfort, and of an enlightened, benevolent landlord, than to see every cottage on his estate rearing its high steep roof and bold architectural chimney-tops, indicating ample room and warmth within; the whole in good repair, and surrounded by fruit-trees, in a well stocked and neatly kept garden? Every one, in travelling through a country, must have observed how much of its beauty depends on the state of its cottages and their gardens. We would therefore entreat the possessors of landed property to consider how much of the beauty of the country depends upon them; and we would farther beg of them to ask themselves whether it is not one of the duties entailed on them by the possession of this property, to render it not only beneficial to their families and to all who live on it, but ornamental to the country.—*From Supplement to Loudon's Encyclopedia of Architecture.*

PROFESSOR COCKERELL'S LECTURES AT THE ROYAL ACADEMY. No. II.

WHAT we admire in the Professor more, if possible, than the extent and profundity of his researches, his unwearied industry, or the natural talent by which he has been qualified for the practice of his art, is that passion, amounting almost to a prejudice, with which he views and entertains every thing pertaining to it. A little more, and his very self would be lost in the pursuit of this all-absorbing object of his devotion. It is this quality, this spirit of chivalrous adherence, which makes him most fitted to lead in these days of coldly calculating utility,—hear him, how he speaks of the supremacy of architecture over every other pursuit of business and art which has engrossed the minds of men; can more be said of it than,

"That the development of the human faculties was exhibited in the history of architecture under its most favourable aspect. The art might be termed the epitome of civilization, the first fruits of social order and combination, of every discovery in science, and of every conception of beauty. Political history was of comparatively inferior interest, and betrayed, for the most part, the depravity of our species. The natural labours of man, those of agriculture, or commerce, their unvarying succession, brief endurance, and disappointment, leave melancholy convictions; but in the occupation of architecture man finds the employment of those higher aspirations and idealities for which he feels himself born, as well as of his physical energies. Here he perceives that he has a *ser*; all his loftier conceptions—order, calculation, beauty, and immortality—are opened to his contemplation, and he seems to feel the power of extending his works and his memory beyond the bounds of nature and of time."

In this strain, and under the influence of a sentiment thus expressed, we find him all along asserting the claim of architecture to be regarded as the crowning stone of those great edifices, or eras of civilization, which the world has built up at various periods, and in her various countries, that after an apprenticeship, as he terms it, in the ruder and simpler exercises of manual and mental power, the full dignity of maturity came to be exhibited in this all-comprehensive science, as he says of the age of Alexander and the Romans.

"Man now contends with the elements. The ocean is curbed by his ports, and quays, and Pharos; he sails across its bosom: marshes are drained; sewers, canals, aqueducts, and roads exhibit the mastery he had acquired, and his conquests over nature. Frontinus, whose work on aqueducts was written about the year 80, has a passage remarkably illustrative of the growth of this spirit in his time. After giving a description of the nine aqueducts under his care, brought to Rome by successive labours, making an aggregate length of about 142 miles, he exclaims, 'With so many waters, and so many magnificent works necessary for their transport to this great city, will you compare the idle Pyramids of Egypt, or even the inert works of the Greeks, however celebrated and glorious in history?'"

As the Professor had chosen for his lecture of this evening the subject of sacred architecture, to discuss which, however, in the

cursor manner which the time at his disposal admitted of, might, as he said, almost savour of presumptuousness—

"He should call the attention of the students to two rolls [about sixteen feet long each], in the first of which the plans of the remarkable temples of the ancient world, from the Tabernacle in the Wilderness (1491 A.C.), to the reception of Christianity (313 A.C.), and in the second, those from that epoch down to 1842, were all laid down to the same scale. There was displayed, as it were, the genealogy of temples during 3330 years."

"The resemblance of the plan of the Tabernacle in the Wilderness, and with its surrounding court (the first in our series, A.C. 1491), and still more, of the Temple of Solomon; with the arrangement of the Greek and Roman temple, down to the Antonines at the end of the second century of our era, is very remarkable. In the first the parallelogram is preceded by a portico of an irregular number, namely, of five columns. In the second (1012 A.C.), we have the Temple in Antis.

"If we enter into particulars, we are still more struck with their correspondence; we find, for instance, the irregular number in the Temple of Jupiter at Agrigentum, one of the largest and most important of antiquity: seven columns compose the front; and we are reminded of Solomon's saying, (Prov. ix.) 'Wisdom has builded her house, she has hewn out her seven columns.' Again, at Postum we have a temple (miscalled a basilica) with nine columns in the front. Other examples also might be cited. Again, of the Temple of Solomon, that of Theonis at Rhamnus, and the frequent temple in Antis, with its pronaos and hieron, is the constant copy. The altar of sacrifice, that of incense, the laver, the table of show-bread, are all traced either in existing remains, in bas-reliefs, or in medals.

"The connexion of Sacred and Classic Architecture is thus apparent; and the author of 'The Plagiarisms of the Heathen Detected,' (Mr. Wood, of Bath,) is borne out in this comparison of the plan and arrangement of temple architecture. The common error (and one to be carefully avoided) is the attempt to trace this resemblance in the styles, or the orthographic figure of the parts and orders—the mere vesture of the scheme; and the failure in straining the texts and examples (Corinthian or Doric) to a perfect correspondence, either in Wood, Villalpandus, or his learned predecessor, Wilkins, has always thrown a doubt upon these interesting investigations; but the comparison of the plans makes the Tabernacle the type of the Greek and Roman temple, a work which Paul as well as Moses assures us was inspired by the Deity, 'for see, saith he, that thou make all things according to the pattern showed thee in the mount.' (Heb. viii.)"

The professor then goes on to state his conviction that the ritual of respective countries influenced and originated the form of the temple, tracing all back, however, to the era of the Jewish canon; but he mentions another great point of resemblance in the Jewish and classic architecture,—the employment of "costly stones, even great stones, stones of ten cubits, stones of eight cubits." "The ancient world," he says, "is full of examples of this remarkable principle, and the last and most signal one is the temple at Balbec, by the Antonines, in which three stones measure in the aggregate upwards of 199 feet in length."

Just consider this, good reader, concerning these three stones. Supposing them to have been all of equal length, then we have 66 feet 4 inches the length of each stone—22 yards each!

The following is curious, and it is an instance too of the speculations which we find the Professor now and then indulging in, assigning to certain peculiar coincidences a mystic intention or meaning, which we would humbly take leave to suggest were more the result of innate laws of order and harmony. As in music we have our chords and unisons, so in architecture, the result of constructive propriety and other determining circumstances, is that apparently studied uniformity which we now and then so frequently detect. But we must hear the Professor.

"Our remarks upon the uniform arrangement of plans of Greek and Roman temples, would be too long, and must be referred to the publications upon them specifically; but as brought together in this view it may be observed, that the temple at Ephesus, the size of which we learn alone from Pliny, exceeds all others in dimensions, and the constant limitation of length of the great temple to Jupiter especially (at Athens, Agrigentum, Selinus, Balbec, and Rome) to about 358 feet in length, might lead us to suspect the text of Pliny. Vitruvius gives a few

hints of the attachment of the ancients to numbers in his third book, with reference to the dimensions of temples. The investigation of this subject might be attended with curious results. The frequent dimension 358, by the addition of the stylobate, or by the local variation of the foot, may easily be supposed to refer to the number of days in the solar year. In the Temple of the Sun at Palmyra, the portico has 12 columns; these added to the columns in the temple, make 52; the whole number of columns in the surrounding peribolos is 364. Wren seems to have had reference to this idea in his height of St. Paul's.

"The sections of Ægina, the Parthenon, and the temple at Pestum, exhibit the ancient arrangement of an interior divided into a nave and two aisles, by two rows of columns in double heights; those of Venus, and Rome, and Balbec, exhibit the Roman form, namely, a vast vault,—in these instances, upwards of sixty feet diameter in masonry. The occupation of the whole of these interiors by the idol, their employment as a vast niche to receive the god (in ivory and gold, at Olympia and Athens), had something of monstrous, but magnificent; and invested with the art of Phidias, we may understand how even the rough soldier, Paulus Æmilius, might be moved even to tears, as we are told, in the presence of the beauty and majesty of the goddess, as figured by that great master.

Mr. Cockerell next proceeds to describe the transition which took place in the temple structures at and about the time of Constantine (the fourth century of our era), from the simple basilica to the cruciform, the sign of Christian conquest, concerning which and other churches than that of Constantine the architect may consult with profit what is handed down to us by Eusebius, bishop of Caesarea.

"It was said that 1800 churches and religious structures were built during the reigns of Constantine and Justinian: those of the former were in the basilica form, which is liable to decay; those of the latter, to which the ritual and other important considerations gave a new form, resembled the Greek cross of equal lengths. The transept was covered with a large dome, and the ends of the cross with minor ones, forming a group highly favourable to architectural effect. This form, executed in Santa Sophia, became the wonder of the world, and the dome also, 120 feet in diameter, exceeded any executed since the Pantheon at Rome."

"The dome, which had become the distinguishing feature of the Eastern church, penetrated into Italy, under the exarchate at Ravenna, in the church of Santa Vitale, 510 A.D.; and again at Venice, in St. Mark's, built by a Greek architect (976–1071). Until the eleventh century, the dome formed no part of the western church, except in those instances: it was then that the Pisans, the richest and most commercial people of Italy, began their great church (1063), and adorned the transept with this new feature."

And so through the rivalry of nations this new feature sprang into distinctiveness, under the auspices of Brunelleschi at Florence; one hundred years later, the dome of St. Peter's, by Michael Angelo; and then the domes of the Invalides, Val de Grace, at Paris; and St. Paul's in London. We come to the decline and wearing out in the dome of the Church of St. Genevieve, which, like the successor of St. Peter, worn-out race, exhibits all that meagreness and debility which precedes its extinction.

"With reference to the gradual verticality which the sections of this series of ancient and modern temples assumed, we might say, that the earliest were of the earth earthy, and the latter as sublime as the religion for which they were designed. Thus, the height of the Pantheon, at Rome, was equal to its diameter, or as 10 to 10; that of Venus, and Rome, was at 12½ to 10; that of the Baths of Caracalla, as 14 to 10; of St. Peter's at Rome, as 17 to 10; of St. Paul's, London, 20 to 10, as also of Lincoln; and that of Cologne was as 34 to 10.

"The last great temple of Christendom was the Magdalene Church at Paris; it is 325 feet long by 136 feet wide and 120 feet high, and equalled the smaller temple at Balbec. It was the work of more than half a century. In England, great activity had been used in church-building during the last twenty-five years, but the warmest admirers of those zealous efforts could never pretend that any regulated architectural spirit has directed those works. No church of a monumental character had been attempted. The ascendancy of the high church party is, however, favourable to our art, and it is not unlikely that, under good direction, it may flourish in a few years. But there is much pedantry abroad, and an absence of all originality and intrinsic character in the taste of the day,

which leans to the Roman Catholic form, the basilica, suited to a demonstrative form of worship, rather than auditorium required by our ritual. Veneration for antiquity is to be respected and encouraged, but its transition to superstition is easy. The divines of 1680 have left us models, erected under the direction of Sir C. Wren, which have not been surpassed. Seven of the city churches were exhibited (measured by the Professor), which would be found as remarkable for their adaptation to our form of worship—offering the largest area, with the smallest obstruction to the sight and hearing—as they were ingenious and admirable in taste and structure."

There we have let the Professor speak out for himself, braving all the terrors of the inquisition, which his heterodoxy is calculated to bring in fierce impending over his head. His second lecture thus concluding, and with a well-merited eulogium on the genius of Wren, will, we know, excite the bile of the unreflecting, who see not through a fashion of a rage, how little of a genuine principle of taste may really prevail—how, in fact, the thousands of blind worshippers of the Greek this day, and the Gothic next, may not be and are the inconsistent, whose principle is imitation, when what is required is the imitation of a principle.

ANGLO-NORMAN ARCHITECTS.

Contemporary with the Norman conquest lived Gundulph, one of the churchmen architects of that era, and we find that their practice embraced the planning and execution of both ecclesiastical and military structures.

Gundulph, Bishop of Rochester, a Norman by birth, was consecrated to that see by Archbishop Lanfranc, March 19, 1077, an appointment highly gratifying to the Conqueror to whom he was surveyor and architect during the whole reign of that monarch, and whose attachment was memorably evinced by a bequest to the Church of Rochester, of the (comparatively) large sum of one hundred pounds, and his royal robe.

The great works authenticated as those of this prelate are, the great white square tower, in the Tower of London, the Cathedral of Rochester, and the greater part of the tower of the castle there. It is also probable that he built that portion of Norwich Castle which is in the Norman style, or at least commenced those alterations consequent upon the accession of the Norman dynasty. He built also the Castle of Haddenham, the Hospital of St. Bartholomew, Chatham, and a nunnery at Malling, in Kent.

Gundulph was the most celebrated improver of his time, previous to which the Norman buildings were remarkable only for the rough and massive outline they presented. He originated the embellished style, the workmanship of which went on improving in every province in the kingdom until the middle of the twelfth century; and so perfectly was his merit acknowledged, that it was emphatically termed "GUNDULPH'S ARCHITECTURE."

This period in the history of architecture is extremely interesting; it is in fact one of the transition periods, which we shall have occasion to illustrate by examples and diagrams. The western front of Rochester Cathedral upon which Bishop Gundulph bestowed the principal evidences of his conceptions and skill, is eighty-one feet in breadth, the great porch being charged with the most elaborate ornament, in statuary and foliage, carved upon the columns, capitals, and members of the receding arches of which the porch is composed.

Gundulph occupied the see of Rochester upwards of thirty years, during the reigns of William I., William II., and part of the reign of Henry I. He died, March the 7th, 1107, and was buried, before the high altar in his cathedral. Of this prelate it may be said that he was one of the most indefatigable cultivators of his art, and at the same time the most eminent of the Norman architects. Actuated by the sentiment that had prevailed in all time, of devoting the utmost energies of genius to the adornment of the Temple, he so devoted those he possessed, and the evidences of his zeal survive a period of more than seven centuries. He bequeathed his style to his pupil, Ernulph, Abbot of Peterborough, by whom it was actively prosecuted,

and specimens of whose skill remain to be pointed out in Rochester, Canterbury, and Peterborough. Ernulph, in 1115, succeeded Rodolph in the see of Rochester, and thus attained to the very province, and a contemplation of the works of his great master. This prelate died March 19, 1124, at the advanced age of eighty-four, after a very active and useful life.

METROPOLITAN IMPROVEMENTS.

CONTENTS OF THE SEWERS AS MANURE—CEMETERIES.

To the Editor of The Builder.

DEAR SIR,—As you have noticed my proposal for putting down a strip of pavement along the footpaths all round London, perhaps you may think the following suggestions deserving a place in your excellent Journal. They were made in consequence of some observations made by Sir James Graham in the House of Commons, signifying that Government were about to direct their attention to the subject of public improvement.

1. Would it not contribute to health and decency to have public places of convenience, such as they have in most towns of France, all over London and the suburbs for several miles round? There might be some exclusively for women, as at Havre, for example. An old man might be placed as a keeper in the one case, and an old woman in the other, and the parishes might furnish these persons from the workhouses.

2. Might not the whole of the aqueous parts of the common sewers be returned to the country as manure, in mains of pipes, in the same manner as the water is brought in, and the solid part sent out in cakes, like oil cake? This might be done by intercepting the matter contained in the sewers at different points, separating the solid from the fluid parts by filtration and compression, and forcing off the latter along cast-iron main pipes, by steam, or by previously forcing it to the summit of a tower. From the mains of liquid manure, conducted along all the principal roads, farmers and market-gardeners might be supplied with the liquid, exactly as houses are at present with pure water.

Viewing this mode of getting rid of the water of the sewers as the converse of the mode of introducing clear water, all the requisite details for carrying it into execution will readily occur to any practical person. It might be tried at first on a limited scale, say along the Hammersmith-road, as far as Hounslow, or Slough.

3. Should not small houses for the poor, and the direction of all streets of low houses, whether with or without yards or gardens, be placed as much as possible in such a direction (that is N. E. and S. W., or S. E. and N. W.), as the sun might shine on every side of the house or houses every day in the year when he appears? This would contribute greatly to the dryness of the outside walls and yards of such houses, and consequently to the warmth and salubrity of the inhabitants.—See Sanitary Report for 1842, p. 396.

4. With respect to cemeteries, whether in London or the suburbs, would not a law enacted as follows, answer every purpose of Mr. Mackinnon's bill? That no graves should be made except on ground that never was opened before; that when only one coffin was placed in a grave, it should not be less than six feet below the surface; that when more than one coffin was to be contained in the same grave, there should not be less than a depth of six feet between them, unless both coffins were deposited on the same day; that all burying in vaults, catacombs, and brick graves be discontinued; and that no new burial grounds be formed within two miles of St. Paul's. Such a law would at once prevent interments from being made in most of the London burial grounds, while it would admit of all the unoccupied ground being used, and thus commit no injustice to those who have recently enlarged their burial grounds; it would at the same time check the disgusting and dangerous practice of burying ten or twelve bodies close upon one another, in one grave, now practised both in the old church-yards and in the new cemeteries.

Hoping that you may be able to find room for these suggestions, I remain, Dear Sir,
Yours most obedient servant,
Feb. 28, 1843. J. C. LOUDON.

METROPOLITAN IMPROVEMENTS.—Active measures have been already commenced in the way of pulling down the buildings in the line of the new street from Oxford-street to Holborn, through St. Giles's, so that we may very shortly expect to be gratified by a clear view of the line of communication, and the avoidance of the wretched, narrow, and crooked winding round by the Church of St. Giles's, Bloomsbury.

THE CHURCH OF ST. SEPULCHRE, CAMBRIDGE.



MONO the illustrations of this week we present to our readers a drawing of the above church, as it has been lately restored under the auspices of the Cambridge Camden Society, by Anthony Salvin, Esq., architect, and honorary member of that society.

This interesting church, which was consecrated in the year 1101, retains little more of its original character than that presented in the

view. The body of the church eastward of the round tower is of a later character. The masonry of St. Sepulchre's Church proves to have been of a very weak and inferior description, consisting of a mere shell of Barnack stone, raised, in all probability, without the aid of line or rule, and filled in with gravel and rubbish, mixed with great quantities of coarse earthy mortar, of very little strength or consistency.

Upon removing the whitewash and plaster from the interior of the church, fresco paintings, in red and black, have been found.

A good lithographic draught of the church is sold by Messrs. Rivington, from which we have copied our present illustration. *The Church Magazine* has also published a view with a late number.



Literature.

Lecture on Church Architecture. By the Rev. Mr. DRAKE, in St. Mary's Hall, Coventry.

It may be desired by many that our paper should bear the impress of the particular view which they themselves feel disposed to take in the question of style, and of the building art and science generally; and it may be difficult for us to steer clear of the almost factious spirit by which the several agitating parties are now being moved; one insisting that a classical character should be preserved, the other that Gothic exemplars are alone fitted to be our guide and model, and there is not wanting another party, who look on in present indifference at the movements of the other two, but who are gradually being drawn into their vortex; to each of the two former the arguments of the other will appear vexatious, if not absurd, while the indifferent may be careless as to construing either; for our parts, however, we shall endeavour to hold the balance justly towards all. We are too much alive to the advantages which are to be procured for art by the separate and united labours of each, not to feel intensely anxious as to their well-doing, and as we write for all, we must beg of each party a fair and tolerant hearing for the other.

It is in this spirit that we take note of the proceedings which the following lecture in-

volves or accompanies. The Religious and Useful Knowledge Society of Coventry have been addressed by a Mr. Drake, who, if not a missionary from the Camden Society of Cambridge or Oxford, is at least as much so as any accredited agent could be. The Useful Knowledge Society and their friends met in the fine Hall of St. Mary's, in that ancient city, to listen to the essential schooling which the reverend lecturer stood forth to administer to its modern tyros in an art of which Coventry contains some of the finest examples in the kingdom. The reverend lecturer commenced by observing that—

"The study of church architecture might justly be regarded as the revival of a neglected and forgotten art. Many could remember the time when it scarce had an existence but in name. Only ten years ago its pursuit was confined to a few, whose tastes, if they met with respect, certainly found no sympathy in the minds of the multitude. Churches were looked upon merely with an utilitarian eye. Like other buildings, they were considered just with reference to the accommodation and comforts which they might be made to present, and certainly with no reference to their appropriate character as places set apart for the service and worship of God. Here and there, they were regarded in their just light of valuable accessories to the historical interest of the days in which they were built. The eye that had any sense of pictorial beauty could not but admire the magnificent effect of the 'long-drawn aisle and fretted vault' of our noble cathedrals,

and the humbler grace lent by the village spire or ivy-mantled tower, to the rural scenery of our native land; yet there was no sense of any higher value to be attached to our ecclesiastical buildings—no appreciation of their nice adaptation to the purposes for which they were designed."

Now, however, it was quite different; a better spirit he trusted had arisen, the causes of which he should not presume to trace—it sufficed to console us with the fact that a zeal for church propriety had set in, and for their right adaptation.

"The perfection of every production of art was justly tested by its suitability to the object for which it was designed; and all that the Ecclesiologist of the present day contended for was, that this principle should be carried out in the construction of our churches, condemning on this ground solely, the anomalous restorations by which our ancient temples are deformed, and the glaring inconsistencies by which our modern ones are characterized; and holding out for study and imitation those pure models of Christian architecture, which recommend themselves at once to the Christian mind, by their peculiar harmony with the services of the Christian church.

"He asserted the pre-eminent claim of our ancient churches to satisfy this great principle of adaptation, and further, that this claim was not invalidated by subsequent changes. That even those of the earliest and rudest construction bore with them this character, inasmuch as they were universally the best effort in design, and in costliness, of the age which produced them. The men who reared the lowly Saxon churches, of which some few and scattered remnants alone are left, no less than the men whose lives were devoted to the erection of such Minsters as Lincoln and York, gave to God's service the best they had to give, and therefore the churches which they built were always appropriate to the objects for which they were raised. Our Saxon ancestors dwelt not in ceiled palaces whilst the house of God lay waste, but a different spirit was abroad now. The principle of devoting to God of the first fruits of our substance, of giving to him the best efforts of our talents and skill, was how wholly lost sight of, and *cheapness* was the first question invariably mooted when the building of a new church, or the repair of an old one, was announced. It was not considered that these were cases in which we ought to be led by a sense of privilege to inquire how much, rather than by a sense of parsimonious expediency to inquire how little, we could give to promote the glory of God in the building of his earthly temples."

All this with reference to propriety of design, we will take leave to observe, is as true of every class of building as of churches, and by attention being called to it, and enforced in this paramount province, it is certain that a general service will be done to art. What follows with reference to deceptions is applicable to every falsehood of adaptation, and when men's thoughts are thus awakened to the question of proprieties, they will soon learn to be astonished that so much bad taste could have prevailed among us for so long, and unobserved.

"He was bound to deprecate anything like concealment and deceit in the materials employed in church buildings,—any efforts to make them appear costlier and more durable than they really are, as a sort of deceit inconsistent with the air of truthfulness befitting the house of God. He doubted not the errors he was condemning were those of mistaken judgment, and not of wilful departure from the character of what was due to the temple of God; but such he considered would be the conclusions drawn hereafter, when better judgment of church building and arrangement should prevail; such and no other conclusions would be drawn from the brick walls—the deal rafters—the plaster roofs—the lofty galleries—the closed pews—which form the component parts of the numberless buildings which the present generation have put together, and agreed to dignify with the name of churches, and with some of which the noblest memorials of former ages are profaned and destroyed."

Of Coventry he said—

"It might safely be affirmed that our city contained as noble models as could anywhere be found, of the ancient spirit of architectural taste and propriety; but it abounded also in many lamentable departures from, and heresies against, ecclesiastical appropriateness."

And he proceeded to cite the instance of two lately erected churches in the environs of that city, commenting on the departure from or neglect of the true principles of composition and detail in design, and of arrangement, in respect of church requisites.

"Architects, however, were not so much to blame, since they must follow the fashions of the

day in which they laboured, and few could be found to incur ruin by opposing it."

In the course of his lecture the reverend gentleman contrasted the modern efforts at church building with the beautiful examples that exist in Coventry itself, in the churches of St. Michael and Trinity. Of a certainty this were a bad measure of contrast, for we must long despair to accomplish any thing like these, the former in particular, which we may pronounce in its way matchless. Coventry, however, is singularly rich in specimens of ancient Gothic excellence—its churches, the Hall of St. Mary, its hospitals, &c.; but the cross is gone—the victim of neglect and the rage for modern improvement. We remember to have read a few days ago an account of some monster in France, who expressed to his neighbours his impatience that the lives of his aged parents were standing in the way of his enjoyment of their little fortunes or savings, and who coolly proceeded at last to dig graves, with the intention, as he declared, of murdering father and mother, and interring them therein; these poor creatures were the obstacles to the progress of this insatiate wretch, they absorbed a cost of maintenance, when they were no longer of use in the world, as he permitted himself to argue—and hence the horrid conclusion he came to. This is taking a strong case, and, we grant it, an inapplicable one; but it may serve to make some people hesitate to adopt similar reasonings in reference to old monuments and memorials. There is, as the rev. lecturer remarked, a "moral perception" involved even in these matters, but there is no fear now-a-days of such things being perpetrated without check or remonstrance. The watchman "is abroad,"

may we adopt the current phrase, "the schoolmaster is abroad," and men and nations are being tutored into this truth, that reverence for antiquity is one stone in the arch of moral propriety. Let us learn to revere wisely and consistently, and not to suffer our partiality for one section of the labours of human genius to shut our eyes to the recognition of others; they are all undoubted testimony of the workings of a purpose superhuman, in which we, as little atoms of intelligence, play our part.

Appropriate to this division of our subject, we extract the following paragraph from the same paper in which the report of the foregoing lecture appears, and congratulate ourselves on being able at the same time to give a drawing of the proposed structure. The architect, Mr. Charles Hansom, of Coventry, is a young practitioner, but it will be admitted that he has shown considerable taste and attention to the "proprieties." We will take this opportunity to request of our several architectural friends to enable us, as in this instance, to gratify our readers by this species of publication of their designs, and we shall be most happy to do our part in facilitating the object by superintending the engraving, which in most cases will be found to be a service of at least two-fold amount, as the blocks will serve for the heading of any circulars they may require, or otherwise.

NEW ROMANIST CHAPEL.—It is reported that the Roman Catholics are about to erect a more commodious chapel in this city, near the site of the present barn-like structure, the altar-end of which is not towards the east, a very unusual circumstance in buildings of this character.—*Coventry Standard.*

"Such are the sensations produced upon spectators by the sublimities of Egyptian architecture: its extraordinary dimensions I will illustrate by a familiar example. Our well-known column, called 'the Monument,' has been deemed a wonder. The great hall of Carnac was supported by 140 columns, most of the same diameter, and some of two-thirds the height of 'the Monument!'"

"We see from Rossellini that they not only understood the art of making glass, but also of staining and gilding it in imitation of precious stones. We see that they used gold and silver tureens, urns, vases, banqueting cups, &c., of the most exquisitely beautiful workmanship, and tasteful as well as magnificent forms. Their hunting cups embellished, as at present, with the heads of animals of the chase; their banqueting-cups supported by the figures of their vanquished enemies. Pharaoh's side-boards were set out like those of William IV., with plates, dishes, knives, spoons, &c. His guests occupied the most superb chairs, couches, sofas, footstools, all of which, with the tables, cabinets, &c., were of the forms which modern upholsterers consider their most fashionable furniture, and which they mistakenly call Grecian.

"By the discoveries of Rossellini, we can even enter the workshop of the ancient Egyptian, and see the household furniture under the progressive operations of the workman's hand; the cutting and turning instruments by which they were made; the joining and gluing the parts; the polishing them, when complete, with pumice-stone; or of gilding and adorning them with stuffed silken cushions.

"We not only see the minutest details of other trades and manufactures, and the fine arts, the arts of dyeing, weaving, &c.—the studios of Chantrey's and Etty's—the warehouses of the Poland's with their insignia as in the present day, an outspread leopard's skin, but also the amusements of singing, dancing, and music, tumblers, and other performers, exhibiting the same feats as those of the Bedouin Arabs, now, or lately, at the Colosseum in the Regent's Park.

"Rossellini makes us familiar with the portrait of Pharaoh, who received and elevated Joseph as his prime minister; of that arrogant Pharaoh who dared to oppose the miracles of God's vicegerent, and who was afterwards drowned in the Red Sea; we see the fac-simile of the very banner which they displayed amidst the ominous radiance of the fiery pillar, when he followed the flying Israelites; but we see his name-catouche, or titular-oval, constantly obliterated, attesting the disgrace he suffered. We have the portraits of Pharaoh-Necho, Pharaoh-Hophna, Amasis, and the famous Shishak, who came up against Jerusalem, and took away the treasures of the house of the Lord, and the treasures of the king's house, and the shields of gold which Solomon had made. We see also the portrait of Shishak's daughter, that lady of consummate beauty, who was married to Solomon; and lastly, a portrait of the voluptuous and magnificent Cleopatra, all sculptured and painted with microscopic fidelity, on the walls of the palace-temples of the 18th dynasty of the Pharaohs!

Chapter VII. is devoted to a brief speculation, and to the recital of some facts that bear upon the Temple of Solomon, by which Mr. Bardwell would trace to an Egyptian origin, and give an Egyptian character to all that pertained to that solemn and interesting structure, in the erection of which, as Bishop Heber sang—

"No workman's steel, no ponderous axes wrung,
Like some tall pine the noiseless fabric sprung."

Mr. Bardwell deduces from the fact of the intimate connection existing between Solomon and the Pharaoh of his age, whose daughter he married—from the improbability that Greece, which had only been colonized from Egypt about two hundred years before, should have had to do with any suggestions as to the style of the Jewish temple; and also that the Jews themselves, having been involved in wars for the four hundred years they had now been settled in Canaan, were not likely to have so far cultivated the arts of peace as to have formed a style of their own. Seeing also that the Egyptians had attained an unprecedented skill in the art of cutting and polishing stone—that the architect of the Jewish temple, Hiram (who was also a king), was from the Egyptian colony of Tyre—that the material was most probably polished granite, and the masons Egyptians—that the proportions of the temple bear a strict analogy to those of Egypt, both as to the general plan and its parts; in particular as to the two great columns of the pronaos, which were five and a half diameters high; and their capitals or chapters answering in their description to what we know of the capital of the Egyptian column. From



Proposed New Catholic Church, Coventry.

Temples, Ancient and Modern, or Notes on Church Architecture. By WILLIAM BARDWELL, Architect.—London: Fraser and Co., and Williams.



HE quotations which we gave in our former notice of this interesting work, were taken from Chapter VI., wherein Mr. Bardwell dilates on the grandeur of the remains of Egyptian architecture at Karnac. We are tempted to resume the subject at that point, in order to give our readers the means of forming a just conception of the stupendous

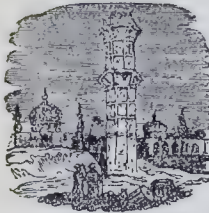
works of a people whose history but for such remains would be involved in a painful obscurity. These remains also—we mean the inferior relics of Egyptian art, as well as the colossal and architectural,—prove to us a familiarity on the part of that people with mechanical and manufacturing science, that common repute was hardly disposed to give them credit for; but we will subjoin Mr. Bardwell's words on this topic.

"It was beneath these gigantic colonnades, that Champollion, in the excited language of astonishment, exclaimed, 'These porticoes must be the work of men one hundred feet in height! imagination sinks abashed at the foot of the 140 columns of the hypostyle hall of Carnac.' It was there that Belzoni, filled with the fervour of dreamy enthusiasm, which, as he says, raised him above the petty cares of mortality, pronounced his joyful *Εὐρηκα*,* and exclaimed, 'I have at least lived one day.'

* I have found it.

all these circumstances, and others of minor detail, Mr. Bardwell concludes that Egypt, and Egypt alone, had its influence in the architectural type of that chief of temples, whose history, as of whose people, we gather from the Book of Books.

We are sure that our readers will feel themselves well repaid for an attentive reading of these extracts, but how much more from the work itself! It is not, however, within our province to dwell at greater length upon this occasion, or to detain the reader through the several chapters on Greek and Roman temples, on the primitive church, and on the early architecture of this island. We may recur to it again; but must now conclude our present notice, having given in another part of our paper a lengthened extract and illustrations on the subject of Chapter XIV., on English churches in the middle ages. The subject is now one of such engrossing interest, that we fully calculate upon the thanks of our readers for having done so.



T is one of the most striking symptoms of the increasing curiosity and intelligence that mark the present generation, that so much attention is now paid to those noble specimens of church architecture which, after many revolutions of taste and religion, are yet remaining in England.

"The art which produced these edifices was splendid and sublime; but, like all other styles, it was the result of its expression of purpose and of its time; by its 'sermons in stones,' it addresses itself to the most illiterate, setting forth the grand outlines of the doctrines taught within its walls; it shows the condition of public and private life at that period, and the great religious zeal which everywhere animated all classes; its documents of stone present the most lively pictures of centuries that are elapsed, and of the manners, the civil and ecclesiastical history of their era, in a style which displays the most superior genius and science, and which will be distinguished to the latest period amongst the noblest productions of human inventions.

"I will here hazard a remark or two upon the appellation Gothic.

"The Saxon and Norman styles being debased Roman practised under the Gothic princes, is properly Gothic architecture. The pointed style having risen where the corruptions of Christianity and the power of the church of Rome were at their greatest height, and being, moreover, co-existent with the dominion of that church, fell, and was lost, when popery received its death blow at the Reformation (?) I would humbly suggest should be called Catholic architecture, which perhaps was Mr. Britton's idea in using the term 'Christian.' That it did not receive its designation 'Gothic' from Sir Christopher Wren, or Sir Henry Wotton, is proved by the learned Gori, who, among other passages, from ancient chronicles, cites the following:—'Miro opere Gothica manu—miro opere per manum Gothicam;—miro opere constructa ab artificibus Gothicis.' As to calling it English is absurd, we neither possessing the earliest nor the grandest specimens of the style; and perforated intersecting arches are seen in St. Stephen's, Caen, built seventy years before the church of St. Cross, Hampshire.

"We have seen that the pointed arch was known in all ages, but it was not until the incorporation of the Free Masons, in the thirteenth century, that it was brought to that consistency and perfection in which we see it in their works.

"The free-masons, like the Greek architects, carefully concealed their principles of design from the public eye; some few of their drawings have, however, been recently discovered among the archives of some German monasteries, which show the deep science, long foresight, and complicated calculations employed in their execution.

"One peculiar feature in the plan of most, if not all, the churches between the fourth and eleventh centuries, was the termination of the choir in a semicircular apsis. As larger churches became

necessary, the body was encircled with aisles, and the clerestory raised upon a series of round arches supported by pillars; these pillars when placed in the bow, nearer each other than where the colonnade proceeds in a straight direction, the arches rising from them, when brought to an equal height with those of a round shape become necessarily pointed. I believe the earliest instance, in a superstructure, where this occurs, is in the abbey church of St. Germain-des-Près, rebuilt by Abbot Morand before the year 1014, and restored about twelve years since at the sole expense of that most excellent princess, the Duchess d'Angoulême. Another example of the same arrangement, towards the close of the eleventh century, is seen in the curious church of the Benedictines at La Charité sur Loire. Another cause of the introduction of the pointed arch was the necessity in constructing vaults whose diagonal ribs were a semicircle, to form the longitudinal and transverse arches of a height exceeding their semi-diameter; before the elegant expedient of the pointed arch was resorted to, this was accomplished by elongating the semicircle, or raising it vertically, as may be seen in Melbourne Church; in the aisles of Christ Church, Oxford; in the chancel of Hemel Hempstead, and many other structures of a prior date than A.D. 1100.



"There can therefore be no doubt that the pointed style grew out of the difficulties which opposed the complete development of the older and more massive Saxon and Norman manner, and which the increasing science of the free companies of architects alone enable them to surmount.

"Rich ecclesiastical corporations encouraged and directed the construction and decoration of these sumptuous edifices, and many of their members were deeply and practically scientific in estimating the nice mathematical problems on which the execution and durability of such buildings must depend.

"The earliest instances of the pointed arch in England being pretty accurately dated in the reign of King Stephen, and the semicircular arch being quite disused at the accession of King John, all the churches which exhibit both pointed and circular arches, intimately joined and intermixed, may with certainty be stated to have been erected between those periods, and the nearer they approach the time of John, the more the pointed arch will be found to predominate, for the gradual transition observable in the Greek styles is also seen in the Gothic, not only in what is called, *par excellence*, 'the transition style'—for architecture is always in a state of transition,—but in all the varieties of the Gothic; but so imperceptible are the changes in their progress, that a series of examples of parts and ornaments and mouldings might be made out, each of them scarcely differing from its predecessor, yet at every ten or twelve steps shewing a decided alteration. Thus its perfection was attained, not by any sudden discovery, but by a tasteful and progressive combination of those ornaments, contrivances, and beauties that had at first been separately devised, and became gradually invested with its splendid peculiarities.

"The chief characteristics of the style of the thirteenth century, with us, are the highly-pointed arch, usually forming an equilateral triangle, lancet-shaped windows, often triplicated, circular pillars, generally encompassed with highly-polished Purbeck marble shafts a little detached, a profusion of little columns of the same stone in the ornamental parts of the building, and the vaulting high pitched between transverse arches, and cross-springers only, as in Salisbury Cathedral, the choir and transept of Westminster, the choir of the Temple Church and the Lady Chapel of St. Saviour's.

"It is to the devoted energy and enthusiasm of the free-masons, the ever active intelligence of mind seeking for excellence and unknown perfection, and the constant intercourse of these fraternities one with the other, in all parts of Europe, we must look for the rapid progress of Catholic architecture from one degree of excellence to another; the art had long had all the disposableness of a formed language, so that these itinerant architects could readily express their ideas and inventions to each other;

perfection was no sooner attained in one style, than they again sought it in another; the windows, at first small as well as narrow, with large intervals of



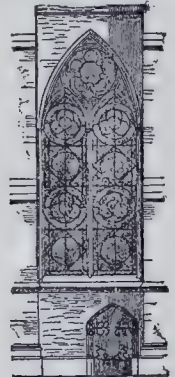
solid wall between, by degrees became larger, or were multiplied, which brought them so near to each other that the intervals became reduced to the semblance of rude mullions; these were gradually narrowed, till at length the whole edifice became one perforated screen of rich tracery.

'Glozy'd well with roial glas,
Fulfilled it was with ymagery.'

'The illumined pane
Shed the dim blaze of radiance richly clear.'

— And the sun
Streamed through the storied window's
Holy hue.'

"That the rage for stained glass was one of the principal reasons for this is particularly exemplified at Westminster. Its abbey, a royal foundation, and connected with the king's palace, would naturally be the first in all improvements; accordingly, we find, as was usual in the thirteenth century, two windows in each 'severy' or bay; but in this instance they are so much enlarged for the purpose of admitting glass, as to be separated by the smallest mullion, compared with the apertures known in the history of Gothic architecture, and only shew as separate windows by the separate drop-moulding over the head of each.



"I have selected this compartment as an illustration, because it also exhibits another peculiarity in its venetian structure, the door, or one in the same situation by which St. Edward entered the church from his hall, which had a corresponding door directly opposite.

"There is a strange deficiency of terms in the vocabulary of those gentlemen who have attempted a classification of the various styles of what I have ventured to call Catholic architecture; the word 'decorated' presents no distinct idea of the contemporary geometrical and floral tracery, which prevailed in the times of the second and third Edward; and when we find that vertical lines are the great characteristic of all styles of Catholic architecture, I beg to suggest the word empaneled as more expressive of the style of the fifteenth and sixteenth centuries than the word 'perpendicular.'

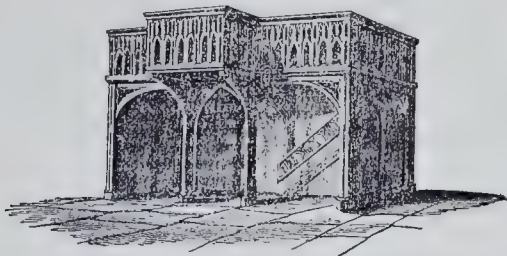
The Metropolitan Building Act. By HENRY FLOWEN, District Surveyor.

THIS is a very useful sheet of reference, and immeasurably superior to any page book, as you have at one glance, and well displayed, every point of material reference in the Building Act; together with sections and plans of party walls. Every Builder, Surveyor, and Architect should be possessed of it, stretched and framed up in his office.

GALLERIES IN CHURCHES.

"Let us no more witness the anomaly of Gothic pillars supporting an epistylum. If there must be galleries in Gothic churches, let them be appropriately supported. I here subjoin a hint for that

purpose, in this little view of an ancient gallery or roof-loft; and many other hints will be found by a study of our beautiful canopied tombs."—*Bardwell.*



HALF-TIMBERED HOUSES.

From a deficiency of antiquarian knowledge we too often see the most absurd anachronisms committed, which, although they may escape the detection of common observers, and even men of general good taste, are yet exceedingly offensive to the enlightened antiquary, as are all attempts to embellish by the employment of incongruous ornamental particles. One example of this error is seen in the frequent misapplication, by mere imitators, of the picturesque verge-boards and richly-figured pendants of our timber-framed houses, by attaching them with the far-projecting eaves they accompany to buildings entirely of brick or solid stone, needing no such projection, and where a stone coping and parapet would be the appropriate finish. See a view of King Richard's house at Leicester, where the uselessness and beauty



of the pendant ornaments are at once apparent; but imagine the same attached to the gables of a construction of stone, and what before was beauty will become deformity, and destroy that harmony of character by which architecture speaks to the intellect.—*Bardwell.*

OXFORD ARCHITECTURAL SOCIETY.

A MEETING was held at the Society's room on Wednesday, Nov. 23, the Rev. the Master of University College in the chair.

NEW MEMBERS ADMITTED.

W. W. E. Wynne, Esq. All Souls, and of Ruyton Hall, Shrewsbury.
L. L. Hartley, Esq. Middleton Lodge, Richmond, Yorkshire.
R. Edwards, Esq. Magdalene Hall.
R. Wilson, Esq. Magdalene Hall.
Rev. C. D. Sanders, B. A. Wadham College.
Rev. H. Scudamore, B. A. M. A. Christ Church; Vicar of Tidenham, Gloucestershire.
Rev. T. E. Morris, M. A. Christ Church.
B. Bevan, Esq. Christ Church.
H. C. Adams, Magdalene College.
G. W. Paul, Magdalene College.
T. Everts, Esq. Corpus Christi College.
H. Ellison, Esq. University College.

A paper was then read by Mr. Freeman upon some Brasses which he had presented. The most remarkable were, 1, that of Lawrence de S. Maur, Rector and Founder of S. Mary's,

Higham Ferrers; 2, that of Sir Walter Mauntell and Elizabeth his wife, from Nether Heyford; and 3, that of Sir Thomas Grene and Matilda his wife, from Green's Norton; all in the county of Northampton; 4, John Norreys, the Founder of S. Lawrence, Wynington, Bedfordshire.

Another paper was then read by Mr. Freeman on the churches of S. Luke, Spratton, All Saints, Harpole and S. Luke, Duston, all in the county of Northampton. These descriptions were followed by some remarks on the general character of churches about Northampton, which are chiefly of Norman foundation, with later additions, the Early-English style being the least frequent. They are generally plain, with western towers, commonly without spires, and wretched clerestories. They are for the most part of good size, almost always with Aisles to the Nave, and generally Aisles or chapels to the Chancel.

The Chairman read several letters and short communications of considerable interest:—

An account of the ruined chapel of Berwick, in the parish of Eglingham, Archdeaconry of Lindisfarne, Northumberland, suggesting its restoration. Archdeacon Bigge made some remarks, shewing the difficulty and almost the impracticability of doing so.

A letter from the President of Trinity College on the subject of Banbury Bridge, and one from R. E. E. Warburton, Esq. of Arley Hall, respecting the bridge at Chester, in answer to the "Bridge Queries."

An account of a stained glass "Memorial Window," about to be erected in the church of S. Peter, at Newcastle-on-Tyne, to the memory of the late Rev. T. Dodd. The Chairman called attention to this communication, wishing to recommend the practice to more general notice, and expressing the obligation the Society is under to Mr. Markland for the suggestion. Mr. Markland, who happened to be present, mentioned that Mr. Wailes, of Newcastle, has already received orders for several such windows; and others are in hand by other artists.

A letter from the Rev. J. H. Turbitt, Vicar of Powick, near Worcester, on Open seats in churches, shewing, from experience, the practicability and advantage of the plan even in a case which at first sight seemed least calculated for the experiment. This letter gave rise to considerable discussion, in which the Chairman, the Rector of Exeter, and several other members, took part.

The Rev. W. Sewell called the attention of the members to the theory of the Geometrical Proportions of Gothic Architecture, mentioned by Dr. Buckland at the last meeting, and requested them to test it by measurements wherever they have the opportunity.

REPORT OF THE TWENTY-NINTH ORDINARY MEETING OF THE CAMBRIDGE CAMDEN SOCIETY.

On Monday, December 5, 1842.

THE President took the chair at half-past 7 o'clock, supported by the Hon. and Rev. the Master of Magdalene-college, Patron, and the Rev. Dr. Mill and the Rev. J. J. Smith, Vice-Presidents.

The following candidates were balloted for and elected:—

The Rev. Dr. Hook, vicar of Leeds, who

was at the last meeting elected an ordinary member, was elected an honorary member.

W. Wordsworth, Esq. was next elected an honorary member.

The President stated that he had received communications from these Gentlemen (agreeably to the practice of the Society previously to proposing honorary members), expressing their acceptance of the honour just paid to them, and that he was desired by Mr. Wordsworth in particular to make his acknowledgments, in the event of his being elected, publicly known to the Society.

ORDINARY MEMBERS.

Blake, W. Esq., Trinity-college.
Corles, Rev. A. M. A. Trinity-college; Bury St. Edmund's.
Drury, Rev. B. H. Fellow of Caius-college.
Evans, Rev. W. E. M. A. Clare-hall; Rural Dean of Leominster.
Hartnell, J. Esq. Hawkhurst, Kent.
Joseph, N. Esq. Trinity-hall.
Lloyd, T. Esq. St. John's college.
Mare, W. S. Esq. M. A. Magdalene-college.
Mather, G. Esq. Trinity-college.
Mills, H. Esq. Trinity-college.
Pilling, — Esq. Caius-college.
Power, J. Esq. B. A. Fellow of Pembroke-college.
Roscow, T. Esq. Downing-college.
Sellers, S. B. Esq. Corpus Christi-college.
Sendall, E. Esq. Trinity-college.
Smyth, Rev. G. W. M. A. Trinity-college; Fyfield rectory, Andover.
Swainson, C. A. Esq. B. A. Fellow of Christ's-college.
Vickers, The Ven. Archdeacon, M. A. Trinity-college; Chetton, Bridgworth.
Williams, T. S. Esq. Trinity-college.

The following report from the Committee was next read by the senior Secretary:—

The committee have little to report this evening, beyond a statement of what has been published since the last meeting, Nov. 10. A new double number of the *Ecclesiologist* appears this evening; and the first three numbers of the first volume have already been reprinted. It is expected that new editions of the remaining numbers of the first volume will be called for in succession. The committee have resolved to increase the price of each number from 4d. to 6d. for the occasional sale. The amount of subscription for twelve sheets, postage included, will continue to be five shillings, as before.

The second part of the Transactions also appears this evening. To one copy of this every member is entitled, whose subscription is not in arrear.

The fifth number of the Illustrations of Monumental Brasses is already published. One more part will complete a volume; upon the appearance of which this work will close, at least for a time, to give any subscribers who may desire it, the opportunity of concluding their engagement. A new edition of the first number has long been urgently called for, and the committee has pledged itself to produce it; it will be issued with all convenient speed.

The committee have now made arrangements for the immediate publication of the "Notices of Churches in Cambridgeshire and the Isle of Ely." It is proposed to begin with the church of Cherryhinton; after which Bottisham, Histon, and Trumpington will follow. Each number will contain three plates, besides numerous smaller illustrations; the accompanying letter-press will give full measurements and an architectural description, with documentary evidences (when accessible) of the original date and successive alterations of the fabric. It is confidently hoped that this undertaking will be very acceptable, not only to our own members, but to the University and county, as well as to all admirers of church architecture. The district is known to be as rich in churches as it is poor in topographical or architectural illustrations. The committee rely on the active co-operation of the members: a list of subscribers is placed upon the table for additional signatures.

Before the next meeting the committee hope to have published two more tracts for general distribution. The one will be called "Church Enlargement and Church Restoration," and will contain a practical exposition of the society's views on these subjects; the other "A Few Words to Parish Clerks and Sextons," containing some plain advice to those functionaries.

Applications for advice and assistance have been received from the following places:—St. Ninian's, Wooler, Northumberland; St. Paul's, Bristol; Pentrevoclas, Oswestry, Salop; Westbourne, Sussex; St. Leonard's, Colchester; St. James's, ditto; Much Hadham, Herts; Kevil, Wilts; Earnley, Sussex; Wribbenhall, Bedwely; Tovil, Kent; Whitstable, ditto.

An application to the Incorporated Society for the loan of some correct designs for churches, by the secretary of the Church Society of the Archdeaconry of New Brunswick, was referred by the former body to the committees of the Cambridge,

Camden, and Oxford Architectural Societies, as not falling within the scope of its own operations. Your committee have communicated with the applicant, and promised such assistance and advice as was consistent with their rules and ability.

It remains to mention a few of the more remarkable of the presents lately received by the society:—From the Rev. T. S. Hughes, some original sketches by Cotman, of details from St. George, Bochererville; a very rare and valuable brass of a knight, from Pehmarsh, Essex, without legend, but of about the date of 1330, presented by the Rev. G. Curry; five rubbings of brasses, designed and recently executed by Mr. Pugin; illustrations of Bishop West's Chapel, folio, with twelve proof lithograph plates, by Mr. J. G. Jackson, Leamington; the first part of the churches of Oxfordshire, and views and details of St. Giles' church, Oxford, folio, from the Oxford Architectural Society; and three cases of new encaustic tiles, manufactured and presented by Mr. H. Minton, of Stoke-upon-Trent, Staffordshire.

The society will be glad to learn that the committee have been empowered to provide designs for two churches: one at Maresfield, Sussex; the other at Whitstable, in Kent.

The works at St. Sepulchre's have been proceeding satisfactorily, and the committee hope to get the roof on the Chancel before the end of the present month. They cannot anticipate disappointment in their expectation of realizing the necessary means, though they regret to find that a large payment has now totally exhausted their funds. They hope they may rely on the co-operation of the members of the society, in making the case known during the approaching vacation, among persons who, though not connected with the University, are zealous for its credit, and take an interest in this restoration. The committee have acknowledged the receipt of the sums already paid in; but they cannot refrain from offering special thanks to those who, in most cases with an augmentation in the amount, have repeated their subscriptions. In acknowledging former donations they intentionally abstained from inviting those subscribers to anything more than their continued countenance, with the view of provoking others to follow their example. They will not, however, pretend to regret a renewal of support which the givers themselves would be the last to call a sacrifice.

A paper upon galleries was read by Mr. Freeman, fellow and tutor of St. Peter's college.

The secretary read a paper communicated by the Rev. J. M. Neale, B.A., Trinity college, chairman of committees on the Ecclesiology of the deanery of Penwith, in Cornwall.

A paper on the windows called "Lychoscopes," in the fourth edition of the society's *Hints on the Practical Study of Ecclesiastical Antiquities*, was read by Mr. Webb, Trinity college, honorary secretary.

The president, after some remarks and an invitation to the members to use their exertions in the vacation on behalf of the St. Sepulchre's Restoration Fund, adjourned the meeting.

PROJECTED NEW CHURCH AT ALEXANDRIA.

(Extracted from the "Ecclesiologist.")

As it may be interesting to many to have some account of the form and plan of this church, we shall here subjoin a brief description of it for their information. The entire length of the church externally is 128 feet by 50 feet in breadth (exclusive of a north and south porch). The plan comprises a full and spacious chancel, 40 feet by 18 internally, and a nave and aisles, 78 by 40; and a tower with a lofty spire to be added, if funds can be procured, in the place of the south porch. The chancel is raised by three steps, and is furnished with all the proper appurtenances of stalls, priest's door, credence, sedilia, and piscina. The seats in the nave are ranged in four parallel rows facing the east, there being a passage of 5 ft. 9 in. in the centre, and one of 2 ft. 6 in. in each aisle next to the piers. The seats are, of course, all open. The west front, adapted from that of Diarcestos Abbey, exhibits a beautiful façade made by the nave, which is terminated by a high-pitched roof with a gable cross between two large pinnacled turrets, and has below a lofty arcade pierced with two lights, and the two aisles, each of which carries a separate gable with a cross, and a single lancet light. To this front the north porch and southern tower will add great breadth and diversity of effect. The chancel, nave, and aisles will be vaulted; and the clerestory lighted by a circular window in each

groined compartment. The aisles are lighted by single lancets between buttresses with pedimented heads and set-offs. The east end will have a peculiarly beautiful effect, from a richly arcaded triplet with a wheel window above, and from the lofty gables of the chancel, nave, and aisles, all of which will be surmounted with cresses, and are similar in design to the west end. The sides of the chancel contain three bays, each of which is arcaded of three, with the central arch pierced for a lancet light. Every portion of this church has been designed in strict conformity with ancient models.

NEW CHURCH AT KNOWSLEY, LANCASHIRE.

There are many points in this design which deserve great commendation, and as a whole it may safely be pronounced a most successful example of modern church building, although some of the arrangements appear to us liable to serious objection. The church is of the Early-English style, and consists of a good chancel, nave with aisles, and tower with broach spire at the west end. There will be no galleries, and the ground-floor alone will accommodate 400 worshippers. There is a well-defined clerestory, supported by beautiful clustered piers and arches, and surmounted by a very fine high-pitched roof, the trusses of which spring from triple-shafted corbels, with floriated capitals. The walls of this church are somewhat too thin to allow of the proper internal splay of the lancets, and appear to us to be too much and too regularly pierced. Thus each side of the aisles and clerestory exhibits an equal number of lancets, placed exactly opposite to each other. We should have preferred single lights in both positions, for a church should be dimly lighted; or the clerestory might have had foliated circles (a beautiful Early-English feature, which we wonder is not more frequently introduced), and the aisles plain two-light windows with circles in the heads. There is too much sameness in so great a number of lancet windows. The nave-roof might have been carried up to the belfry-windows with better effect. The tower is very good, and has nothing to which we can object, excepting a number of small trefoil apertures which are intended to light the staircase, but which should rather have been plain oblong slits in the wall. There is, we suspect, but scanty ancient authority for such ornaments, unless in very magnificent towers, and they appear singularly inappropriate when placed just below the point where the broach meets the top of the tower, since this part ought especially to convey the idea of strength and solidity. Small apertures, however, of this description, occur in St. Mary's Tower, Stamford. The northern porch (we should have much preferred a southern one, or at least a southern door should have been added, as at Woodton, Norfolk; Inham, Lincolnshire; and of later date, Grantchester and Chesterton churches, near Cambridge), has too large a doorway, and its roof does not meet that of the aisle in a pleasing manner. The western doorway would be very good if the mouldings were less meagre and ornamental. A tower doorway of this style should be very deeply recessed, and have a great display of arch moulding. The details in general are very good, and have the rare merit of being at once extremely correct and varied in form.

We have several grave objections to make against the internal arrangements. There is no central passage to the altar; but the space which ought to have been left for this purpose is occupied by seats for children. The tables of commandments, creed, &c., are placed in an arcade above the chancel-arch—a modernism which we consider altogether inadmissible, to say nothing of its bad effect. We should be inclined to carry the chancel-arch considerably higher. The organ is at the east end of the north aisle; it should rather have been at the west, and a window at the east end. The font is too nearly in the centre of the nave; its correct position is by the west pier nearest to the porch. Upon the whole, however, great praise is due to this design; but we deeply regret to observe that some of the internal details are to be executed in plaster. We had much rather that they had not been attempted at all. Under the chancel is a vaulted crypt, and above it we observe with no great satisfaction a contrivance for warming the church with hot air.

OPENING OF THE NEW STREET THROUGH ST. GILES.

TO THE EDITOR OF THE BUILDER.

MR. EDITOR,—I am sure I cannot exaggerate the joy which we must all feel at the commencement of this long-projected scheme. Nobody that has ever walked through the filthy streets of St. Giles or has glanced at the hovels, I will not say houses, of its wretched inhabitants, can help feeling a sensation of pleasure at least commensurate with the pain which they must then have experienced. This proposed street or streets through it will be the first blow which corruption and immorality will have received in that quarter; but the attack has been made, and we feel confident it will not be the last. Already has the undertaking been begun, and we may anticipate the success and the numerous advantages, both moral and commercial, which must follow.

Our St. Giles has long been the avowed haunt of the drunkard and the debauchee. From it, as from a stronghold, vice has looked forth unmoved, and hitherto unmolested, upon the inventions and improvements of this country, and though commerce and the fine arts have advanced with long and rapid strides in other parts of London, yet this miserable portion has stood back, rendered perhaps more obstinate and hardened by the contrast. But a brighter morn is dawning upon this spot, the happy harbinger of a still brighter day, and we hope even yet to see the inhabitants of St. Giles as industrious and respectable as their fellow-citizens. How delightful must this thought be to all good people. How gratifying to behold a line of buildings rivaling our Regent-street and Oxford-street in splendour, stretching across these densely-crowded dwellings, erected as it were upon the wreck of all that is miserable and disgraceful. What a saving influence must the sight of wealth and industry have upon the inhabitants. The effect will be similar to that produced by cutting a deep drain through the rank vegetation of a morass,—the useless filth and moisture must flow off, and leave fertility and abundance behind.

Yours respectfully,

F. L. P.

WOOD PAVEMENTS.

WE are very anxious to lay before our readers a carefully digested account, illustrated by drawings, of all the prominent plans for wood pavement now in use, or about being brought into use, in this metropolis. An association has been formed, consisting of a number of gentlemen styling themselves the "Practical and Scientific Association for the Promotion of Improved Street Paving," whose object it is to bring before the public, in the most available mode that may be open to them, each of these plans, by laying down in some suitable thoroughfare a specimen of each, and exposing them to the practical test of working traffic; this experiment, if conducted with fairness, of which we have every confidence from the known high character and respectability of the association, will be an important means of determining the question of superiority, and this it is that for the public interest it is desirable should be made known with as little delay as possible.

Wood paving has been long urged upon the public attention, particularly by travellers in Russia, who had seen it used in the principal cities of that country; and we remember to have read in the papers and journals of many years back numerous letters on the subject, and we understand that Mr. Loudon was one of those writers so far back as the year 1815. Col. Jackson and Col. Macerone we remember also to have been of the number. But notwithstanding these repeated suggestions, and the experience of the evils which the public endured in the noisy character of the block granite pavement, or the almost equally noisy but more dirty and dusty Macadamising—with its nuisance during repairs of hacking up, new stoning, and the like—it was reserved till a year or two back before any extensive practical scheme was taken in hand, and since that time a host of inventors and speculators have entered the field of competition, among whom the Metropolitan Wood Pavement Company have taken the lead, as far as extent of business is concerned.

Many things doubtless remain to be done to perfect this new system of pavement; it is exceedingly pleasant in many respects: such as its evenness of surface—the easier means of cleaning—the lightness of draught—but, above all, the subdued noise from carriages travelling over it; but it has its disadvantages yet,

as all newly-introduced things have, and which practical experience will no doubt assist very largely, if not wholly, in remedying.

We gave our opinion in favour of it on the very first occasion of our seeing it being laid down with the prepared concrete bed or foundation. We remarked at the time, as we maintain still, that the concrete was in truth the road—the essence of it; the wood, a casing or covering—and beautifully adapted to each other we believe they will be found to be, the resilient character of the timber being the best substance that could be interposed between the load and percussion of wheels, and the solid concrete of the foundation.

As regards the requisites in the construction of this wooden upper surface, we have already said that many plans are proposed, some excessively ingenious, but withal somewhat complicated; what is wanted is a simple geometrical construction, perfect as far as possible in that respect, as we would require in the framing of a roof or truss, and not dependent, in any large degree, upon mechanical or extraneous adjuncts, such as pins, wedges, cramps, and the like. Every carpenter will well know what we mean, or, to bring the case still more familiarly home, we will take the example of an arch; all perfect arches are said to be arches of equilibrium, and do not depend upon cement or ties to give them that character—cement, it is true, is added after; but what we mean is that the geometrical construction is first complete, and the cement only added as a make-weight to its general completeness.

It is on account of the necessity of a comprehension of these points that we consider the attention of the engineer, architect, and practical builder to be required first and foremost in such cases, instead of which they appear to be the last who look on, or are called in to the inquiry. If we had to empanel a jury on such a point, who, let us ask, would be chosen? certainly a major part of builders and practical paviors, and the rest, the scientific and the amateurs; our object, therefore, will be to bring the matter in effect before the jury of our class, and to invite their attention to other points which concern them, as we think we shall be able to shew.

Miscellaneous.

CHURCHYARDS AND CEMETERIES.—Churchyards and cemeteries are scenes not only calculated to improve the morals and the taste, and by their botanical riches to cultivate the intellect, but they serve as *historical records*. This is the case with the religious temples and burial-grounds in all ages and in all countries. The country churchyard was formerly the country labourer's only library, and to it was limited his knowledge of history, chronology and biography; every grave was to him a page, and every head-stone or tomb a picture or an engraving. With the progress of education and refinement, this part of the uses of churchyards is not superseded, but only extended and improved. It is still to the poor man a local history and biography, though the means of more extended knowledge are now amply furnished by the diffusion of cheap publications, which will at no distant time, it is to be hoped, be rendered still more effective by the establishment of a system of national education. "A garden cemetery and monumental decoration," our eloquent author observes, "afford the most convincing tokens of a nation's progress in civilization, and in the arts, which are its result. We have seen with what pains the most celebrated nations of which history speaks have adorned their places of sepulture, and it is from their funeral monuments that we gather much that is known of their civil progress and of their advancement in taste. Is not the story of Egypt written on its pyramids, and is not the chronology of Arabia pictured on its tombs? Is it not on the funeral relics of Greece and Rome that we behold those elegant images of repose and tender sorrow with which they so happily invested the idea of death? Is it not on the urns and sarcophagi of Etruria that the lover of the noble art of sculpture still gazes with delight? And is it not amid the catacombs, the crypts, and the calvaries of Italy, that the sculptor and the painter of the dark ages chiefly present the most splendid specimens of their chisel and their pencil? In modern days, also, has it not been at the shrine of death that the highest efforts of the Michael Angelos, the Canovas, the Thorwaldsens, and the Chantreys have been elicited and exhibited? The tomb has, in fact, been the great chronicle of taste throughout the world. In the East, from the hoary pyramid to the modern Arab's grave; in Europe, from the rude tomb of the druid to the marble mausoleum of the

monarch; in America, from the grove which the Indian chief planted round the sepulchre of his son, to the monument which announces to the lovers of freedom the last resting-place of Washington."—*London's Gardener's Magazine*.

BRICK AND STONE BUILDINGS.—Britain contains all the material necessary for building. Its ancient inhabitants lived in caverns, or formed themselves huts of branches covered with turf. In after ages commerce brought the Phœnicians and other civilized nations, and they learned from those strangers many useful arts. Their habitations, according to Cæsar, were in his time but little improved; their towns were only a confused parcel of huts, generally placed in the middle of woods; the avenues slightly defended with ramparts of earth, or trees felled for the purpose. In such buildings little use was there for stone or brick, yet they could not be unacquainted with the use of stone; for if Stonehenge was a British work, though we are uncertain in what age it was erected, they must have had some skill in masonry at that time. There is now nothing remaining of British architecture except this valuable piece of antiquity, upon which the marks of the chisel appear. The customs and manners of the Britons before Cæsar's invasion are so little known, that nothing certain can be collected relating to them. It will therefore be in vain to inquire into their manner of building, or the materials used previous to the Roman invasion. The Roman examples shew that they were very careful in laying their foundations, digging till they came to solid ground; if they found the ground soft, it was strengthened with piles singed, and the spaces between filled with charcoal. Their foundations were of such stones as they found nearest the place, bedded in clay or other material easiest had. In this manner they built the station wall at Manchester with paving stones bedded in primitive clay, though the superstructure was laid with lime. The walls at Boroughfield, Leicestershire, the Roman Station at Aldbrough in Yorkshire, are also examples of this mode of building. But this mode of laying foundations was not peculiar to the Romans, or any other people since their time, for it has been in use in every age and country. The Saxons and Normans built after this manner, piled or otherwise, as occasion required: London Bridge, 1178, the ancient stone bridge over the river Grant, from which Grantham takes its name, are examples. Builders of the fifteenth century laid foundations without mortar, but in a different way, with alternate layers of gravel and lime, core or ashes, well rammed, and sometimes a layer of loam or clay upon that. I am not aware whether this work is much earlier than the fifteenth century, but from the superstructures which I have seen, they appeared to be of that age. They are sometimes found without any buildings upon them, and when cut transversely may be known by the strata appearing in stripes of a blue colour. It is as difficult to distinguish the age of a building by the masonry where nothing but plain walls appear, as to distinguish the period when a foundation may have been laid. The several species of masonry introduced by the Romans were used by the Saxons, Normans, and more modern masons, notwithstanding the different styles of architecture which prevailed in different ages, but it is certain that the Britons used stone before their acquaintance with the Roman modes. How they acquired the art of cutting and erecting them in circular and other figures may have been derived from their traffic with other nations, who could also have furnished them with workmen for erecting such a work as Stonehenge. Such temples were common among the Phœnicians, &c., also among the Hebrews before the time of the written law, and until the Tabernacle was erected by Moses. In Stonehenge we find the mason imitated the work of the carpenter by connecting the stones with mortices and tenons, and it is probable that in those parts of the island where timber was scarce and stones plentiful, huts with door-posts and lintels would, in like manner, be framed together. Thus far we may suppose the Britons had advanced before the Romans were settled among them.

CLAREMONT.—We understand that Messrs. Grisell and Peto have received instructions to commence immediately the erection of new stabling at Claremont for his Majesty the King of the Belgians, for forty horses; the building will be of yellow brick with stone dressings, and red brick gables to angles and window-openings. The old stabling has been pulled down, and the new erection is to be upon the same site. It is expected that Claremont will be used as an occasional nursery for younger members of the Royal family. Mr. Chawner is the architect.

GREAT NORMAN TOWER, BURY ST. EDMUNDS.—A subscription has been commenced, headed by the Marquis of Bristol, hereditary steward of the town of Bury, Sir John Cullum, and others, to restore this noble tower, and a committee has been formed of persons of rank, wealth, and influence in the county of Suffolk, who have employed Mr. Cottingham; his estimate is under 3000*l*.

THE LAW COURTS IN THE CITY.—From a report made to the Court of Common Council, by the City Lands Committee, it appears that Mr. Tite has been chosen to prepare plans and designs for the City Law Courts. This gentleman and the City Surveyor have presented a report to the Committee, of which the following is the substance:—

"In proceeding to study the general arrangements, the Committee is aware that we gave great attention to the question of the possibility of placing any or all of the courts on the ground-floor; and in order to determine this most important question, we laid before the Committee, at their meeting on the 14th of September, a series of plans, in which the attempt was made to place the Courts of Queen's Bench and Common Pleas on the ground-floor, and the Court of Exchequer on the one-pair floor. After due and careful examination, the Committee were unanimously of opinion, that unless all the courts were placed one the one-pair floor, sufficient accommodation would not be obtained for the public, the counsel, the solicitors, and the witnesses. In this opinion we entirely acquiesce. On the ground-floor, we propose that the great entrance in Guildhall yard shall be mainly, if not entirely, used by the juries, witnesses, solicitors, and the public; that the entrance for the judges shall be from a doorway towards the east end in Guildhall-buildings, and that the counsel shall enter on the east side. In the public entrance we have thought it right to make the hall, staircase, and vestibule as open, light, and ample as possible. The rooms for witnesses, solicitors, or consultation, are seven in number, according to the plans, and their area in feet superficial is 2,828, exclusive of the halls, staircases, vestibule, and robing-room. We have prepared two elevations, one of the west front in Guildhall-yard, another of that to the south in Guildhall-buildings, together with a perspective view, which shows the general effect of the whole. In the interior of the building we have carried out the style adopted on the outside. The courts would have level ceilings, executed in imitation of the old carved and timbered ceilings of the Tudor period. By a reference to the plans, the Committee will see that this design involves the re-construction of nearly all the present building. The foundations would, of course, be used to a great extent. The internal walls of the courts, and perhaps the back or eastern wall, it would be unnecessary to disturb; but every thing at the back of the courts must be entirely reconstructed, and the two external front walls rebuilt. We have made sufficient general calculations to enable us to advise the Committee that the works could be carried into effect at an expense not exceeding 10,000*l*."

NATIONAL TASTE IN BUILDINGS.—A military people delight in pavilions; in the Tuilleries the line of tents is terminated with two, distinguished by the name of Pavilions de Flore and Marsan. A maritime people delight in their ships: the English apartments convey the idea of "between decks;" and the larger buildings are often like the man-of-war hulk laid up in ordinary. In Russia, the palaces have the air of barracks, vast and forlorn; they remind the spectator of the plains of Siberia. In Egypt, the troglodyte excavation was revealed in the temple palace; in Greece, the log house in the temple structure; in China, still the tent, in its simplest form.

CATHEDRAL AT COLOGNE.—The committee for completing the cathedral at Cologne, have voted 30,000 thalers for the works in the nave, and 10,000 for the north tower. King Louis of Bavaria has promised four painted windows, which are to be ready in 1847. An exhibition of paintings has been opened at Rome, to assist the funds for the same object.

CHURCH BUILDING ACTS.—We are informed on competent authority that a bill has been prepared by Mr. Ker, and will shortly be introduced into the House of Lords by the Bishop of London, for amending and consolidating the Church Building Acts. A more necessary, and if considerably planned, a more useful measure, can scarcely be adopted, so far at least as respects populous and increasing districts.—*The English Churchman*.

STOCKTON.—The bridge to substitute the Stockton Suspension Bridge is now in progress; two of the piers are completed—one on each side of the stream; and the gangways and travelling cranes are erected. Mr. Grahamsley, of Newcastle, is the contractor for the masonry, and Mr. Kitchen, of Darlington, the contractor for the iron work. The foundation requires piles fifty feet long, and a ten-horse engine, with a ram of 18 cwt., and three men to drive them. The stone piers are dressed in rock-work, six feet broad at top; the span is eighty-three feet six inches between the piers; the roadway is to be carried by cast-iron bearers about 3½ feet deep. The site is about 100 feet above the suspension-bridge, up the stream or to the west of it. It is not certain whether the suspension bridge will be taken down, or used as a turn-out for empty waggon.

TO MAKE BRICKS, STONES, AND OTHER ABSORBENT MATERIALS, IMPERVIOUS TO WATER OR DAMP.—The process consists in submitting the surface of the stone, or brick, to the action of two solutions. The first a solution of common soap; the second a solution of alum. The brick or porous stone is first dipped into the solution of soap, and then into the alum; by the chymical action which ensues an aluminous soap is produced, which fills the pores, and resists the action of water as well as the moisture of the atmosphere. The solution may be applied with a brush or syringe, according to circumstances. Colouring may also be added if necessary.

THE SHANNON NAVIGATION IMPROVEMENT.—The commissioners have contracted with Messrs. Sikes and Brookfield for the sum of 40,000*l.* to execute the proposed works at Surmanbarry, Lanesborough, and to deepen the bed of the river on that line.

BITUMINOUS STREET PAVING.—Notwithstanding several unsuccessful trials of bitumen in the paving of carriage-ways, as in the Vauxhall-road some years ago, and more recently in Oxford-street, the Parisian Bitumen Company is at this time engaged in paving the square space opening into Hungerford Market, at the bottom of Hungerford-street, Strand. As this place is not subject to the same kind of wear and tear as a street through which a rapid traffic is constantly passing, it is possible that the bitumen may here answer better than in former trials, and in any case it may interest our readers to know the method pursued by the company in their present operations. The bituminous pavement consists of blocks a foot square and six inches in depth. These blocks are composed of an artificial bitumen and angular broken stones, forming a concrete of considerable tenacity. When the granite stones of the old pavement had been taken up and removed, a surface with a considerable convexity in a transverse direction was prepared to receive the bituminous blocks. These are then laid down in straight lines longitudinally, and breaking joint transversely. The blocks are not placed close together, but with a space between them of about one inch all round each block. This space is left for the purpose of being filled with melted pitch in order to fix the blocks in their places. These spaces or joints between the blocks are filled in with pitch at several different times; but when the pitch joint is only two or three inches in depth, the blocks are quite immovable. When the first thickness of pitch has become quite solid, the joints are filled with the same substance up to the top, and before the top surface of the joint has time to set, a workman sprinkles it over with a sharp, yellow, large-grained sea sand, which sets firmly in the pitch. The pavement, when finished, presents the appearance of an ordinary stone pavement, except that the blocks, instead of ranging in straight lines transversely across the road, are placed in straight lines in a longitudinal direction. We can see no good reason for this deviation from the old practice, while on the other hand it has obviously one great defect, namely that the water falling on the surface is checked in its escape to the sides at every course of stones, and thus the surface of the road-way must be kept constantly wet. The unbroken transverse lines of joints in an ordinary pavement, answer the useful purpose of minute channels to convey the water off to the sides. It may be said that the bituminous surface will prevent the penetration of water, and that the water lodging on the surface is of no consequence. We cannot agree in this, but consider on the other hand that for this very reason bituminous pavement should always be laid with a slope in some direction, so that the water, which can only otherwise escape by evaporating, may drain off it as fast as it falls.—*Engineer and Architect's Journal.*

UNSUCCESSFUL COMPETITION DESIGNS.—The system of competition adopted in this country is constantly developing the taste and genius of our times in sculpture, architecture, and construction, but of the numerous elegant designs so frequently produced there is not at present any record, except in the minute-books of the corporations or societies who are daily soliciting the gratuitous services of our artists. This circumstance is the more to be regretted, as the buildings and works which are erected give too frequently an unfavourable view of the taste and knowledge of the age. To perpetuate the existence of these designs, and to give posterity an opportunity of deciding upon the relative merits of the present race of professional men, and of comparing what was done with what might have been done, we must have recourse to the art of engraving. One of the objects of an Architectural and an Engineering Journal should be, we think, to aid in the perpetuation of these rejected designs, by which the present and future age will be able to decide from examination, rather than from partial historians. The increasing circulation of this work, and the assistance it is receiving from the pro-

fessions, both at home and abroad, give us an opportunity of doing this to some extent. Without such a permanent record, a few years will be sufficient to erase from the mind of the public even the remembrance of the names of those who have competed for public works, and who, in many instances, have produced drawings which, as productions of genius, art, and science, have been far superior to those that have been successful. It will not perhaps be possible to do all that we may wish, or all that our subscribers may desire, but we will give every possible assistance to the publication of valuable unsuccessful designs, and our exertions shall only be limited by the unavoidable cost of such illustrations.—*The Architect, Engineer, and Surveyor.*

NEWLY ELECTED ACADEMICIANS.—At a meeting of the Royal Academicians, held in Trafalgar-square, on the 10th ult., Sir William Ross was elected an academician in place of Sir Francis Chantrey, deceased; Mr. James Tibbitts Wilmore an associate engraver, in the place of Mr. William Bromley, deceased. At the same time, Mr. Henry Timbrell was elected a travelling student.

HOW LONG WILL THE COAL-FIELDS OF GREAT BRITAIN LAST?—According to Coneybear and others of our abler geologists, two thousand years at least. But Sedgwick and Buckland say that "four hundred years will leave but little more than the names of our best seams." And the South Shields Committee, in their recent report on accidents in mines, not only concur in this opinion, but describe the Tyne portion of our great northern coal-field as beginning already to experience the difficulties of exhaustion in the finer descriptions of coal. "Of an abundant supply of coal from other parts of the world, however, when our own mines are exhausted, there appears to be no fear; for France, Belgium, Saxony, Bohemia, Silesia, Russia, Syria, the East Indies, China, Australia, and the United States, are all mentioned as being rich in this valuable mineral. English coal is now sold at the coasts of France and America at a profit; but this arises, in the opinion of the South Shields Committee, solely from the want of capital in these countries to work their own mines to advantage; a state of things which it is not reasonable to expect can always continue.

NOVEL SYSTEM OF WATER-PIPES.—We have received a communication describing a new system of pipes for conveying pure water, gas, and steam to towns and cities, one great advantage of which would be a certain means of quickly extinguishing fires. It is proposed to carry the water raised from reservoirs, by pipes or aqueducts, along the tops and by the sides of the houses, instead of under ground as at present. C. E. Coote, of Merington House, Clifton, Bristol, is the inventor of the plan, which appears to us to be perfectly feasible.—*New Farmer's Journal.*

It cannot be too widely known that, in ordinary cases, a common cistern placed in the roof, with a pipe let down through each floor, would gather and let down plenty of rain-water to flood each floor in case of fire.

NANKIN AND ITS PORCELAIN WORKS.—Numerous, as you may conceive, have been the pilgrimages made to the far-famed "Porcelain Tower," for the first time in inspecting any of the monuments *rénommés* of this country, no disappointment has been experienced, while comparing what actually is, with what the legends of the book-makers in China describe to be. It is, indeed, a most elegant and singular structure, as remarkable for its correct proportions as for the rare material of which it is partially composed. I say partially, because the mass of building is not of porcelain, but is composed of common brick, with a facing and lining of beautiful white glazed porcelain bricks or slabs, fixed into the masonry by means of deep keys or shoulders, cast like a half T, on the brick. Its form is octagonal, and running up each of the angles is a moulding of large tiles of very fine clay, glazed and coloured red and green alternately; round each story runs a high balustrade formed of green porcelain, upon which four arched doorways open, set to the four cardinal points, the arches being elegantly turned with glazed tiles, cast in all imaginable fancies of design and variegation of colour, representing wild beasts, demons, deities, monsters, &c. It appears to be a "sight" amongst the Chinese themselves, for there are priests or bonzes attached to the building to keep it in order, who earn their consideration by distributing to the visitors lithographed elevations of the tower, with descriptions attached, and who seem to have the duty entrusted to them of illuminating it on gala occasions. This is effected by means of lanterns made of thin oyster shells, used in lieu of window glass by the Chinese, which are placed at each of the eight angles on every story, and the effect of whose subdued light on the highly reflective surface of the tower must be most striking and beautiful.—*Bombay Spectator.*

AN EXTRAORDINARY BAR OF IRON.—The largest bar of iron ever made was rolled at the Cyfarthfa Iron-works, near Merthyr Tydfil, on Saturday last, and is, we are informed, for a house in Holland. It is a cable bolt, 25 feet in length, and 6 inches in diameter, and weighs about 2,400*lb.* The pile was taken from the heating-furnace and put at once into the rolls, just in the same manner as they roll bars of an ordinary size. It was rolled under the able superintendence of Mr. Robert Crawshaw.

ORGANS.—The comparative size of the following organs will give our readers an idea of their power, &c.:—St. Paul's total of pipes, 1,783; St. Peter's, Cornhill, 2,090; Exeter Hall, 2,187; Birmingham, 2,636 (to be enlarged); York, 4,089; Christ Church, Newgate-street, 4,500! And the great organ at Haarlem, 4,551. An organ has lately been erected in Great George-street Chapel, Liverpool, by Mr. Hill, who built the York and Birmingham instruments under the direction of Mr. Gauntlet, who opened it last year, which may be termed the English Haarlem organ, for it was built on the same principles, and has the largest swell in Europe; and the large pedal-pipes are 32 feet long, within one of which a Daniel Lambert might take a nap. The Haarlem organ is 108 feet high, and 50 broad.—*Musical World.*

A STRANGE MEETING.—ALEXANDRIA, Feb. 6.—A curious meeting took place last month in the desert between Suez and Cairo. A Mr. Faucett, who arrived here by the Oriental on his way to India, when at Cairo, heard that his brother was expected by that month's steamer, from Bombay. The two brothers had never seen each other, the one had been born in England, whilst the elder brother was in India, where he had lived thirty-two years. As the younger Mr. Faucett was proceeding across the desert on his donkey, he called out to the groups of travellers he met coming from Suez, whether Major Faucett was amongst them; and towards midnight a voice answered to Mr. Faucett's call, and the two brothers shook hands in the dark. They both expressed a wish to see each other's face, but no light was to be had, and the two parties they belonged to having gone on, they were obliged to part again, not having been together more than three or four minutes.

FLORENCE.—The Duomo.—The Grand Duke has given orders that the "Gran Duomo" of Florence shall be completed under the direction of the Imperial Academy. The dome was begun to be built in 1296, by Arnolfo di Lapo. In the works now to be commenced, the materials to be employed are marbles from the quarries of the two mountains Seravezza and Altissimo, in some respects more beautiful than those of Carrara, and they are those which Michael Angelo made use of.

BUNS.—Among the numerous productions of London may be reckoned a species of vegetable called Buns, they partake also of a mineral nature, as fragments of stone, called "grit," are frequently found in them. Naturalists having occasionally (very rarely) observed a sort of ossification, resembling a currant upon the surface of the bun, were led to undertake a mining speculation, for the discovery of any of these curiosities which might by chance be concealed in the bowels; but after a deal of trouble and great outlay of capital, the specimens were found so rare and so inferior in quality, that they did not reward the trouble of searching for them, and the enterprise was relinquished. In the centre of these Buns is described a circle, and the outer surface is divided into a number of mathematical sections, forming together a mathematical problem, which it would puzzle Euclid to solve. Buns are commonly divided into three classes—viz. Bath or two-penny, penny, and halfpenny stale, which are principally used by the children of the poorer population of the city, or by oppressed and poorly-paid mechanics, who procure them whilst on their way to their morning labour. It has been asserted that they derive some sustenance from them, but this is much doubted by geologists, and it is generally believed that they are only of service in sharpening their teeth for the almost equally dry morsel of bread which constitutes their breakfast, owing to the grinding parsimony of their employers. To these three classes may be added a kind known by the name of "Chelsea," this species having, it is said, been first discovered in that locality. These are in the form of a "many-folded" serpent, with its tail in its mouth, and are sometimes used as the emblem of eternity, which simile is not inapt, as it takes a prodigious time to get through them.—*Punch.*

A DOUBTFUL COMPLIMENT.—A newly married lady, who was very fond of her husband, notwithstanding the extreme ugliness of his person, once said to a friend—"What do you think? my husband has gone and laid out fifty guineas for this large baboon, on purpose to please me!" "The dear little man!" cried the other (looking at the baboon): "it is just like him."

THE BUILDER,

NO. V.

SATURDAY, MARCH 11, 1843.

STILL we must talk of ourselves, or of our cause, which is much the same thing, for we are now identified with the cause of which THE BUILDER is the organ. As is the cause, so must we be—gathering in strength, but necessarily exhibiting the early characteristics of great and strong things—slowly, steadily, growing and maturing. We aim at no sudden spurt of sufficiency, no flash of originality, no fascinating display, to end in an early exhaustion, and after two or three years' existence to be worn out and disappear. No, the structure we have planned has its apex high, and broad must be its base. The uninteresting, if such it be to some, the uninteresting but all-important duty of laying down a great and sound foundation, is one from which we will not be diverted by the impatience of one section of observers, or the unwise penetration of another. We speak not of ourselves so much as of the object and cause of which we are the mere representative and organ; and that object and cause is too momentous for us to attend to any comments on our personal deportment, or on such trifles as ourselves, or our ways.

These remarks are offered to those of our friends who express a desire to see THE BUILDER walk erect while it is yet the mere infant essayist. We have no fault to find with their observations; on the contrary, we are grateful to them, and are proud to see their anxiety displayed in our behalf; but again we tell them, that they must be content to see us putting in our foundation for a while longer: let them rest assured that we have given some consideration as to the superstructure, with which we are satisfied they will be tolerably well pleased. As an example of the species of comment we allude to, we give an extract from that excellent journal the *Mechanics' Magazine*.

"Another new journal, which is 'exclusively devoted to the interests of Builders,' including 'all classes connected with the building business, from the labourer to the architect.' But little original strength is put forth in these numbers; neither does the plan of the journal appear to be as yet more than half developed; but, so far as we can judge from the imperfect specimens before us, the editor has very correct views of the important service which such a literary organ is capable of rendering to the numerous classes to which it is addressed, and is well qualified to carry them out."

We should, indeed, be sadly wanting in a right sense of the duty which is imposed upon us, and prove ourselves utterly unfit for our task, if we did not lay down and abide by this consolidatory policy,—not with the hare must we run, but with the tortoise. Our work of to-day is a great beginning—the progress and end inconceivable; already are the elements in motion, working in little eddies and circles, that have to be brought together in one vast and well-controlled power, important to art as well as to the happiness of its practitioners. We are vain enough to regard our little project as a centre, towards which large influences are destined to graduate. We see around us bodies of common affinities aggregating, preparatory to a final coming together. We see architectural societies, unions, and associations forming on all hands, and we know what the end must be, and that speedily,—one grand national affiliation or confederation, out of

which every good and security is to spring for its members the building classes.

If this is not so, we have sadly misinterpreted the signs of the times,—and we are the merest shallowpates, and no philosophers. If before ten years elapse, we have not our local and our grand incorporation of the trades, then we will venture to say we shall have their disincorporation and destruction—the centripetal principle is inherent in all this vitality and activity; hitherto we have had no system, and the body corporate has been flying off in wild gyrations, troubled, deranged, and unsettled; the remedy and reaction is now in process, and a salutary change may be expected.

But all this is not to be done by the chance efforts, the haphazard throws of either societies, or their organs, one of which latter we profess ourselves to be. THE BUILDER is not to be regarded as a little isolated fugitive publication, struggling with the mass of mere literary tradings, to cater to the public cravings for idly curious gossipings and wonderment; no, as we said before, it is a centre, a pole of attraction—little and insignificant in itself—and, like all other centres, a mere abstract entity; but there is no sphere, however vast, and however ponderous, that has not its centre, like unto this, and for the same objects.

And mark what we say, as to our project forming a model of action to extend itself into every ramification of our commercial and trading polity. Class organization and centralization is being developed and worked out on every hand, and as a consequence we shall speedily see the title of our paper, and its spirit, applied in reference to every important subject of industrial interest; already the clerical, legal, medical, naval and military, banking, shipping, railway, and a variety of other interests are represented by papers bearing their respective designations; but the Building interest, perhaps first in importance, remained till this period; from this period, however, it will not stand alone, and it will not be wanting to take a lead in that great work of national concentration, in which consists safety and security.

What do we propose by this incorporation, as we term it? Why, nothing more or less than the return to the wise principles of our ancestors, the establishment of trade guilds, modified, it is true, by change of time and circumstances, as architecture itself requires to be, but regulated by the same principle—that we should have a visible brotherhood and the real and authorized working of union, and not the bare profession of brotherhood, and the shadowy, unauthorized, and illegal workings, as hitherto.

Guilds, upon this principle, like our civic corporations and merchants' companies, upon a right basis of qualification, election, and government, would be a remedy for most of the grievous evils of which we are constantly hearing complaints, and from which we are as grievously suffering.

Guilds, and these guilds still exist abroad, in some of the best regulated and most flourishing states, requiring, it is true, some adaptation or extension of their principles to suit the change of time and circumstances. Guilds are the visible body and tangible exterior to denote the unanimity, the power, and the very existence of the interests they represent. Associations we have without end, they are unavoidable, they force themselves into being in the very nature of things; companies, clubs, fraternities, leagues, spring up spontaneously, under special or general provisions or immu-

nities; the time is come when the building fraternity is required to set an example of the recognition of this natural tendency to concentration, and to unite in one grand commercial brotherhood, masters and men, architects, and every section below them; not working as if with dissimilar interests, jealous and watchful of one another, but bound together by one just and equitable compact, with all antagonism put under their feet.

Then would all this violence, these struggles, strikes, and commotions, cease—wages, prices, profits would be regulated, where alone they should be, in the council-chamber of the guild—competition and contracts, if not superseeded, would be pursued under honourable rules and superior tendencies—schools of art, instituted and conducted by their proper guardians—building acts and regulations discussed and settled by those best calculated to judge of what is right and proper, and not by amateur meddlers, and the officious and ignorant—the distinction of office, and the confidence of his fellow-citizens, would be the reward of honourable practice in trade and professions—talent would be fostered and encouraged—colleges and endowments founded—and, finally, the generous provision of the brotherhood be held out to the suffering and unfortunate. No workhouse would ever see an applicant for its hard relief, in the person of a duly apprenticed and qualified workman or tradesman—an honourable retreat would be secured to him by his brethren in the hospital of the guild of which he was a member.

This is no picture of the fancy, or conjuring up of a novelty—it has existed, does exist, and may again exist in reality. All this is being done at present among us irregularly, and at random as it were. Every provision of which we have spoken is at work, or attempted to be put into work, under various guises—Assurance Societies, Mutual Protection Clubs, Chartered Companies, &c. &c. What we want is a sensible, practical, and direct recognition and working of the principle, without confusion or waste, and the management to be vested in the right hands, those who are versed in the question of the interests they are set to protect, and have none but those interests to look to the protection of.

We could cite innumerable instances to the point, but content ourselves with one—say a railway company. This is a body of common carriers and road-makers, made up of a heterogeneous mass of persons, who are incorporated together for their common interests, and elect from their body a council of managing directors, chairman, &c. This species of incorporation, however, has many objectionable points in principle, to which guilds would not be exposed. In guilds every man is the guardian of his own private interests and property, and therefore monopolies, as affecting the public, are less to be dreaded,—the principle, however, is much the same—it is indispensable for the working of our railways, and in like manner, for our chartered banks, &c. How much more necessary is it for the well-being of our trading fraternities, and if it had existed, how many evils would have been avoided?

But as we have already said, there is nothing new in it. It was found necessary in former times, and worked advantageously for art. It is found necessary again, to produce the same result.

We recollect that during the late commotions in the manufacturing districts, some of

the leading journals of the press took up the question of remedy, and suggested, or seemed to suggest, the revival of the old guilds. We put our finger on an article in the *Times* at that period, in which this principle was advocated, and exclaimed to a friend—"There, there, they are coming to the truth at last!" For ten years we have urged and insisted on the necessity of trade incorporation. Trade incorporation would provide the safety-valve against commotion and outbreak, and form the governor of the engine of the common-wealth.

We have thrown off these, our views, somewhat prematurely, it may be thought, but of this time will tell. Meanwhile we shall be happy to see the subject discussed, and rendered into a practicable shape.

We dwell for a moment in this place, to refer to the gratifying instances of support we have experienced and are continuing to experience; our course is decided by it, and we must go on. A good machinery, so to speak, requires to be set in motion; but by the generous aid and indulgence of our friends this will be provided to us, and we shall very shortly be in full working tune. New subscribers come in from all quarters, and our circulation has increased steadily and most agreeably; liberality of an unusual description is exhibited by gentlemen even out of the pale of the profession, who tender us their support, and, unasked, pay their subscriptions; for all this we are truly grateful, as much for ourselves as for the cause we advocate; but the most important feature is our correspondence, and we guessed beforehand that this would be so. Gentlemen of the most active, zealous, and gifted purpose volunteer with us and for us their generous aid in this great question of fomenting and fostering our common art. And very shortly we may calculate upon having in every principal town and district in the country as good as an organised and official branch of this our metropolitan institution, secretaries, honorary it is true as our office mainly is, but most efficient for the purposes of our commission. The value of contributions of information is hard to be estimated; by these we shall be enabled to test the actual condition of a district, and to have such a collection of facts within our reach as will make any other desired step simple and easy. We beg the different societies now so meritoriously working in the great cause of architectural regeneration, to furnish us with reports of their proceedings; we should regret exceedingly not to be able to shew our class what is being done for them by the zealous labours of our amateur friends; too long has the profession slept, the knocking to awaken it comes as it were from without—the response of *THE BUILDER*, however, is a hearty one, and from within.

The only discouraging incident we have experienced in the course of our progress, so far as regards the public reception of this Journal, is contained in the letter of a news-agent from Hereford. He is pleased to compliment us on the character of our publication, but at the same time gives it as his opinion, that building affairs are at so low an ebb in that ancient city as to hold out little or no encouragement for a successful sale of *THE BUILDER*. If this be the case, it is our turn to complain—not of the publisher—nor indeed do we know exactly upon whom to lay the blame, but blame there must be somewhere. Can it be that Hereford, boasting of its fine cathedral, and of having

invited the aid of a Cottingham to its restoration, that it can be so far sunk in the scale of building statistics as to deserve that this should be said of it?—there is something wrong, and the benefit of this class of publication will be made evident in turning attention to its rectification. The less the evidence of demand, the more necessary will it be for us to bestir ourselves, and instead of its being, as the publisher concludes, that there is no call for *THE BUILDER* in Hereford, we take the very opposite ground; there is an absolute and imperative call for it; it is wanted, to rouse the builders into life and energy; and, acting upon this conviction, we have determined to address ourselves with increased diligence to the task. Our paper *must* and *shall* be pushed in amongst them, and it shall be followed up by other agencies of an exciting quality, to wipe away the reproach from the venerable and interesting city of Hereford.

PATENT IRON MASONS.

WE return to this subject this week, as we promised, and trust to be able to discuss it in a proper and just spirit towards all parties; indeed, we should lament seriously if it were otherwise, and if we had consulted our own sensitiveness on this head, so fearful are we of doing a wrong, we should have abstained from noticing the matter altogether; but this would be a timid, craven policy—dangers, or prognostics of danger, require to be postponed holdly in the face, and not shirked or postponed from a dislike of the labour of investigation, or a heedless and an indolent reserve. If a fire threatens, or an inundation gains head, we rouse to activity to suppress them, and do not like the foolish bird who, when pursued, hides its head in the sand, and concludes that it is itself concealed from danger. No: dangers and difficulties are not thus evaded by sensible men; they are faced, and confronted, and overcome.

In what we have now to remark, the bearing will be more upon the employment of machinery in general, than upon this dreaded particular instance, and it will perhaps be seen that we steer a line between the two extremes, the advocates for the unrestricted encouragement of machinery, and those who would almost, if not entirely, prohibit it.

It is an old saying, that "fire and water are good servants, but bad masters." Now, we would almost venture to rest our case as regards the free use of machinery upon this trite and incontrovertible proverb. Machinery is a good servant, but a bad master: bring machinery in to the aid of the workman in matters beyond his reach or powers of accomplishment, to remove an obstacle or combat a difficulty, and you make it the good servant; but if you introduce it to supersede him, without recognizing the necessity of having first given him a means of otherwise providing for himself, then you will make it his master, and a bad and imperious master it is.

This is the sum and substance of our philosophy,—let us be prepared; let there be a demand for the assisting agent, and a provision for its reception, and all will be safe; but until this, an injury will be done, which we could shew by very familiar and homely instances.

To be beforehand is another thing, but it may be as bad or worse than to be behindhand. To "live before one's time," as people commonly phrase it, is as much out of place as to be dragging behind,—to confer gifts upon a person unprepared or unfitted to receive them, is not to benefit but to injure him. How many men—and what is true of men is in a large degree true of communities—how many men have been bewildered and ruined by the accession of a fortune for which their previous habits and life had not prepared them? and we will venture to affirm it of the community in which we live, that much of the mechanical power of which we boast the possession, has come upon us while we were unprovided,—we could name hundreds of instances, but are content with one—and that, the case of the hand-loom weavers. Machinery, we know, must make progress, it is the embodiment of scientific power, and science once set in, is irresistible; but inasmuch as every scientific in-

ventor and calculator considers as to the fitness of the materials he uses,—studies the laws that affect those materials, and the laws of motion; adapts to time, takes the measure of power, and skillfully combines in obedience to them, so the science of social or political economy, call it what you will, requires every fixed principle to be considered, and laws of circumstance to be obeyed; the time of the introduction of a power is as much an element of appropriateness, as that it should be sufficient in power at the time required. If, as we said before, you strike too soon, it is as bad as to strike too late; if you strike too heavily, it is as bad as to strike too lightly. Nay, both the over soon and the over heavy blows are the more to be feared, and will probably be the more injurious; they are acts or effects past and irremediable, whereas there is a chance of fetching up the later stroke, or by repeating, to make up the lighter one.

The question then is, is this the time to strike that blow, which consists in the introduction of machinery, whose design is to do the work of the mason or the carpenter? Is this the remedy for the already over-stocked market of human labourers? We think not, but we shall be glad to be convinced by any arguments that go directly to the point at issue, and if so convinced, to retrace our steps. If any man can shew us that the 60,000 working masons now employed in Great Britain and Ireland, will not as a body, or partially, suffer, and suffer materially, by the introduction of a machine which does at the cost of one man the work of five—then we are silent; if this cannot be shewn, surely it will be admitted that we have done no more than our duty in thus propounding our opinions, and that we should have done less than our duty, in fact neglected our duty altogether, if we had abstained from so propounding them. We do not need to be told that there would be a large amount of gain to the community in other quarters—for instance, new quarries would probably be opened, an increase of labourers would be more frequently employed in building, and more wallers to set the stone. Proprietors of rock would have money flow into their hands, as it were, from a new source, an increase might be given to building by reason of the cheapening in respect of masons' work, and in consequence, more carpenters and workmen of other crafts would be employed—house rents might be lower, and so on. But all this gain in other quarters is unlooked for, we had almost said uncalled for. This springing of a new mine of wealth to a certain class, would undoubtedly be an advantage in some sort, but no more a compensation for the deprivation of things in possession to the masons' class, than it would be to make a clear and direct deduction from their wages of five shillings a week, and to hand over those five shillings, to be divided among strangers—the stranger would benefit, we grant, but what would become of the mason?

Prospective fortunes to one party are to be set off against prospective and immediate losses to another. A patentee—no, we will not say a patentee, for patentees seldom get fortunes—but a patentee's patron, is to make or lose a fortune, thousands and tens of thousands of masons are to retain or lose their daily bread and narrow competencies. Which are we to choose between, and which is the ingenious inventor to choose between, his enlarged pecuniary interests, or his patriotism?

Oh! we should have been sorry to have injured him, or the fair expectants of gain who are associated with him, and we unequally acquit them of any desire or thought to injure the working man and the master mason, or the interests dependent upon them. Sooner would we put our hands into our purse and call upon our countrymen to do the same, to reimburse the inventor and his colleagues. Although this would be putting the matter on a pure footing of money grasping, yet sooner would we do and recommend this, than that any great head should be made in this threatened inroad, on the comforts of so many thousands. Let us hope, however, that this serious awakening to thought may have the effects we desiderate; but, above all, that if there are to be any losers, the number may be the smaller, and those only the losers of what they never had, a sort of negative loss—rather than a very large number of absolute losers, of present moderate means and comforts.

Machinery will come, as we said before, but we shall welcome it as a servant. Let the masons become carvers and statuary, as the increase of enriched masons' work promises to promote, and as their education and advancement in life require it, then the machine to do the drudging, toilsome, slavish work may be acceptable; but now, we do protest, it is out of time and out of place, and is, we are well assured, the result of a struggle for individual aggrandisement and elevation, rather than that of a legitimate demand. It is not, however, the working masons alone who are to suffer by such competition in this we mention, but it is the great bulk of their employers also, the shopkeepers with whom they deal, and the landlords whose houses they inhabit; but there comes worse than all this, and we who have paid great attention to these matters, know tolerably well how to value it; when dearth of employment ensues and with it a reduction of wages, then we have struggles, strikes, devastation,—devastation we mean in the homes and hearts of the thousands—non-employment, waste of goods to sustain through that period, waste of health, waste of morals; children, the seed of another generation, neglected and corrupted, untaught, or if taught, how taught? and what vice exposed to! wives pinched of means of household comfort, driven to the selling their household goods, clothes, and so on, never more perhaps to recruit; degenerate for ever. This is no picture of the imagination, it is a severe historical truth, and drawn from recent scenes and sources—oh! we pray that these may never be enacted over again, and we importune our good countrymen of the North—the North of all places, the land of masons!—we importune them to contrive anything but machines that are not wanted, or if they will contrive such, to sit down before they introduce them to contrive machinery to create a demand.

Again, we repeat, that this subject has not been sought, but coming before us as it has, we have not shrunk from handling it: we trust, however, that we have done it in a becoming spirit, however feebly and unworthily, and we hope that all others who do handle it will make us feel our inferiority of motive and of purpose as much or more than our want of ability.

TO THE EDITOR OF THE BUILDER.

SIR,—In yours of the 4th inst. there appeared an article on the new "Patent Iron Mason," and as I am one of the old bone and muscle kind, you will perhaps allow me to say a few words about our new rival; he is, if I may credit your account, one of a formidable character. Does he belong to the union? you do not say; but as you promise something more of him in your next, you will forgive this my question. But, Mr. Editor, joking apart, upon seeing the article in question, I commenced reading it attentively, and must say that the humanity of your remarks does you great credit. I am no alarmist at machinery in any branch, and quite agree with you when you say "that England owes a great deal of what is called greatness, and an undoubted deal of wealth, to machinery;" yet, with all this preconceived opinion, where the shoe pinches individually, theoretical notions are sunk to give selfishness a place. This was peculiarly the case with me on reading your article—as I went on I saw our bread taken remorselessly from us by this iron invader, and our famed independence of spirit melt away, and give place to pauperised servility—my head grew giddy, and my eyes dim with moisture; I mechanically turned them towards the wife of my bosom, and our helpless little ones, for they all stood around me, thunderstruck to see me in such a strange mood; my wife first broke silence by saying, "What ails you now, Willie?" (for despiter her long sojourn in the south, she is still the same unsophisticated, warm-hearted woman as when I first met her "on the margin of Carl"). I was silent for a while, for I could not speak; at last in broken accents I told her all—how we were ruined by steam and his giant hand of iron—how they were working ashles by the acre and columns by the mile, and that, too, 300 per cent. cheaper than us. "I will bring home my mallets to-morrow, that you may light the fire with them, and my chisels I will sell to some lucky engineer, and then go learn another trade." Shaking her head and looking ruefully at me, she said, "Your over auld for that noo, sam thinken, cana ye aw be as ye ha been, and strike against it? for my ain part I am willin to suffer a wee rather than this awfu ill shude come ower us." "No, no," says I, "I grant you that I am rather old to learn another trade, and I thank you for the generous devotion you shew for the honour of mine;

I am proud of my trade, and should not like to see it usurped by this iron impostor; nevertheless we have all seen too much of this kind of strikes to wish to abolish it in that way, that would just give an impetus to the invention. "Guid preserve us, the man's daft; what are gainin to doo, then? yeer waar noo than ye wis when they evented the machine for facing the Arbroath pavon on the Craig Leith; mabe this may turn out like them." "You are right, gude wife, this is dreamy sort of work; it may turn out like them, or 'Old Nick' at Hartlepool." "Or Neilson's, at Glasgow," suggested she; "but hae ye read it a? I thoct this new-fangled newspaper was to be the wirkin man's frien, and noo its turn'd out his bickest fae." "I have not read it all," said I, "so patience, and I will read the rest aloud; but," added I, by way of parenthesis, "you should not be so hard upon THE BUILDER, he is generous and feeling." I then commenced, and read on to the end; but as I proceeded, I could not help now and then taking a stealthy look at my wife, her features gradually relaxing from that of stern defiance to their usual placid and good-humoured aspect. I was certainly not less pleased than her when, upon concluding the article, I found it entirely related to the machine lately erected in Woodside Quarry. I am grieved that you did not, before writing this article and sending it forth to your many readers, endeavour to gain some more correct information relative to this machine, and its probable success. It is now something like eighteen months since its erection, and during that time it has made no progress, not having worked a single stone that has been put into an exposed part of any building, either back or front; what little it has done has been put into the foundations of the "county buildings" now in course of erection, and it is worth remarking, that when the contract was let, Mr. Neilson calculated doing the greater part of it with the "Iron Mason," but so unprofitable, and of course impracticable, has he found it, that he has long ago laid it aside, and is working all the stuff by hand,—indeed, it is my opinion that it does not do the work so well as "Old Nick," for many of the stones that came to the foundations of the county buildings, were far from being "out of twist," some of them on a surface of five feet square, winding nearly one inch. So much for "its greater accuracy." To a practical mason its non-success is obvious. We all know the unequal nature of all kinds of stone; it is also known that where a soft part occurs, it is always surrounded by one of a harder quality, and here it requires the greatest care to prevent it from "plucking," or jumping out in holes. The mason tempers his blow here; but the machine knows only one pace, and the result is holes: to go deeper is to lose time, stone, and still get the same result. When this is the case with the face of a stone, it is more so with the bed, where they have to keep a good "arrie." I could point out many more causes for the failure of the "Iron Mason," such as the difficulty of moving stones about, the tools used, and of carting them after being worked, the migratory character of building, &c. &c. I may return to them again, with your permission, but at present my letter has outgrown my original intentions. I shall trust to your promised impartiality for the insertion of this in next BUILDER.

I remain yours,

A PRACTICAL MASON.

78, Upper Ebury-street, Piccadilly.

We insert the letter of a practical mason entire, not caring to curtail or correct it, the matter being so much to the point; and we are glad to take occasion to advert to the common error, which is, and has been, the foundation of so much mischief amongst what are called practical men. Now a practical man is not what is usually understood by the term,—to be a practical man for the discussion of such a question as this, it is not sufficient to know the nature of stone alone, or of the circumstances under which it is at present used and worked; but he must also know a good deal about machinery; he must be a master of both sides of the question. We are always tempted to take on very light trust what are called the opinions of practical men, where an element new to them, and in which, of course, they are unpractical, if we may be allowed the term, is involved. We have seen too much of it; practical men, judging in these matters, have in almost every case misled themselves and others. We remember the time when sawmills were introduced, and practical sawyers first laughed at it; they spoke as our friend the practical mason speaks, of the knots in timber, of the various qualities, of the necessity of tempering the hand, of the difficulties in regard of their tools, of the migratory character of building, &c., &c.; and they cajoled themselves on the first imperfect and unprofitable workings of the saw machines. What do

they say to it now? But sawyers were by no means so numerous a body, and their calling not so difficult to be skilled in as masons, and therefore the injury which they suffered was trivial as compared with that which is to be apprehended in the present case. The same was formerly said of applying machinery to marble working—aye, and to every other application of it to purposes interfering with human industry.

Now we take leave to say, knowing a little about work as well as about machinery, that there is no difficulty, among the many suggested by the practical mason, that machinery cannot overcome. Why machinery, as Lord Brougham once said of the steam-engine, will weave you a cable, or spin a thread of the finest gossamer, forge an anchor, or a lady's delicate toilet pin. What, for instance, could have been supposed more difficult, than to invent a machine to set and compose for the printing press, or one to perform the operation of printing; yet all this is done and can be done and improved without limit, except such as bound the imagination and invention of man. No, no, we tell our friend, and through him, all practical masons, that the worst species of confidence is blind confidence; taking the flattering unctious to our souls, that because we see difficulties of this, that, and another sort, others, standing in a totally different point for viewing the matter, see or are beset by the same difficulties. "Practical men" have shook their heads at every thing; at railways, at gas, at steam, at magnetism, at every thing in which they were inexperienced; until all the world was convinced, they refused to be. However, we should be committing a folly on the other hand if we sought to alarm; we only wish to awaken. There is, as we have said in the article referring to the "IRON MASON," of this week, nothing to be dreaded except from apathy. Upon such, and upon such alone, descends "the thief in the night."

THE ENTHUSIAST.

No. II.

ENTHUSIAST is not brought before our readers on this occasion to engross any considerable share of their attention, but we would arrest him in passing, to sketch another feature of his peculiar character; and though it may not please him largely, we have our charter to deal with him as we list,—besides there is a moral involved in all he does, or is the subject of, a something to be avoided, or is the subject of, and if he seldom goes right, he is not unfrequently a warning to others, and so of no little service in his way; frequently he is like the guide-post, pointing the way correctly, but not taking it himself.

He consoles himself strangely enough in this, as his friends term it, his misfortune. If he makes an experiment or speculates in some new track, he is occasionally unsuccessful, and is sure to be rated soundly for "his folly"—all the good he accomplishes in his well-poised and most successful aims, and it is sometimes of no small amount, is forgotten in some petty failure, and he wants the audacity and thick-skinned assurance to defend and excuse himself; he consoles himself, however, by this reflection, that his failure has purchased wisdom, absolute wisdom, for others—and so, says he, "I have lived another day to another useful purpose, if only as a beacon to warn the future adventurer."

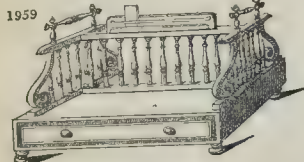
But we were going to paint another feature, and it is one that causes him considerable uneasiness. Not that he is so absurdly, we had almost said wickedly, sensitive, as to be like a deceased noble poet in respect of his deformed or club foot, but Enthusiast has a hunch on his back, which his friends share in the folly of objecting to more than he does himself; indeed, he is very humble and resigned concerning it so far as regards himself, but if it mortify or cause an annoyance to a friend, he is then truly uneasy. It is then he may be heard exclaiming, "Would that I could be rid of this deformity; it stands in the way of my more favourable reception in life!"—and he hears it now and then observed, "Dear, what a pity it is, that Enthusiast should have so much to detract from his personal appearance; he is handsome, clever, agreeable, and obliging, but that ugly hunch on his back,

although it is not a large one, spoils all. I wonder he does not try to have it cut off."

Now this very humane and sensible proposition amounts to the simple result of his extermination. But, forgetful of his better purpose, he sometimes droops and desponds, and joins in the desire to undergo this excision, and to please his friends, to escape their censures, and to spare them their mortification; a moment's reflection, however, convinces him of the folly and impracticability, and he turns for counsel to his friend Harry Specious, who advises him to pad the collar of his coat, to stuff, and conceal the hunch, and persuades him that by walking a little more erect, and bearing himself somewhat more consequentially, he may pass for a mighty proper man, but this his conscience revolts at. He cannot play the deceiver even to purchase credit from the looker-on, and so he passes through life, content as he can best command it, to be frowned upon or coldly pitied for this natural drawback on his otherwise fair and passable personality. He is, as we said before, handsome, clever, and agreeable, perhaps in the three respects superior to the most of his circle; free from blotches and blemishes which few of them are, but they have none of them a hunch back, and poor Enthusiast is the outcast and reviled of their society; the more so because of his better parts. Reader, the hunch on our unfortunate friend's back is the mark of his enthusiasm; it sticks to him through life, and involves him now and then in disagreeables. One would have him cut it off, and with that, as we have shewn, cut off himself, for Enthusiast, the handsome, the clever, and the agreeable, would no longer live. Another would have him conceal it, in which case would be a false impersonation, and a virtual dying. No! Enthusiast must remain as nature made him, putting his good qualities to the best account, and bearing, with humble resignation, the "thorn in the flesh," that is the hunch on the back, which makes him by so much less than the perfect man. Good readers, do you imitate even the Enthusiast! nurse and cultivate your good qualities for the benefit of your friends, and bear patiently your failures; but above all, give credit to others who do so in your behalf, nor be too nice in peering over their shoulders, to discover and to magnify the hunch on their backs.

PORTABLE BOOKSTAND.

Fig. 1959, to a scale of one inch to a foot, is a bookstand to be placed on a table.



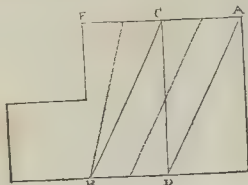
There is a drawer for letters or other papers, and at the top a rack for holding cards; and two handles, for removing the whole when necessary. Stands for books might be made in a great variety of forms, and, to those who derive great part of their happiness from reading, bookstands are always welcome pieces of furniture. "One of the grandest detached bookstands I ever saw," says an American correspondent, "was placed in the centre of a square library, with a lofty ceiling, lighted from the roof. It was in the form of a pyramid; the shelves rising above one another, like the steps of a stair, to the height of twelve feet; and each step, though narrow, was yet sufficiently broad to admit any person to walk up and walk down, in order to take out or put in books. The whole was surmounted by a statue of Jefferson, and at the angles was a light mahogany handrail to assist in walking up and down. The artificial light was from gas, placed outside the skylight, and within an outer glass case. Underneath the pyramid was a pedestal filled with steam pipes, for heating the room. The four sides of the room were fitted up with book-shelves, to the height of twelve feet, with a travelling step-ladder, similar to one which I saw when in England, in one of the London Club-houses.—London.

GEOMETRICAL EXERCISES.

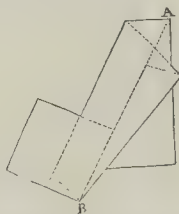
TO THE EDITOR OF THE BUILDER.

SIR,—I beg leave to send you a solution to the problem that appeared in No. II. of your (I think destined to be) valuable magazine, regarding the cutting of the lady's carpet.

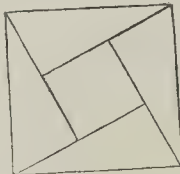
Divide the larger square into four equal triangles, as figure No. 1.



By folding the figure No. 1 as shewn by the dotted lines on it, the lines A D, C B, E B, will become perpendicular over each other, in the line A B, as shewn at No. 2.



Cut one straight line from A to B, No. 2, and another from C to D, and you will produce five pieces, which, when put together as in figure No. 3,



will form the square required at two cuts.

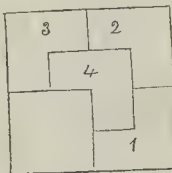
Basinghall-street,
March 1, 1843.

W. B. G. C.

SIR,—Below you have a sketch of the field divided as requested by your correspondent W. B. S., and given in the 4th Number.

Ruthin,
6th March, 1843.

I am, yours, &c.
T. H. S.



We have received solutions also from "H. B." Lambeth, "C. O. C.," "C. C. Blore," "W. M." "Daft, Shrewsbury," "W. R. G." and "J. B. Austin."

TO THE EDITOR OF THE BUILDER.

SIR,—Allow me to suggest the occasional insertion in your interesting publication THE BUILDER, of notices and illustrations of the residences of celebrated persons connected with architecture, and fac-similes of autograph signatures. To enable you to effect the latter object, it will afford me much pleasure in permitting tracings to be made of the signatures of any in my collection of autographs.

As a subscriber to THE BUILDER I may with great truth express my decided opinion in its favour, and doubt not it will have an extensive circulation.

London,
9th March, 1843.

I am, yours, &c.
CELO.

BUILDING SOCIETIES.

We publish the following, because of its general interest; but it will, no doubt, be acceptable to many of our readers, as connected with the colony. Our paper, is already making its way to New Zealand.

To the Editor of the New Zealand Journal.

"SIR,—No apology, I am sure, will be considered necessary for drawing the attention of the colonists to the advantages of Building Societies; and if I succeed in shewing that they have for their object the promotion of provident habits and prospective benefits by small periodical payments,—that their success is not questionable, or their character speculative,—and that they afford to some of the subscribers accommodation, at the same time that they are to others a savings-bank, it must follow that the establishment of such societies would confer the greatest boon upon the settlers of New Zealand. The object of such societies has not been disregarded by the Legislature; it has interfered with a view to give them protection and encouragement. In 1836, an Act of Parliament was passed for the regulation of Benefit Building Societies, in the preamble of which it is stated that 'Building Societies have been established in various parts of the kingdom, principally amongst the industrious classes, for the purpose of raising, by small periodical subscriptions, a fund to assist the members thereof in obtaining a small freehold or leasehold property, and it is expedient to afford encouragement and protection to such societies and the property obtained therewith.'"

"A Building Society, therefore, is established for the purpose of enabling parties to purchase freehold or leasehold property, and the detail of its operations is as follows—

"A fund is raised by monthly contributions from each member or shareholder, out of which subscribers are assisted in their endeavours to become possessors of such property as may be best suited to their own interest or advantage. Each shareholder must contribute to the association (say for example) ten shillings per month for each share of which he is the possessor, until these monthly payments shall, with the profits, amount to 120*l*. per share. The operations of the society will thus extend over a space of about ten years, and then cease altogether.

"When the funds become sufficiently large to make advances to the subscribers, due notice is given, and that member who will submit to the largest deduction or discount from the amount of his share of 120*l*. for priority of advance, is the one to whom the loan will be immediately granted; the property purchased with the society's funds to be mortgaged to the association, as security for the continuation of his monthly instalments, until the termination of the society.

"A few figures will illustrate this more clearly. Suppose a subscriber, living in a house for which he pays an annual rent of 35*l*., subject to a ground rent of 5*l*. per annum, wishes to purchase such house by means of the society, the method is as follows:—

He holds one share, which at the expiration of ten years would realize	£120 0 0
But for immediate cash he submits to a deduction from such share, of	50 0 0

Leaving a balance on one share in his favour, of	£70 0 0
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"Now as the sum of 70*l*. obviously cannot be sufficient to purchase property valued at 300*l*., the subscriber avails himself of the society's resources to enable him to complete the purchase.

Surveyor's valuation of premises desired

£315 0 0

4½ Shares at the agreed price of 70 <i>l</i> ., as before stated, makes	315 0 0
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"The monthly payments to the society for such advance, would be as under—

4½ Shares at 10 <i>s</i> . per share ..	£2 5 0
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Interest or redemption money per share, 4 <i>s</i> . per month	0 18 0
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Monthly payments	£3 3 0
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Which multiplied by months	12
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Makes yearly payment to the Society	£37 16 0
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In addition to which for ground-rent annually	5 0 0
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Total amount cost	£42 16 0
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So that instead of paying 35*l*. per annum to the landlord as rent, by paying the association 42*l*. 16*s*. annually, a difference of 7*l*. 16*s*. more, the freehold or leasehold property in ten years becomes the borrower's own; shewing that in ten years the house has been purchased for only 78*l*. more than in the same time he would have paid for rent alone.

"Should a member make a more favourable purchase, a greater advantage still would be gained. But as the above statement may be regarded as theoretical, and look, *prima facie* too profitable and advantageous to be carried out to the full extent stated, I feel that it is necessary to corroborate the theory by what has actually occurred in practice; and to show the profitable working of such societies, I subjoin an extract from the Fifth Report of the Liverpool Borough Savings' Fund Building Society from 1837 to 1842.

Subscriptions received on 581 shares ..	£17,404 10 0	
Ditto in arrears ..	40 10 0	
		17,445 0 0
Entrance fees ..	116 15 0	
Fines ..	139 8 5	
Ditto in arrears ..	1 18 6	
Transfer fees ..	189 5 2	
Interest ..	5 15 10	
Bonus ..	31 13 10	
Forfeitures ..	46 5 6	
Deduction or profit on 3303 shares advanced on mortgages ..	21,659 3 6	
		22,190 5 9
		39,635 5 9
Amount of profit brought down ..	22,190 5 9	
Deduct expenses ..	252 5 11	
Total profit divided amongst 581 shares ..	£21,937 19 10	
The net profit on each share ..	37 14 6½	
Amount of subscription paid on each share ..	30 0 0	
Value of each share at end of fifth year ..	67 14 6½	

"The advantages to those members who do not anticipate their shares will be, that they will be entitled, on the termination of the society, to share in the profits realized by its operations, which will not only be in the nature of compound interest on the money advanced, but will also be increased by the bonus, fines, &c.

"To mortgagors an association founded on these principles is of the greatest advantage. In the event of the mortgagor requiring the money lent, the same may be paid by a loan from the society; and so long as a member continues to pay his monthly subscriptions, he cannot be again called upon to pay off his mortgage. By this means a great saving of expense is effected, and the inconvenience of being required to pay off their mortgages suddenly, in one payment, avoided, as well as the risk of loss which might arise from a forced sale of their property or a foreclosure of their mortgages.

"The Act of Parliament under which Building Societies are established limits the amount of each share to 150*l.*, and the monthly payments to 1*l.* per share (a member may subscribe for any number of shares), and so soon as the shares are realized, the act also provides that the society shall be dissolved, and the members are required to release each other.

"From what has been already stated, it will appear that the objects of Building Societies are laudable and advantageous, and that such societies are free from the usual objections of joint stock undertakings. As regards the settlements in New Zealand, they may be adopted with safety and benefit; and when the principles upon which they are founded are fully, clearly, and thoroughly understood by the colonists, they must become general.

"I remain, Sir, yours obediently.

"ARTHUR T. HOLROYD.

"London, 15th February, 1843."

INSTITUTION OF CIVIL ENGINEERS.

A VERY interesting discussion took place at the meeting on Tuesday evening 5th night from the reading of a paper by Mr. J. O. Yorke, on the comparative strength of hollow and solid axles for railway and other carriages. The paper detailed a series of experiments that had been made, in the presence of engineers and other scientific gentlemen, for the purpose of ascertaining which description would best withstand the wear and tear, which it was shown arose chiefly from concussion and vibration, to which these axles were subjected. The first experiments were made to ascertain the amount of dead weight the axles would sustain in the centre. A hollow axle of four inches diameter, with a weight of 7 tons 14 cwt. was deflected 1-16th of an inch; with a weight of 9 tons 2 cwt. was deflected 3-16ths of an inch, without any permanent set; and a weight of 9 tons 16 cwt. gave the axle a permanent set of 1.8th of an inch. With a solid axle, the deflection caused by a weight of 7 tons

14 cwt. was 5-16ths of an inch, with a permanent set of 1-16th of an inch; with a weight of 8 tons 1 cwt., the deflection was 3-8ths of an inch, with a permanent set of 5-32nds of an inch. In experiment No. 2, which Mr. Dockray, of the London and Birmingham Railway, took notes of, the axles were supported on blocks placed under the bearings. A weight of 5 cwt. was raised sixteen feet high, and let fall upon the axle. Upon a hollow axle of four inches diameter, the first blow caused a deflection of 1¼th of an inch; the second blow, ¾th inches; the third blow, 5 inches; and the fourth blow, 6½th inches. The axle was then reversed, and the fifth blow broke the axle. The experiment was then repeated with a solid axle 3 and 5-6ths inches diameter. The first blow caused a deflection of 4½ inches; the second, of 9½th inches; and the third, of 13 inches. The axle was then reversed, and returned to its original form, about five inches. In the next experiment, with a hollow axle of 2 cwt. and 16 lbs. weight, and 3¼th inches diameter, the first blow caused a deflection of 2 inches; the second, of 4 inches; the third, of 6½ inches; the fourth, of 8 inches; a groove was then cut round the axle with a sharp tool, and the sixth blow broke it. With a solid axle of 3¼ inches diameter, the first blow broke it short off at the journal. In the fifth experiment upon journals of a hollow axle, the first broke after nineteen blows; the second broke after thirty-six blows. The remaining journal of the solid axle was then tried, and broke with two blows. The hammer was 38 lbs. weight. The next experiment took place before General Pasley and about forty engineers. It was to knock off the journals of hollow axles. The first was broken by 44 blows; the second, by 58; with solid axle, the first was broken by 53, and 9 reverse blows; the second, by 14 blows. The next experiment was the letting fall of a weight upon the axles, when keyed to the wheels, from a height of 14 feet. The first blow upon a hollow axle caused a deflection of 1¼th of an inch, and on a solid axle, 1¼ inch. The second blow caused a deflection of 2½ inches, and on a solid axle of 3¼ inches. The third caused a deflection of 3¼ inches on the hollow axle, and 4¼ inches on the solid axle, but it did not appear to have the slightest effect upon either of the axles. Other experiments with the journals of solid and hollow axles were then detailed, showing that in almost all cases the journals of the solid broke more readily than those of the hollow axles.

A gentleman connected with the Patent Shaft and Axle-tree Company begged to be allowed to say a few words with regard to the experiments made by Mr. Yorke, particularly as some of the solid axles experimented upon and described as being easily broken were made by that company. It was not his desire to speak as to the relative strength of hollow and solid axles, but merely to state that out of 25,000 axles manufactured by that company, not one had been reported as having failed in use. The company were in the habit of constantly testing their axles, and they had met with no such results as stated by Mr. Yorke, whilst, since the experiments at Camden Town (alluded to by Mr. Yorke) were made, they have broken twenty-five axles at the journals, after being keyed into the wheels; and (with the exception of one axle made of a peculiar iron by way of experiment, which was readily broken) the last number of blows of a 38 lb. hammer required to break one was 138. He called attention to an axle on the table, on one journal of which had been expended 225 blows of a 42 lb. hammer, and 171 blows of a 36 lb. hammer, and on the other 168 blows of a 42 lb. hammer, and 83 blows of a 36 lb. hammer, without either journal being broken (although bent in opposite directions), or put much out of its position. The axle was then bent up cold by an hydraulic press till the two ends met, but again rebounding to about nine inches from each other on the pressure being removed. He also exhibited the end of the journal of an axle which had been sold to a customer of the company, and taken back for the purpose of experiment, when it required 886 blows of a 38 lb. hammer to break off the part of the journal produced. Three other journals were likewise exhibited by him, showing in each case extraordinary tenacity to resist fracture. The Patent Shaft and Axle-tree Company were only anxious that the comparative merits of both should be fairly tested, and for that purpose he proposed that they should send ten solid axles to the Wolverton establishment of the London and Birmingham Railway, and the Patent Shaft and Axle-tree Company would be willing to purchase ten of Mr. Yorke's hollow axles for the same purpose, and then let the experiments be tried by disinterested and competent judges, and let them be guided by the result. If the hollow axles were found to be practically the best, the Patent Shaft and Axle-tree Company would be glad to meet the demand for them, for their patent included hollow as well as solid axles.

Mr. Yorke said the solid axles he had experimented upon had been purchased from the best manufacturers. It was evident from the statements

relative to the patent axles that there must be great uncertainty in the making of solid axles. He attributed the breaking of the axles to the crystallization of the iron in the process of making. The longer an axle remained upon the anvil the more likely it was to become crystallized. In the making of the hollow axles there was less vibration, and, therefore, less probability of its becoming crystallized. Mr. Yorke then detailed the manner in which the hollow axles were made, and observed that in axles of the same diameter with the solid the quantity of metal was one-fourth less. He had no objection to the proposal made by the Patent Shaft and Axle-tree Company, and if they allowed it he would order the iron for making his ten hollow axles from the Patent Shaft and Axle-tree Company, as there could not be better specimens of iron than those produced by them.

General Pasley believed that the statements of Mr. Yorke, so far as he had witnessed the experiments, were perfectly correct, although he had not taken notes of them himself. In the experiments with weights falling from a height, the deflection of the hollow appeared to be generally about half that of the solid axles. The impression on his mind was that the hollow were superior to the solid axles; but he should very much wish to see further experiments made, as the Patent Shaft and Axle-tree Company seemed confident, in the letter they had addressed to him, that the results would be very different.

It was explained that the Patent Shaft and Axle-tree Company did not say that the solid axles would be found superior to hollow ones, but that the solid axles made by them were stronger than what they were represented by Mr. Yorke to be, and they were only anxious that the question should be fully and fairly investigated. (Hear, hear.)

Mr. Yorke said that his chief improvement was in preventing the crystallization of the iron.

Mr. Taylor said the question had been very much discussed at a recent meeting of the British Association; and most of the scientific gentlemen were of opinion that the injury was done in the manufacture, and not by the vibrations afterwards when the axles were at work upon the railways. Mr. Taylor then detailed some experiments that had been made at the meeting of the association, the result of which was, that axles which were swaged and left to cool of themselves broke easily, whilst those which were swaged and afterwards annealed resisted all the force employed to break them.

In answer to Mr. Alderman Thompson, Mr. Yorke said the burning of the iron, from overheating it, would produce equally injurious effects.

Mr. Graham said it had been found that iron bars of the best quality, used as levers, had become quite crystallized after two or three weeks' use, and were obliged to be thrown aside.

General Pasley said it appeared to him, from the result of his travelling on railways, that the jumping motion communicated to the axles was equivalent to cold swaging and hammering, and it remained yet to be ascertained whether hollow or solid axles would be best able to resist that action.

Mr. Fox said he was in favour of the hollow axles, but he was of opinion that the experiments made by Mr. Yorke were far from conclusive; for it appeared by his own statement that the journals of the solid axle were both smaller and longer than the journal of his hollow axle with which he compared it; and further, that his firm having used upwards of 5,000 axles, made by the Patent Shaft and Axle-tree Company, they were continually testing them; and that the average result of so testing 42 axles at different times, showed them to be much stronger than the highest result given by Mr. Yorke with regard to his hollow axles. He stated that the Patent Shaft and Axle-tree Company were in the habit of cutting each end of the axles only partially off whilst hot, leaving the ends to be broken off when cold, in order that if the iron were injured in the process of manufacture it might be discovered. He should be glad to see further experiments made, which would enable them to arrive at some satisfactory result.

The Proprietor of the Patent Shaft and Axle-tree Company stated that the matter must be one of great interest to the railway companies; and as Mr. Yorke had referred the strength of their axles to the very superior quality of iron which they manufactured, they would make 10 hollow axles of the same kind of iron as their solid ones, and honestly endeavour to make them as good as possible, then let the whole be tried in any way that competent parties might think proper.

The Chairman hoped the result would be communicated to the institution. He was very much gratified with the harmonious and pleasant way in which the subject had been treated by two gentlemen whose interests might be supposed to be diametrically opposed, and it augured well for the ultimate beneficial results of the experiments which were about to be tried.

Thanks were then voted to Mr. Yorke for his paper, and the meeting broke up.

TIMBER HOUSES IN TIMBER DISTRICTS.

We introduce the illustration which accompanies this article, because we are enamoured of this species of building, as applicable to many districts of the United Kingdom; we are astonished, in fact, that not more is done in timber-growing districts, where young trees would be available in procuring this agreeable class of dwelling, not only for the farm-house and the superior class of cottage, but for the occasional retreat of the wealthy, and their occupation at particular seasons. The shade and shelter, the unique and agreeable, the varied and picturesque, are all combined with economy as to the raw material, advantage as to the use of home products, and an improving exercise in his craft for the ingenious and tasteful workman. Those who have been in Germany and seen the delightful class of edifices of this character which present themselves to you at every turn, will feel with us a restlessness or an impatience to enjoy the charm and comfort of such things at home, or to see others enjoying them; and to do our part towards it, we have made choice of the illustration and extract herewith given.

DESCRIPTION OF THE CONSTRUCTION.

The foundations are to be built of stone or brickwork, and carried up two feet above the level

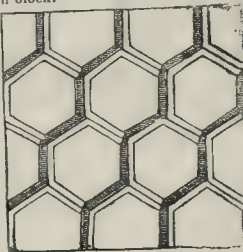
of the terrace; the walls containing the flues and the chimney-stacks are also to be of stone or brickwork. The platform on which the terrace is raised is to be formed of the earth dug out of the foundations; and after being properly rammed and allowed time to settle, it is to be paved with flat tiles. The railings surrounding the terrace are to be formed by wooden posts driven firmly into the platform at the angles, and the intermediate spaces are to be filled in with roughly-turned balusters, coped with a light wooden rail. The balconies to be supported by wooden brackets, as shown in the elevation; and the balusters of the outside stairs are to correspond with those of the terrace. The walls above the solid stone or brickwork are to be framed of wood in the Swiss manner, and covered with boards both outside and inside. The roof is to be covered with shingles or with tiles, and the projecting eaves are to be supported by brackets and by a continuation of the common rafters; the projections over the gable ends are also to be supported by solid wooden brackets. The tops of the chimney shafts are to be covered with tarred boards, or with thin flag-stones, and the smoke is to escape at the lateral openings, as shown in the elevation. The ornaments on the roof are to be of very light cast-iron, painted of an oak colour. The windows may be common sashes, hung in the usual way, or they may be framed in the Italian or Swiss manner, and hinged so as to open inwards. Its general appearance, fig. 1326, reminds us of the very beautiful wine-house and pleasure-garden in the Swiss style at Silberberg, near Stuttgart.—*London's Encyclopedia.*



WOOD PAVEMENTS.

It occurs by an odd coincidence that the first example of wood pavements to which we have had access for the purpose of illustration is Mr. Stead's patent—the first, we believe in the list of patents, and the first laid down in the metropolis. His patent was taken out in May, 1838, and the first specimen laid down under it was in December of the same year. We remember how it was viewed, and how little was thought, at the time, of the probability of the extending of the application of wood pavements. Indeed, to use the words of the *Polytechnic Journal* for the present month, in a long and interesting article on this subject, "that which is now hailed as one of the most valuable improvements of the day, was then (only five years ago), declared monstrous, and the conception of a madman!!!"—the experiment, too, was a most unfavourable one,—and this we have to remark of all new inventions—they are generally put to the test under the most disadvantageous, not to say unfair circumstances. All the experience and skill acquired by habit of the practitioner under an old mode, is brought into competition with the inexperienced and unpractised hand of the inventor of the novelty, and his plan is unjustly estimated or condemned for circumstances that have nothing to do with its real merits or demerits. So in this wood paving experiment in Oxford-street. A certain extent was marked out for the trial of various modes of paving. Granite blocks in various modes (we are not sure whether macadamizing also was not included), asphalt, and wood paving, and this wood paving was on Mr. Stead's system. The essential, however, of a concrete substratum, or at any rate a well-consolidated one, was not secured—some mistake, too, of the surveyor, in giving the level, has been adverted to, which being suddenly discovered, caused as sudden an alteration, before the blocks were laid down, and this

deranging the prepared basis, added to the disadvantages under which Mr. Stead's plan was tried. However, it was the hexagonal block, as shown in our illustration, the only alteration since made from this diagram being that the blocks are not now chamfered or bevelled off at the edges, but by a triangular groove or channel across the centre and solid of each block.



Mr. Stead, it should be observed, is not entirely the original inventor of this plan, it being in part a suggestion in the shape of a communication from abroad; but probably it may owe all its practicability to him, since we learn his character to have been that of a merchant of considerable enterprise, engaged in the timber trade, and we are well convinced that he is a man of great natural talent and judgment in mechanical matters. He appears, like all first inventors, or nearly all, to have had most of the "brunt of the battle" of opposition to bear, but he still stands firm in the conviction of his own superiority, both as to the plan he adopts and the precedence he has over all others, whose plans he says are included in his. We believe a hearing is about to be had before the Privy Council on his petition, setting forth that he is the first inventor, and holds the ground to the exclu-

sion of all subsequent comers; we may in this place notice that from some defect in his original specification, he was compelled to take out another, and also to repair the defect by an Act of Parliament specially obtained for the purpose. These matters are worthy of note, and exhibit him as a man of extraordinary perseverance, and one that few or small difficulties would not easily daunt.

We have collected from Mr. Stead and from Mr. Blackie (who has obligingly favoured us with every information we sought for) such particulars of the merits of the plan, as entertained by them, as will serve to shew by recapitulation how it stands in comparison with the other plans that will obtain succeeding notice. In the first place, they dwell strongly on the superiority of the vertical position of the grain of the wood over the inclined in respect of wear upon the fibre.

2nd. On the economy of conversion, as it is termed, from the round timber; the hexagon being, as might be said, a mere modification of the natural circle of growth.

3rd. The compact fitting of block with block, and the grip or collaring which each receives from the six surrounding and close-fitting blocks.

4th. The simplicity of laying down, and consequent economy on this score.

5th. The easy method of extracting any single block or series, and laying down again; on this head, however, Mr. Stead's other remarks should have place; he says, "That the strong sifting or coating of sand which he applies over a newly-laid pavement very quickly finds its way into the joints between each block, that there becomes a cohesion, adhering firmly, and wedging and binding the blocks, so much so that until a machine was introduced to hoist the blocks up vertically, they were obliged in cases of repair to split them with a mallet and chisel to make a commencement to raise them; since then, however, this vertical lifting machine has been applied, and so tenacious and firm is the binding power of the sand lodged in the joints, as well as the tightness from expansion of the blocks, and the close fittings of the hexagons, that a power equal to at least that of raising ten tons—occasionally almost twenty tons—is necessary to extract the single block; with this, power, however, the method is simple, there being no dowels or tongues to cut through, or any defect arising from the absence of such on laying down again, as must be the case, more or less, with any plan where dowels, &c. form a part of the construction."

Mr. Stead's, or perhaps Mr. Blackie's, motive for changing the mode of chamfering was founded on this reason, that inasmuch as the weakest part of the section of round timber is near the outer circles, and the strongest necessarily in the heart line, he runs his groove around the edge of the former. We have thus stated fairly, we trust, all the points in favour of Mr. Stead's patent; we may add that it has been extensively used, particularly in Manchester, and that a beautiful sweep of it has been lately put down in the Strand: it is undeniably a very superior specimen of wood-paving; the testimony of the *Polytechnic Journal* is strong in its favour, and Colonel Jackson, who has written much and attended largely to the subject, appears in his writings to give a decided preference to Mr. Stead's plan, and we believe him to be without bias in the matter. All this we have stated, but reserve our own opinions to the summing-up, when we have examined in the same manner the other plans before the public; in the meantime we shall also hope to have the opinion of our readers, to which we attach considerable weight.

NEW COLLEGE, OXFORD.—The original beautiful timber roof is to be restored to the hall of the college, and the work will be commenced forthwith, the sum required to effect this desirable improvement having been already raised.

It is said of the late Mr. Telford that, having to appear before the Duke of York relative to an account which that celebrated engineer had presented against the department over which his royal highness presided, he was addressed in these words:—"Mr. Telford, your charge is very high, very high—ten guineas a day! why it is the pay of a field marshal." "Yes," said Mr. Telford, "that may be true, but your royal highness will please to bear in mind that I am a field marshal in my profession."

FIRE-GRATES.

On the subject of fire-grates, and warming and ventilating, we shall have a great deal to say; and, in truth, a great deal requires to be said. Not builders alone, but the whole community, require to be aroused to an attentive consideration of this subject. We put the matter in a very homely way to ourselves the other day, as we sat over a raging little coal-consumer of the usual class,—for of consumption there was a large and unreasonable amount, but of heat thrown forward into the room, an inversely small proportion. We argued in this way:—Suppose we were to observe a person engaged in eating his dinner, who with every other mouthful so blundered it as to drop it on the floor under the table; would it not disgust us with his extravagance and wastefulness of food? Yet we see an equally extravagant and wasteful process going on every day and every hour of the day, in an article of as much costliness and almost as much consequence—FUEL. Not one-half alone of the heat and matter of heat fly up our chimneys, but a much larger proportion, so that the waste is worse than the supposed case of the slobbering wasteful eater, and we know not why it should not be regarded as equally disgusting. We hear sometimes of calculations as to the probable duration of our coal-fields, and occasionally some croaking as to an anticipated exhaustion, all which is very ridiculous to any one who opens his eyes to look beyond his nose, and sees the progress of chemical science promising almost to dispense with coals altogether; but it really is a monstrous absurdity to see for every three shillings' worth of coals consumed in our ordinary fire-places, two shillings' worth wasted, as if merely to warm the chimney and create an atmosphere of smoke and filth in our crowded cities. It is time these things were rectified. We have pleasure in extracting the following from the *Mechanics' Magazine*.

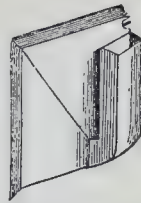
"Sir,—Your correspondent R. W. T. expresses a desire to see stove-grates constructed upon better principles than those in general use, in order that more perfect combustion may be attained; and

another, T. H. B., gives a description of a grate most likely to carry out R. W. T.'s wishes. T. H. B.'s suggestions are very correct, though I presume they are founded more on general considerations of fitness than on actual observation. About a year ago I constructed a register stove-grate, which seems to me (with submission) to carry out R. W. T.'s views more completely than that of T. H. B., and I have since had many unquestionable proofs of its efficiency. I am, therefore, induced to send you a description of the same, for the information of your correspondent, and also of your many other intelligent readers.

"Fig. 1, of the accompanying engraving, shews my stove-grate, which, in general appearance, is similar to the usual register grates; but will be found, on examination, to differ from them in the deepness of the bevelled sides and top, in the smallness of the aperture to take off the smoke, and in this aperture being situated at the back, immediately over the fire, and having a tube to convey it to the chimney. I was induced to construct this grate to carry off more perfectly the smoke into the chimney, and thereby cure what is generally called a 'smoky chimney;' and this it does with more certainty than any grate I have ever seen. It produces also the more perfect combustion desired by R. W. T., whilst it fully proves the correctness of the statement made by R. H. B., viz., 'that a stove-grate of this description will not require more than one-half the usual consumption of coal, with a comfort not shewn in the use of any others.' It is not necessary, however, to bring them out beyond the chimney, as recommended by T. H. B.; for it may be fixed in the usual place, within the chimney-piece. The heat reflected by the sides will be found quite sufficient for warming a room; and by leaving the back free from the masonry, an air-chamber would be formed, whence warm air might be conveyed in tubes to heat other apartments of a building. By a simply-arranged balanced sliding plate, the flue is perfectly closed, to prevent the return smoke from other chimneys.

"As the opening for the smoke is small, it may be asked, 'how is the chimney to be swept?' I answer by stating, that the bevelled top plate, marked A, is made to be lifted off, thereby giving a much larger opening, and greater facility for sweeping by machinery than other grates.

Fig. 3.



"Fig. 3 shews a side view, exposing the flue. This may be made of thin sheet-iron, and applied with great effect, at a little cost, to grates already fixed.

"The stove, fig. 1, is, however, the most perfect of all, for diffusing heat with a small portion of fuel, and carrying off the smoke arising from the same.

"I am, Sir, your obedient servant,
"Bath, December 3, 1842." "S. KING.

We have many instances at our hands of improvements in fire-grates, which we shall deem of importance to communicate from time to time, and will thank all those who have turned their attention to such subjects to enable us to do the justice we desire to their ingenuity.

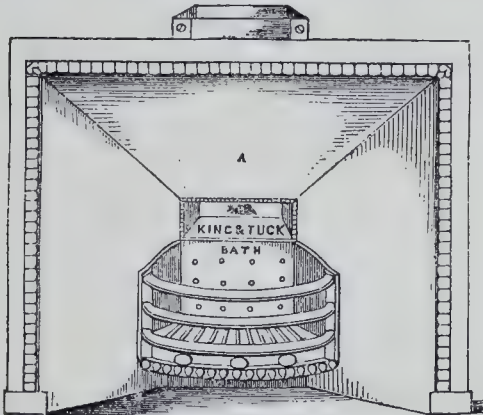
LIFE ASSURANCE

We have made some progress in preparing a series of articles on this very important subject, considering that the advantages and consolations it is capable of diffusing throughout society are yet but imperfectly understood; when that shall be the case, the business of assurance on lives, large as it may be at present, will be doubled; for a large portion of the savings of the middle and mechanical classes will be poured into the aggregate funds of the offices for this, and other purposes of which the contingency of life is the main feature.

Not to anticipate, prematurely, our own mode of stating the question, as between the offices established and the public, yet we are glad of any ground upon which we can speak favourably of the adaptation of the system to particular cases, or of the extension of its usefulness in a general sense. Most of the offices stipulate for lives rather above than below the average standard of health; but modifications have gradually been introduced, and we think with great advantage, were it on the score of truth alone, and as inducing candour on the one hand, and a judicious exercise of professional judgment on the other.

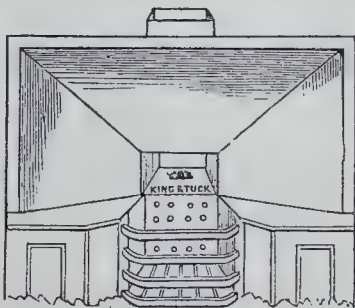
These remarks occur after a careful reading of the Prospectus of the MEDICAL, INVALID, and GENERAL LIFE ASSURANCE SOCIETY, who propose assurances on lives in an ill, or even dangerous, state of health; and thus participation in the system appears extended to the utmost limits of which it admits. Neither is the proposal a rash one, the data being given, and the deductions are at once convincing and satisfactory. We are here, it is true, on new ground, and experience would be wanting, were it not compensated by the high standing and professional reputation of those at the head of the list of presidents and directors: such, indeed, must be the opinion of the proprietary at large, of this society, whose property and good names are pledged for the fulfilment of its contracts.

The general question of the maximum rate of premium that should be required on average lives must shortly be divested of all obscurity; it is as tangible, and capable of being fashioned to meet the various contingencies included in the terms "LIFE ASSURANCE AND ANNUITIES," as a piece of timber, to shape and dimensions by handicraft labour. The able exposition of the MEDICAL AND INVALID SOCIETY shews that it also proceeds upon data, to which only a society so constituted could have ready access; its premiums being declared from the average rate of mortality prevailing under the various phases which acute and chronic diseases assume. On the score of SCIENCE, we therefore consider this society entitled to confidence; while COMMERCIALLY it has the strong claim of open and fair dealing, and in this way, not only the names, but the residences, of the parties entrusted with the management are given. This is an unflinching test of the respectability of a public body, and is especially required from societies undertaking the assurance of lives.



"In conclusion, I would observe, that the engraving, fig. 2, shews the same plan of construction applied to a common grate with hobs. I registered this under the name of 'King's Calorific Smoke Conductor,' as applicable to all kinds of grates. Rather a fine name, you may be ready to say; but,

as it is intended to conduct the smoke horizontally into the chimney, and as it does this most effectually from the conductor or tube being heated, I think you will admit it is comprehensible, and not very inappropriate.



PROFESSOR COCKERELL'S LECTURES.

No. III.

IN resuming our notice, we will place at the head a most interesting Chronological Table, to which we call the deliberate attention of our readers. We impress upon them the necessity of a careful examination of this Table, not because it is, or professes to be, a complete one, but because it is the ingenious skeleton of a system that the hand of small contributors may fill up. It is not our business, nor is it honest, to carp and cavil, because the object of our notice does not supply the entire of what we seek or call for.

To this chronology many important entries could easily be added, and this circumstance, perhaps, is one of its merits; or at any rate, it is a merit that a chronology of architecture should have been thus far fashioned out. Let the painstaking student, upon this suggestive model, carry forward the scheme, and we shall have learnt after a few years to estimate the value of such a beginning.

BEFORE				IHS				AFTER			
DATES, AUTORS, PATRONS, EVENTS.	ARCHITECTURAL WAITERS.	EMINENT ARCHITECTS.	BUILDINGS.	DATES, AUTORS, PATRONS, EVENTS.	ARCHITECTURAL WAITERS.	EMINENT ARCHITECTS.	BUILDINGS.				
2400	Noah		Tower of Babel	Play Plotarch	COLUMELLA	Vitruvius Cerdus	Baths Tomb of Augustus				
2300				100	FRONTINUS	Severus Rabirius	Amphitheatre at Rome				
2200			Walls of Babylon	100		Apollo-dorus	Forum of Trajan				
2100			Pyræus	100		Hadrian	Temple of Venus and Roma				
2000-1900			Pyramid	100		Diogenes	Mole of Hadrian				
1800			Pyramid	100		Metodorus	Temple of the Sun at Palmyra				
1700			Pyramid	100		Alphius	Temple at Balice				
1600			Pyramid	100		Metodorus	Temple at Jerusalem				
1500	MOSES	Basel	Tabernacle	100		Alphius	Temple at Jerusalem				
1400			Pyramid	100		Alphius	Temple at Jerusalem				
1300			Pyramid	100		Alphius	Temple at Jerusalem				
1200			Pyramid	100		Alphius	Temple at Jerusalem				
1100	SOLOMON	Miran	Temple at Jerusalem	100		Alphius	Temple at Jerusalem				
1000			Pyramid	100		Alphius	Temple at Jerusalem				
900			Pyramid	100		Alphius	Temple at Jerusalem				
800			Pyramid	100		Alphius	Temple at Jerusalem				
700			Pyramid	100		Alphius	Temple at Jerusalem				
600			Pyramid	100		Alphius	Temple at Jerusalem				
500			Pyramid	100		Alphius	Temple at Jerusalem				
400			Pyramid	100		Alphius	Temple at Jerusalem				
300			Pyramid	100		Alphius	Temple at Jerusalem				
200			Pyramid	100		Alphius	Temple at Jerusalem				
100			Pyramid	100		Alphius	Temple at Jerusalem				
0			Pyramid	100		Alphius	Temple at Jerusalem				

"Such a table," says Mr. Cockerell, "presented at one view the religious and moral, the political and technical influences which have guided and developed the art. Through the early centuries we trace it as one of the most active engines of civilization; but it is long before we find the table rich with the names of patrons, architects, or works, and then with many voids of tedious centuries between. The dearth of wisdom or wealth in governments, or genius or liberality in the individuals, accounts for the barren ages, as naturally as do the contrary for the fruits of all the muses. They follow each other as natural consequences, as effects from causes. And it is glorious to recognize the coincidence of epochs favourable to art with the most wise-hearted and generous spirits of history.

"Under whom were those more remarkable buildings of Egypt raised? It was when Sesostris built his library, and pointed to its destination by the significant and enlightened superscription—*Βιβλιοθήκη*—The health of the soul." When were those bright edifices erected which have ever attracted the traveller to Athens from every part of Europe, and still do so? It was when Pericles could discuss the buildings he designed with a Socrates, a Plato, a Phidias, and an Ictinus—and so, with minor splendour, an Augustus, a Justinian, a Medici, a Louis XIV., a Frederick the Great, a George III., or a King of Bavaria, have known how to illustrate their era; and, however a half-sighted economy has calculated and complained of the cost, history may be defied to prove that states have suffered from these expenses; those wise princes knew how fructifying they were in real commercial benefits,

and never wanted the address to silence the item-counting economists. 'Do you complain of these expenses?' said Pericles; 'I will find the remedy. I myself will defray them, provided you will allow my name to be inscribed upon the walls.' He might have added—'You are prompt enough to vote money to carry on an Afghan war, on a pretence, into Sicily, and fill Syracuse with carcasses, to your own disgrace and ruin; but these expenses, trifling in the comparison, these becoming ornaments, these productive fructifying deencies of a great state, you grudge.'

"When Louis's accounts of Versailles were made up, and his Minister of Finance asked what was to be done with them—'Burn them,' said the monarch. He knew as well as Necker the secret 'that the arts and sciences repay with usury the expenses of the state in providing for their exercise and culture.' He knew too, that they formed not a tithe of those arrogant and unsuccessful wars which he waged with all his neighbours."

The Professor called attention to the characteristic paucity of great names in the few centuries just preceding, and again shortly following, the commencement of the Christian era, and pointed out the coincidence with that of war. In the later period he shewed how Hadrian, architect as well as emperor, murdered his rival Apollodorus, the last great architect of Greece. And of a truth we find the coincident decay of art, with the profanation of her priesthood, so to speak. When her votaries and professors quarrel—when they

inbue their hands with Hadrian in blood, or partake in the hardly less guilty crime of jealous and malignant rivalry—become sullen and invidious, refuse the brotherhood, and the like, Art may well expire under such self-inflicted injury, or live but feebly and faintly under the all but paralytic ingratitude of her children.

Concerning that high range of impulses—they may be called virtues—in the practice of the profession, which are involved in the building for a durability—the securing from the patrons of art a sense of their responsibility, the causing to be recognized as national or state obligations to favour and protect and watch vigilantly over our architectural polity,—the Professor is constant in urging. In Athens, he instances in this last respect, it was the special duty of a minister to preside over,—alack, when will such time come for us?—but let us not despair. A due respect of self, which grows out of a becoming pursuit of our vocation, will in good time regulate all this; the vices of the proud and arrogant, and of the vainly censorious, are fast being eradicated, and surely, judging of our past proficiency in art, it seems odd to know where such could have a resting-place. It were enough, as the Professor said, to find in our best designs strong cause for humiliation, our vaunted originality the mere repetition of former essays,—and he might have added, our affected humility too frequently a vaunt of some originality.

economy prevail, which consists in a fair distribution of the world's goods to the skilled, though humble workman; that we shall build well and build beautifully, structures sound to the heart, and correspondingly admirable on the exterior. Take cheer, honest workmen, your present sufferings, from narrowed sources of employment and limited wages, are in full promise of mitigation. We hail Mr. Drake as one of the benefactors of our class. He is labouring for us night and main,—why! the restoration of one of our old churches would provide more employment than the building of half a dozen trumpery cheap ones of the present day; but as to elevating the mind of the workman by engaging him in the realization or the restoration of beautiful designs, there is no comparison,—in the one case he is an artist, in the other a mechanical drudge.

"In the course of my first lecture, I ventured a comparison between the ancient structures, the review of which we have just concluded, and those modern buildings, so many of which have been erected within the last twenty years. I referred to those in this city, not because they are more reprehensible than others, but because they are the examples of a class of buildings which can be immediately referred to. They are built under the sanction of high authority, and, indeed, many of the most objectionable features in them, and against which we most strongly protest, were made by the Incorporated Society the conditions upon which their aid was granted. Some modification of those conditions has been already granted to the intersection of the Oxford Architectural, the Cambridge Camden, and their sister societies. That as the knowledge of the true principles of church architecture is developed, others will be yielded, there can be little doubt; but in the meantime it would be well if church builders could be brought to look upon their undertaking with that single-minded determination of doing all things consistently with the strict rules of their art, and in accordance with the honour of Him to whom they dedicate their labours, which should lead them to reject at once assistance offered on conditions not compatible with that beauty, that truthfulness, that decency and honour, which are due to the house of God.

"But there is another point arising out of the study of our ecclesiastical models, besides the adherence to them in building new churches, upon which I must claim freedom to speak, for it is one which obtrudes itself continually upon our observation, and while it raises feelings of indignation and sorrow, it should also stir up our zeal to work a remedy for it. The age which preceded the so-called revived Gothic of the nineteenth century was one of the darkest ignorance, and has been characterized by the most wanton barbarism in the restoration and preservation of our ancient churches. Original neglect and procrastination have reduced to the verge of ruin—low calculating parsimony, and perverted taste, have restored to our present use, many of our noblest churches. Take as instances the Tower of St. Mary's, Warwick; that of the noble Collegiate Church of Selby, with its modern balustrade—look at the last relics of the groined lantern roofs of Trinity and St. Michael's, or the hideous aisle and chancel windows which stand in such striking contrast with the tower and spire at Allsteyl: and such like processes are still going on—and therefore the Ecclesiologist has not half done his work if he only applies his knowledge and researches to the building of new churches. High as this object is, noble as it is to raise to the glory of God a new temple, and to add the voice of another font, another altar, another pulpit, another place of prayer, to those which proclaim Jesus Christ and Him crucified; there is yet one obligation higher still, that of preserving and perpetuating in all their beauty and in all their integrity those temples of God which the piety of his forefathers raised, and which they left in humble faith an heritage of mingled responsibility and privilege to the church for ever. Surely this is a zeal not according to knowledge which talks of building new churches, while our old ones are crumbling into dust; it may be more gratifying to our pride to be the founders of the new rather than the preservers of the old ones, but pride has no place in the proper discharge of our duty to God. If pride is to find place among the motives which lead us to build the temples of God, if ostentatious display of the desire of saying of having done thus much in this cause, be admitted as considerations in this matter, then, whatever may be the future profit to others, we can have but faint hope of minds so little and so mean, so filled with thoughts of worldly aspect, so replete with self, so inseparable to the humbling graces of Christian devotion, so ignorant of what is due to the glory and omnipotence of God. In this place, the question of church repairing is one of the deepest importance. It has been well observed with reference to the perishable nature of the stone of which St. Michael's

and St. John's are built, that there was something beautiful in the faith which could rear such fabrics of such materials. The men of those days did not dream that a day would ever come when the honour of God would be less dear to their children than to themselves; having achieved the grateful task of building such noble temples, they left them in undoubting trust to the care of posterity.—How has that trust been redeemed? We dare not answer the question, for it would be opening a field of censure, a tale of ignorance, of apathy, of neglect, which we hope and trust will ere long be reckoned among the things that have been. At one church, at any rate, a restoration is about to be begun in a noble and a right spirit. There has been no injurious competition, no question of cheapness; proper authorities have been consulted, and the results we trust will be that the exterior of Trinity will be in some degree restored to its original splendour—would that we could hope the same for its interior, but of this we shall speak hereafter, for we must conclude this lecture with announcing that the next and last will embrace the internal arrangement of churches as it now is too generally, as it ought to be, and as it ere long will be."

WOODEN BRIDGES, &c.

THE following suggestions and queries we insert from the letter of a most esteemed correspondent, whose reputation has long rung in our ears, and who is known far beyond the district he writes from. We shall be most happy to insert drawings of those renowned wooden bridges or viaducts of the North of England Railway, if any friend from that quarter will favour us by forwarding them. Regarding wooden bridges and their durability, we have evidence of a strong character; they have been known to exist for centuries. The old bridge at Newark may be cited as an instance,—and as it is always a question in economics, to balance the advantages, it is important that such queries as those of our friend should be discussed in order to the decision as to the superiority of embankments, and stone or brick arches, as compared with those of wood, as he proposes. We are great friends to wooden constructions, but it may be by reason of our early predilections; and where we find a bias of this sort in our minds, we desire to suspect any conclusions that seem to flow out of it. At any rate, discussion is desirable, and we are grateful to our talented friend for giving us the opportunity of exciting it.

"I now propose to you, that you should give some attention to the necessity of erecting wood bridges, on account of cheapness. Having consulted some of the first writers, and taken the opinion of several engineers and architects, I am of opinion that wood bridges, and wood viaducts, may be formed to pass over rivers, canals, watercourses, and hollows (instead of having embankments), so as to last near a century.

"If you introduce this subject into your BUILDER, you will, in my opinion, open a new era in wood building; I therefore submit for your consideration, the following, in order that the promoters of several projected railways may have their eyes opened in avoiding those extravagant expenses which have been the ruin of many who have laid out their little all in railways.

"After you have read my remarks, you can comment as you think proper. If you can prove the saving as stated, many will read your BUILDER with pleasure, and may be induced to push the several lines of railways now in agitation.

"1st. What will be the expense of a wood bridge of a single line of railway 18 and 15 feet of roadway, 80 feet, 100 feet, 150 feet, and 160 feet each, one span crossing rivers; also of the same width of roadway, and 20 feet, 30 feet, and 40 feet span?

"2nd. What should be the rise from the springing of the arch of each of the bridges?

"3rd. What sort of timber might be used?

"4th. What time would they last, if painted or not?

"5th. What is the best coating for durability, whether paint, pitch and tar mixed, or tar only?

"6th. Will not a bridge last from 80 to near 100 years, if the timbers are well seasoned and covered with only tar?

"7th. Ought the timbers to be well Kyanised?

"8th. Would not the timbers be more durable if well drystoned without being Kyanised?

"On the Darlington and Newcastle Railway, the directors are building wooden viaducts, and a great saving in expense is effected.

"I think, if you could turn your mind to the best plan to effect a saving of capital in the outlay, you will do the country some service."

OUR CABINET OF CURIOSITIES.

We venture to say that many readers of our own standing and pursuits will at once recognize the quaint old woodcut under the head-line. Of a verity it is the identical imprint of our old friend SYLVANUS URBAN, GENT., first used to illustrate and adorn the "Gentleman's Magazine" for January, 1731.

Many are the recollections awakened by the turning up of this interesting memorial of early periodical literature. What a disparity exists in the activity of the press, and the taste for illustration, compared with the time when Sylvanus received this block from the hands of the engraver.

We have in the first number a sort of apologetic introduction, accounting for the temerity of the undertaking, in which we are told, "That upon calculating the number of newspapers, it is found that (besides divers written accounts) no less than TWO HUNDRED HALF-SHEETS PER MONTH!! are thrown from the press only in London, and about as many printed elsewhere in the Three Kingdoms;" and that a medium appeared to be required in which to collate the effusions so widely dispersed:—"Well, the effort of our friend Sylvanus has lived through all the transitions that have followed, of which we have valuable proofs in more than a hundred volumes now at our elbow, and which have never grown wearisome on our hands. For more than half a century the *Gentleman's Magazine* stood alone in the cultivation of the taste for architecture, in denouncing the spoliation of its monuments, and in registering a host of data that else had perished. All these facts, combined with the delight we years ago felt in conning over the memorials of past times, portrayed in its crowded plates, of which, in the observance of a laudable economy, no corner was suffered to lie waste, renew our interest in this trifling but authentic remnant of the working material of the press of 1731.

Time and space premised, we may revisit the locality of St. John's Gate, and inquire of the literary coteries of Sylvanus Urban, and the convivial meetings of the essayists of the eighteenth century; and we may even be tempted to go back to the days when the proud Templar strode through its portal to gain the sanctuary of the stronghold of his order, without the gate.



St. John's Gate, Clerkenwell.

IMPROVEMENTS AT ST. GEORGE'S CHAPEL, WINDSOR.—The Dean and Chapter of the Royal Chapel of St. George have just given directions for the whole of the interior of this richly-ornamented chapel to undergo extensive repairs and improvements, a work that will occupy at least two months, and which will necessarily occasion the closing of the sacred edifice during that period. Immense scaffolding will be erected, reaching from the floor to the groined ceiling of the nave and choir, which is to be thoroughly cleaned and the whole of the defective parts carefully pointed, and restored by experienced workmen. The groined ceiling, also, of the side aisles, chapels, and transepts, is to undergo the same careful and extensive renovation; and likewise the organ-loft and that part of the chapel at the back of the altar. It is now nearly a century since any repairs of this nature have taken place within the interior of the chapel.

THE GATES OF SOMNAUTH.—In a late number of a Delhi paper, an English officer says, "There is not a splinter of sandal-wood in the gates of Somnauth. They are genuine deal, and uncommonly worm-eaten."

However, we are passing out of the struggle, and "truth, which is great, will prevail."

Concerning the slowness of progress in invention the Professor remarked that—

"The arch and the dome essayed during 1,000 years before they assumed the form of the Pantheon or the Bridge of Narni; and 1,400 more are required to accomplish a humble imitation in the dome at Florence. That the Egyptian, Greek, and Roman, as if spell-bound, did as their fathers did—that the monuments themselves are but the copies, more or less altered, the successors of a remote ancestry receding into the night of Time. Pliny tells us that the Temple of Ephesus had been seven times rebuilt."

"But the technical reflections on this table are not less instructive. The struggle of 2,600 years with the monolith—the influence of fashions in the design, and of slavery in the execution, of works, reducing the cost by at least one quarter;—the lever, the lewis, the trochlea, and every engine employed by modern masons, are recognized in all the oldest buildings of the East; Stonehenge being one of the few buildings which display the infancy of art—the inferiority of ancient cities in the distant view as a conglomerate of low buildings, to those of the modern world, with towers and campaniles;—the changes which customs induce;—the church-bell, which in the seventh century hardly exceeded 1 cwt., and terrified Clothaire and his troops under the walls of Orleans; then the delight and boast of communities, and gradually becoming 80 tons in the nineteenth century at Moscow, enlarging during those centuries the towers and structures for its reception, and altering by degrees the whole face of architecture;—the use of glass, in narrow windows in the first century, a vast improvement on Phenixes, used till then; the manufacture of the civilized only, till the twelfth century; then infusing colours with unseen lustre,—glazing in part only the domestic windows, which had shutters below until the seventeenth, and now in one sheet filling the entire sash. Meanwhile, architecture bends to this manufacture, and changes its features and proportions with the phases of its improvement. And, lastly, cast-iron, which within forty years has discovered capacities which will alter the whole structure of buildings. We may say with the poet—

'Loin d'ici ce discours vulgaire
Que l'art pour jamais défigure,
Que tout s'efface, tout fait;
La nature est inépuisable,
Et le génie infatigable,
Et le Dieu que la raieunit.'

"The principle to be inculcated seems then to be the acceptance and employment of every useful element of our art, and so to engrave new features, and bend it to the march of human improvement, as to be consistent with taste, while it is also to the great end of use. Thus we shall obtain new creations in the art—which a servile imitation refuses."

Nothing more correct, nothing more apt, could he have uttered than this last sentence. It ought to be put up in large, plain, obtrusive type, in every architect's office and studio, and is worth a whole volume of rules, and even of examples, for of these latter it is, and ought to be, the preface and the antecedent.

As the former lecture referred to sacred architecture, and tended to shew how the ritual prescribed the form, so in this lecture on Civil Architecture political and civil institutions would be found to have exercised their influence. The absolute monarchical rule gave the mausoleum, vast and enduring, and "where supported by castles, the labyrinth, the temple, palace, and the treasury." A republican form of government rejected those, but had "the temple, the gymnasium, the theatre, the stoa, the basilica, and public works abound," while purely commercial states, such as Tyre and Carthage, leave no remains of architecture.

Of the most ancient monuments of building art, he would cite the pillar which Jacob raised in memorial of Rachel, 1732 B.C., and that most interesting of all to architects, "the tomb of Absalom, in the valley of Jehoshaphat, which is monolithic (for the most part), or rather cut in the living rock, and exhibits an Ionic temple *in antis* (like Solomon's temple), with a Doric entablature, an Egyptian cornice, and a Tholos or circular altar, surmounted with a conical top, and a pomegranate."

"A beautiful representation of this remarkable tomb had appeared in Roberts's 'Holy Land'; there could be no doubt as to its identity, since tradition amongst the Jews on such a point might always be accepted as full and sufficient evidence. Its perfect

correspondence with holy writ (2 Sam. ch. xviii.) is striking.—Now Absalom in his lifetime had taken and reared up for himself a pillar, which is in the king's tale: for he said, I have no son to keep my name in remembrance, and he called the pillar after his own name, and it is called unto this day Absalom's place." Wren calls it "the most observable monument of the Tyrian style." "It were to be wished," says he, "some skillful artist would give us the exact dimensions to inches, by which we might have a true idea of the ancient Tyrian manner."

"Labyrinths are amongst the earliest and most astonishing of architectural works; they were found in Egypt, Crete, Lemnos, and Tuscany. Herodotus describes them as surpassing in extent and magnificence: the one he describes (Eut. xlviii.) was composed of twelve courts, having apartments of two kinds, fifteen hundred above the surface of the ground and as many beneath, in which were the tombs of their kings. 'No one could enter them,' says Diodorus Siculus, 'without a guide.' Yet Pliny tells us they were not contrived like the ornament commonly called by that name; in that of Lemnos, says he, were 150 columns turned in a lathe, which a child could move; and this is remarkable as evidence of the use of such a machine in the capitals of the Parthenon, which has been always supposed."

We have already said so much in reference to Egyptian architecture in our notice of Mr. Bardwell's work, and in the extracts from it, that it will only be, as it were, taking the reader over the same ground to repeat all that Mr. Cockerell says on the same subject. We cannot, however, forbear quoting the observations on magnitude, which the Professor gives in his usual appropriate manner. Comparing these ancient structures to some familiar site or extent at our own elbows, of the ruins of Karnak, he says, they covered ten acres! the walls enclosed a space equal to the length of St. James's-street, and four times its width; the first court equals in size Waterloo-place, from the Column to Pall-mall. The columnar grove beyond—that is the waiting hall—so crowded with columns as to deserve the appellation of a grove of columns, was 325 feet by 266. These vast structures of Karnak the Professor was inclined to believe were not merely temples, but temple palaces, the residences of the Pharaohs, of their court; the halls of council and of judgment; in short, that the temporal and spiritual administration of the country were unitedly carried on here.

The theatres, as having had a material influence on architecture, were entitled to be regarded with considerable attention; being constantly required for parliamentary assemblies, they had a permanent scene as well as a moveable one, which was a subject of vast architectural study and expense.

"Pliny (lib. xxxvi.) tells us that Caius Antonius silvered the scene; Petronius gilt it; Quintus Catullus clothed it in ivory. Scaurus surpassed them all; he raised 360 columns, in three ranges: the first was of marble, 38 feet high, the next was in glass, the third of wood gilt. 3,000 bronze statues ornamented the intercolumniations. Curious, unable to surpass Scaurus, built two theatres of wood, which, being back to back, could be turned so as to form an amphitheatre for gladiators, displaying the skill of the Roman carpenters to great advantage."

"Vitruvius (lib. vii. c. 5), lamenting the depredation of taste, tells us that Apaturus of Alabanda offered a design for a scene of two stories, the upper called Episcenium, filled with every caprice; Centaurs did the office of columns, pediments were twisted in a variety of shapes; all which pleased the people of Tralles, for whom it was designed; but Licinius, a mathematician, exposed its absurdity, and it was accordingly reformed on better principles."

"The scene of Laodicea (amongst many which the Professor exhibited) was the most extensive, being no less than 254 feet in length. The Theatre of Orange, lately published by M. Caristie, was a valuable addition to our information on the Roman scene."

"Palladio's scene of the theatre at Vicenza gives the best idea of this feature of ancient architectural magnificence."

"Originally of wood, and continuing so for many centuries, it was not until the third century before our era (232 A.C., the theatre at Epidaurus) that they were built in stone and marble. The Greek theatre approached the amphitheatre, and was a horse-shoe, comprising 200 or more, because the orchestra was reserved also for the performance; but the Roman theatre did not exceed 180°, because the orchestra was occupied by the senators."

"The Odeum was a covered theatre, chiefly for

music; that of Herodes Atticus, at Athens, was the most magnificent in Greece, and had a roof of cedar. The space covered was 240 feet by 150. The construction of such a roof, without obstructing sight or hearing, or injuring external architecture, offers a problem to the architect of no easy solution, and is one of great interest in the present times, as we are frequently called upon to cover large areas for occasional assemblies."

"But as modern theatres were more to the point with students, the Professor called their attention to a magnificent work, lately published, on 'The Great Modern Theatres of Europe,' by M. Contant, which he exhibited."

The subject of amphitheatres, gymnasiums, thermæ, or baths, led to the conclusion of the lecture. The area of the Amphitheatre of Vespasian was greater than that of Trafalgar-square and Charing-cross included; the velarium with which this colosseum was covered was 550 feet by 450, a surprising contrivance, and had been made the subject of a work by the architect Fontana.

The gymnasium, in which the youth of Greece were instructed for the defence and honour of their country, was the more interesting, as being the type of those thermæ, the Roman baths, of which seven were erected during the first three centuries of our era. The baths of Caracalla were so extensive as to cover an area of twenty-eight acres; those of Diocletian, still larger, afforded hot baths for 18,000 persons at the same time. "These thermæ were in fact vast clubs, castles of indolence, in which every easy exercise of body or mind and every delight of the senses might be indulged."

"The gardens, raised about thirty feet above the general level, were adorned with every fragrant shrub and flower; the choicest works of sculpture, obelisks, and fountains, exdried for the enjoyment of the shade or the sun (of a structure well worthy of the student's attention) terminated the walks. In the central building was the great hall, the type of Gothic structure in ecclesiastical architecture, namely, the groined ceiling resting on a column, and abutting on an extended pier, with the nascent flying buttress; the space of the nave (varying from 76 to 90 feet) being twice that of York, the widest of our cathedrals. The area covered offers the largest space with the smallest obstruction in the support of any scheme yet devised, and cannot be too much admired. It has been well observed of those structures, that we discern in them the type of all that has been since done in architecture, just as throughout the animal creation we trace the more or less resemblance to the type of man."

"The basilica is also of Greek origin, as the name imports. The kingly hall was such as Solomon built in the palace of the forest of Lebanon. It was the Westminster Hall of ancient governments, for administration of justice, commercial exchange, great public meetings, &c. The building at Pestum, so called, was more probably a temple, because the Greeks were not accustomed to apply sacred architecture to civil purposes."

"The Basilica of Trajan was the most magnificent exemplar of this species of building which the Professor could point out: with its forum, temples, and approaches, it covered twelve acres. The central hall or basilica, 340 feet by 168 feet, would contain St. Paul's in length and in width, exceeded only in the extreme ends of the cross. The central nave, 278 feet by 78, would contain the whole of Westminster Hall, in plan as well as in section. In Rome were eighteen basilicas, and one at least in every city of the empire. Their subsequent adaptation to the Christian temple makes them highly interesting to the student. Vitruvius, lib. v. c. 1, describes the basilica, and his own work at Faenza, which differs from the usual form in some particulars."

SECOND LECTURE ON CHURCH ARCHITECTURE.

By the Rev. Mr. Drake.

We are above all things pleased to be enabled to give reports of lectures bearing, as those of the Rev. W. Drake do, upon the revival of beautiful, painstaking, labour and soul-absorbing architecture. Our hopes and prayers and exertions are to bring about the period when the ingenious hand may travel over the construction and decoration of England's every fabric, from the cottage to the church, and instead of a barbaric nakedness and plainness being presented at every turn, instead of its being required to rack the ingenuity of man to invent the cheap and the tinsel, and to dispense with labour, we shall once more see that true

THE COMBUSTION OF SMOKE, AND JUCKES' PATENT FURNACE.

As whatever relates to furnaces is of importance to the builder, we would draw the attention of our readers to the newly patented invention of Mr. John Juckes, which is designed for the important objects of economizing the fuel, and the entire suppression of smoke. The plan has been for some time before the notice of the public, having been introduced at the late meeting of the British Association, at Manchester, since which, it has been exhibited and explained at successive meetings of the Royal Institution, the Society of Arts, Horticultural Society, and other learned bodies. The details of the plan are very simple, and as they are susceptible of being understood, without reference to drawings, whilst those who are interested in the subject have ample opportunities for inspecting the same in practical operation, we submit the following particulars to our readers.

We may observe, that the perfect chemical combustion of the coal is effected by the mechanical arrangement of the furnace. That the former is the case, is shewn in the entire absence of smoke from the chimneys of the furnaces in which it is employed, as it is entirely divested of the carbonaceous matters the diffusion of which is the source of so much injury to health and vegetation, as well as in the perfect form of the clinker, which is of a much more solid form than that from ordinary furnaces, and consists merely of the saline and earthy, or unvaporizable parts of the coal. To produce these results has occasioned much curious inquiry and scientific investigation; but they could by no means be produced more perfect than in the present case. The furnace consists of an endless chain of fire-bars, which pass in continual motion over two drums, the fuel being supplied in the front, and traversing with the bars, passing through the successive stages of combustion, until this is finally completed, and the whole of the volatile or vaporizable parts having been consumed, nothing but the scoria is ejected at the back. The interstices between the bars admit of a sufficient supply of air for the support of combustion in all its stages, and at the same time keep them perfectly free from clinker. The phenomenon of the common fire-grate or furnace, or the changes which take place in their combustion of fuel, are seen here; but whereas in the former case this is productive of great loss, all the particles are in this furnace made available for the support of combustion. When coals are supplied to a furnace in ordinary cases, they part with a large quantity of vaporizable matter given off by the first impression of heat which escapes up the chimney in the form of smoke, inflicting a nuisance upon the community, and to the injury of the manufacturer, as every particle of smoke is a part of the combustible portion of the coal which has escaped being burnt. In this case, however, as the fire bars traverse, the more volatile particles having been separated first, the less volatile next resolve themselves into their chemical combinations, each along with that in which the combustion is become more perfect, and as complete an analysis of the coal is effected as can be produced in the laboratory of the chemist. The rate at which the fire bars travel is about six feet per hour, being moved by a strap attached to a steam-engine, the power required being less than one-twentieth of a horse. The coals are introduced directly on the fire bars, passing into the furnace under a door, which lifts up instead of opening on hinges, thereby forming a gauge for the fuel, so that the fire is kept level from one end to the other, whilst, as the hopper may be made large enough to hold fuel for any length of time, the supply of the fire is rendered quite independent of the caprice or negligence of the stoker. Amongst other mechanical arrangements must be noticed, that the whole of the apparatus can be removed from under the boiler in case of need or repair, as it runs on rails, whilst the perpetual traversing motion of the bars, the short period which they are exposed to heat, and the general interposition of an active non-conductor upon them in the coal, ensures the prevention of oxidation and consequent durability.

The economy arising from the use of this furnace has been proved to consist not only in the combustion of all the vaporizable particles

of coal, a great deal of which is, under ordinary circumstances, given off in the form of smoke, but in the circumstance that the coal-dust, or small particles of coal, will in this arrangement burn equally well with the largest and best. This saving will of course in some measure depend upon the price of the fuel, and the local circumstances under which it is employed; but the report of Mr. Roberts, of the firm of Learmouth and Roberts, states it to be in their case 52 per cent. It may be remarked that the uniformity of heat which is insured

causes the saving of the boiler, whilst it is of the first importance in many manufacturing processes. The furnace may, we understand, be inspected daily in operation at the engineering establishment of Messrs. Easton and Amos, Grove, Southwark; Mr. Palmer, Stearine candle manufacturer, Great Sutton-street, Clerkenwell; Messrs. Learmouth and Roberts, leather-dressers, Page's-lane, Grange-road, Bermondsey; and Mr. Atkinson, calenderer, Lamb's-passage, Chiswell-street.

DR. HENDERSON'S GEO-CHORIONS.

(From the *Mechanics' Magazine*.)

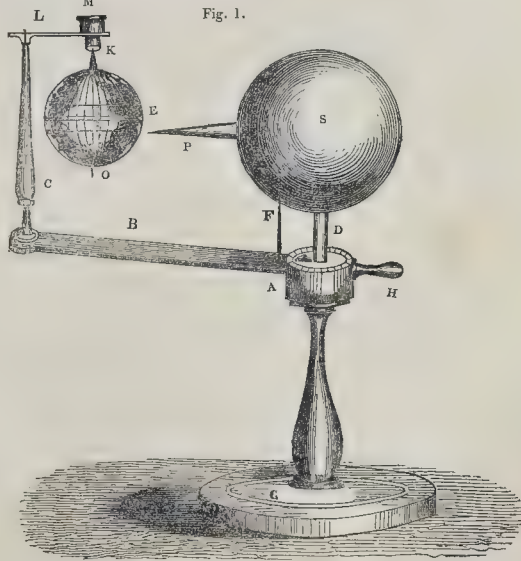
"Sir,—The accompanying sketches are perspective representations of two pieces of my astronomical apparatus which I term Geo-chorions, or Season Illustrators, which were both invented by me several years ago. They illustrate, in a very pleasing and novel manner, the rotation of the earth on its axis. The motion of fig. 1 is accomplished through the agency of magnetism; and that of fig. 2, by a circular kind of friction motion, on an inclined surface of glass. The instruments are of very simple construction, and will be readily understood from the following description.

"Fig. 1.—G represents a circular base, which supports a mahogany pillar, A, the top of which is bevelled off at such an angle, as to allow the ball of the earth to perform its circuit round the sun in an oblique path of $23\frac{1}{2}$ degrees with the ecliptic: a bent wire is made fast in the top of the pillar, on which is placed loosely a large gilded ball, S, representing the sun. The bent wire just mentioned is at right angles to the oblique plane of the pillar; on this, as a centre, the horizontal bar, B, has its motion. On the extreme end of this bar a perpendicular pillar of brass, C, is made fast, which carries a horizontal slip or stage of brass, L, having a circular perforation large enough to admit a box, M, containing a strong bar magnet, the lower end of which protrudes at K, on which is suspended, by a steel axis, a small terrestrial globe of very light material, such as card, pith, or cork, with a map of the world delineated on it. The globe which I use is made of extremely thin india-rubber; in the centre of it is a circle of wood, to which is made fast the steel axis of the earth. The circle or disc of wood is firmly cemented to the interior equator of the rubber ball. After this is done, the substance is blown into a globular form, and then a map of the countries of the world laid down on it. Such a ball is scarcely of any weight, and consequently well adapted for this apparatus. When the ball E is finished, allow its steel north polar axis to come into contact with the point of the bar magnet inclosed in the box, M, and the magnet will support its weight. Take hold of the south pole at O,

and give the ball E a twirl in the proper direction and it will rotate for some time, and all the while keep itself suspended to the magnet. Were the ball E spun on its axis with a cord, and then lifted up to the magnet, it would continue to move round on its axis for several minutes, and display a very pleasing effect. During the rotation of the ball, take hold of the handle, H, and give motion to the horizontal bar, B, and thereby cause the earth to circulate round the sun, S. By the obliquity of the top of the pillar, P, the earth, E, through the medium of the bar, B, will move in a corresponding oblique path round the sun. In the engraving, the vertical solar ray, P, of the sun, S, is directly over the tropic of Capricorn, and consequently our winter: remove the earth 90 degrees from this position, and the vertical solar ray will point over the equator. When at a point diametrically opposite, the solar ray will be over the circle I, or the tropic of Cancer, &c. In the bar, B, a wire, F, is fixed, and ascends a little way into a perforation in the sun; this causes the ball, S, to follow the motion of the bar, and thereby the solar ray, P, is always kept pointing to the surface of the earth, E, thus shewing where the sun is vertical at different positions of the earth in its orbit. The apparatus, therefore, shews the diurnal rotation of the earth on its axis (as if suspended on nothing); its annual and oblique motion round its orbit; and, consequently, the cause of the different lengths of days and nights throughout the year, and the beautiful vicissitudes of the seasons.

"An observation of the following phenomenon first suggested the idea of causing a light ball to rotate on its axis. Provide an ivory, bone, or wood 'tee-totum'; drill a hole in the top of the handle, to the depth of about a quarter of an inch, into which insert firmly a steel pin, with a tapering point; this done, make the tee-totum to spin on its axis, and whilst it is in motion, apply the end of a bar magnet to the steel pin you inserted in the drilled hole, and you will find that the magnet, if strong, will lift up the tee-totum, which, notwithstanding, will continue in motion for a considerable time. When the tee-totum is made light, and caused to spin after the manner of the French humming-tops, the tee-totum will rotate for a long time, suspended in space by the magnet.

Fig. 1.



"Fig. 2.—As far back as the year 1823, I used to observe the rotation of a watch-glass on the surface of a looking-glass, &c. A few years ago, whilst engaged in completing the apparatus just described, I applied a globe of india-rubber to the watch-glass, by which means the ball was charged

with motion. A few remarks will make evident the operation of this second apparatus. Let L L represent a looking-glass; describe a kind of an elliptical path on the surface of the glass, as o o, and delineate a sun in the centre, or what is better (if you wish to have a glass entirely for the pur-

pose), erect an axle, and place on its point a large ball, say of 4 inches in diameter, to represent the sun. Next procure a common watch-glass (the more convex its surface the better); put a drop of water or oil on the surface of the looking-glass, and place the convex point of the watch-glass on it; this done, gradually elevate the looking-glass, and the watch-glass will, at a certain point of elevation, become endowed with a rapid rotary motion: when the watch-glass is in motion, care must be taken to incline the looking-glass, so as to let the watch-

glass rotate on a descending plane, which will easily be accomplished after a few trials. I had a thin india-rubber ball cemented with gum to the watch-glass, and on its surface a map of the world is delineated, as at E, fig. 2. This affords a pleasing and very simple illustration of the motion of the earth on its own axis, and of its circuit round the sun.

"I am, Sir, your obedient servant,
"E. HENDERSON."

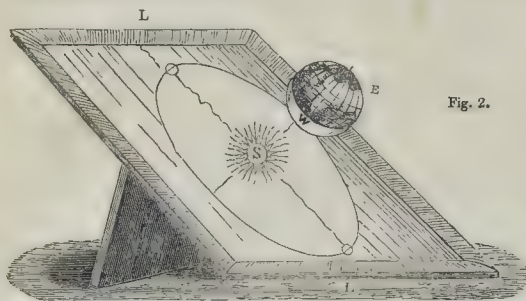


Fig. 2.

FRENCH ARCHITECTS—THE TWO MANSARTS. (PERIOD OF LOUIS XIV.)

FRANCIS MANSART, born at Paris in 1598, of a family originally Italian, was the pupil of his uncle, GERMAIN GAUTIER (architect to Louis XIII.), under whom the natural genius of the young artist was early developed. His first works were the restoration of the *Hôtel de Toulouse*, and the great porch of the *Church des Feuillants*, at Paris, both now destroyed. He was also the architect of many seats of the nobility, dating in the first half of the seventeenth century; his next principal work was the church of *Les Filles de St. Marie*, and we find him subsequently undertaking an important edifice contemplated by Gaston de France, Duke of Orleans, the *Castle of Blois*, but which was never completed.

In Francis Mansart we have a remarkable instance of vacillation and incertitude of purpose, arising probably from the competition in architecture proper to the period of Louis XIV., during which a rage for highly decorated buildings prevailed. Mansart was commanded by the Queen, Anne of Austria, to furnish designs for a splendid church, the *Val de Grace*; they were approved, and he was entrusted with the erection, but had scarcely accomplished the first stages, when a reconsideration of his plans induced him to desire the taking down of the building; the Queen, however, becoming alarmed at the fickleness of Mansart, and the cost likely to be incurred, directed other architects to be called in to complete the work, which proceeded no further on the original plan, for we find that Mansart, piqued at his ejection, procured patrons to build the church called *La Chapelle des Fresnes*, which he completed from the designs given for the *Val de Grace*, reducing the latter to the proportion of one-third, and the comparison affords at this day full proof of the superiority of his talents.

He shortly afterwards built the church of *Des Dames de St. Marie*, and subsequently the *Château de Maisons*, near St. Germain en Laie, which latter confirmed the reputation he had acquired. To his instability alone is to be attributed his not having been entrusted with the erection of the *LOUVRE*. The minister of the day, COLBERT, had referred to him for designs, had approved his sketches, and urged him to perfect them as a whole, but so unavailingly, that LE BERNIN was called from Rome for that purpose, though it ultimately devolved to PERRAULT to raise that edifice.

Francis Mansart died at Paris in September, 1666; his style has much of grandeur, founded upon antique models. No one better understood the general distribution of plans, and although his buildings do not possess all the elegance that characterized the period of Francis I., he failed in that feature only by aiming at conferring more of solidity upon those he undertook. With all his faults, he is entitled to rank with those who have done honour to the art in France.

JULES HARDOUIN MANSART, nephew of Francis, and architect and superintendent of buildings to Louis XIV., was born in Paris in 1645. His father, first painter to the king, placed him under the direction of his uncle, where, becoming proud of his profession and name, he devoted himself to the first, and sustained the latter, with an ability and energy surpassing that of his relative and master. Endowed with pleasing and courtier-like manners, he had the good fortune to render himself acceptable to Louis XIV., who entrusted him with the most important architectural works of his reign; thus originated, in the absence of tried ability, and from mere predilection, the high reputation to which Mansart attained, and which attached to him through life. Tenacious of the confidence of his sovereign, and intent on preserving that advantage, he cherished in him the taste for building with which posterity have reproached him, and which was one source of the profuse expenditure of his reign.

The Castles of Marly, of the great *Tréannon*, and of *Clugny*, *Le Maison de St. Cyr*, the places *Vendôme* and *Victoire*, *Notre Dame de Versailles*, the castles of *Pousses*, *de Dampierre*, and that of *de Luneville*, belonging to the Duke of Lorraine, were built by Mansart; but the most conspicuous of his works are the *Château* or castle of *Versailles*, and the *Hôtel des Invalides*, at Paris. It is seldom an individual has been charged with the erection of so numerous a list of important works, and although his genius has not always equalled what might have been expected from it, few, in the midst of so many, and generally successful essays, would have incurred less of criticism or censure.

An intercourse with France of nearly thirty years has rendered the *Château de Versailles* a familiar object to numbers of our countrymen; to the untravelled, a sketch of it may be interesting. Viewed from a moderate distance, the lengthened line of building produces an imposing effect, but from afar its uniformity is fatiguing to the eye. It is composed of a large square, flanked by wings of considerable extent, enriched with projections of a triangular form, but of which the sameness is unpleasant. The interior plan is objectionable in many respects. The great staircase is too far removed from the entrance, and so obscurely placed as to require a guide to its position; having ascended, there is no saloon of corresponding extent and character; a few small apartments lead to a badly lighted anteroom, and the continuity of the suites is broken by occasional ascents and descents. Notwithstanding these defects, the details and ornaments are extremely beautiful. The orangery is an edifice adorned with columns of the Tuscan order, chaste in arrangement and of noble dimensions, but in a style less ornate than elsewhere visible. It is said not to be Mansart's design, but that of *Lenotre*, and thus accounted for; Louis XIV. for once dissatisfied with the design of his favourite, re-

quired one from *Lenotre*, who endeavoured to excuse himself from meddling, by replying that his practice had not embraced the description of architecture required; the king, however, persisted, the design was furnished, and Mansart commanded to execute it. It should be mentioned that the *Chapel of Versailles*, the last work of Mansart, is richly ornamented, the Corinthian order prevailing in the arrangement; it is of considerable extent, and combines great elegance, with a profound knowledge of the art of disposal.

The *Hôtel des Invalides*, though somewhat heavy, is a majestic building, and remarkable for the spaciousness and convenience of the internal arrangements. Mansart has been accused of innovation in introducing, in the architecture of the Court of the Invalides, the Doric and Corinthian orders, without necessary intermediates, a dissonance generally admitted. On the subject of this building it is worthy of remark, that it gave occasion to some display of rivalry on the part of the French architect towards Sir C. Wren, then employed upon St. Paul's Cathedral. Mansart proposed the *DOMUS DES INVALIDES*, and his plans having been approved by Louis, he executed that magnificent work, which is entitled to rank with the great efforts of this particular description, amongst which those of St. Peter's, Rome, St. Sophia, Constantinople, and St. Paul's, are the most celebrated.

Perhaps no architect ever held for so long a period, and so uninterruptedly, the confidence of a royal master. His style, though capacious, and often exuberant, displays in many instances the nobility of art. Be it remembered also that Mansart lived in an age of capriciousness and avidity for ornament, and if a palliative were needed for his compliances, it may readily be found in the appreciation that style has met with in our own day. Further, he did much for his own and the sister arts, obtained the re-establishment of the Academy of Painting, and the restoration of its revenues and exhibitions, of which it had been despoiled in pitiful economy, during the protracted wars in which France was engaged. Jules Hardouin Mansart died at Marly, in May, 1708.

An abundant supply of water is said to have been found at Southampton, by means of the Artesian well, after boring to the depth of 980 feet.

Nearly 3,000 workmen of Paris had enrolled their names at the Ministry of Marine as colonists for the Marquesas Islands.

Architectural Competition.

Under this head we shall give notices of pending competitions, and shall feel obliged by our friends forwarding us the accounts of what may fall in their way of the character. We shall also be happy to give engravings of the selected designs; and think that, by such publicity, the present very defective system of decision may be amended. Publicity is sometimes a remedy when more direct measures have failed.

NEW CHURCH, TORQUAY.—11th March.
HIGHFIELD CHAPEL.—Plans, elevations, &c., for the best, 25s.; second, 10s.—15th March.

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification, of which they may choose to avail themselves.

REPAIRING THE PAINTED GLASS OF THE EAST WINDOW IN LEIGH CHURCH, ESSEX.—Rev. R. Eden, Leigh Rectory, Rochford.

FOR FINISHING A NUMBER OF HOUSES.—Z. Y., 122, Mount-street, Berkeley-square.

BRISTOL AND EXETER RAILWAY.—No. 1, 1 mile 58 chains; No. 2, 2 miles 4 chains; No. 3, 1 mile 36 chains.—Engineer's-office, Temple Meads, Bristol.

PAVING AND KEEPING IN REPAIR STREETS IN CAMBRIDGE.—Mr. Randall, March 28.

PAVING STREETS, ST. JAMES'S, CLERKENWELL.—Mr. Thos. Cromwell, March 16.

PAVING STREETS, ST. MARY'S, ISLINGTON.—Mr. Robert Oldershaw, Islington, March 22.

RAILWAY SLEEPERS, (West London Railway).—Mr. John Thompson, 11, Abchurch Lane, March 14.

FOR MAHOGANY, AND PIG IRON.—Her Majesty's Dock-Yard, Chatham, March 28.

PAVING, HOLBORN UNION.—March 17th, Mr. W. R. James, Clerk.

SURVEYOR OF PAVEMENTS, CHRIST CHURCH.—Election 15th March.

THE BUILDER,

NO. VI.

SATURDAY, MARCH 18, 1843.

THERE is a certain place in London called "The Row." It is known familiarly by this designation among the booksellers and publishers. Our good friends of the latter class have been amusing themselves, we hear, by speculating on the duration of our existence, and have even been so profane as to make it the subject of wagers, treating the grave matter of our death with such reprehensible frivolity! Our reporter, poor fellow, has been disposed to run the risk of five shillings in our favour. We suppose he is content to lose it, if he loses us, of whom he is pleased to have so good an opinion. Twenty weeks, that is to say twenty numbers, form the limit assigned for our lease of life. We cannot treat the matter as a joke, whatever our readers may, or the gentlemen of Paternoster-row; and we importune them not to feel about their wagers as prophets do about their predictions,—namely, determined to bring the event to pass by all the means in their own power.

Yes, we entreat them to look a little more indulgently upon us, if only for the sake of the class we represent; let them remember that we, meaning the class, have been good friends to them, and are still among the best of their friends; that, from the little horn-book of the Messrs. Darton to the ponderous tomes of their Longman & Co., we have been among the best of their customers and readers; our own, and now we speak of our individual selves, our own early days owe some of their most distinct impressions to birch and books from Paternoster-Row, and not a small number of the five hundred thousand of our class have similar vivid reminiscences; it is true that we have not been over particular, taking with gratitude even whatever the gentlemen of "The Row" chose to send, or thought was best for us, we have been content to herd with the crowd of aspirants to their favours, and never questioned, or inquired, whether we were not, from our numbers, pursuits, and importance, entitled to some special editing, that bore upon the crafts we respectively exercised, or if vouchsafed a little in this way, found fault that it was so hard to find in the corner of some despised and obscure page of their folios—or that it was treated in a very mysterious manner, looking most like, we do not know which, profound knowledge or profound ignorance. All this we have been most submissive and most patient in—and withal, and now we raise our caps, we have been good paymasters—for the sake of all this then, let us plead for and obtain a little of friendly feeling, we come to extend the boundaries of profitable intercourse—we still love the sight of your books—a bookseller's parcel is to us as gladdening as a block of fine-grained marble to the statuary—we long to extend the working of the quarry—in sober earnestness then, good gentlemen of "The Row," we entreat you not thus to speculate upon our downfall.

And now, good readers, we turn to you—from what we have just said, you will see how we have verified all our statements as to the incredulity with which our chance of success was regarded; and by this you have a measure of the difficulty of the task we have undertaken. Do we say this to spur you forward to greater ex-

ertion? No! it would be ungrateful in us to attempt it; you have been already too generous and too approving—our unworthy efforts have been appreciated far above their deserts—we have not yet taken our stand upon the ground to be assigned to us, and you are indulgent the while. No Builder's instructor has ever yet succeeded—no previous path was open to us, and yet the way is not rugged, nor the impediments unwholesome; it is not for us to boast or vaunt of what we are disposed or determined to accomplish—the gentlemen of "The Row" may be right, but if they are, it is through our demerits that they must be confirmed; it cannot be that five hundred thousand builders cannot support their own threepenny weekly paper. It shall not be. Thus we throw them upon their own mettle! THE BUILDER shall not be abandoned; if our hands are unworthy to conduct, it we will resign it to those of the worthiest bidder. THE BUILDER must live though our unworthy selves should die.

And now having made up our minds to this heroic self-denial; having preferred the success of our cause to the mere identifying of it with ourselves, we will take a leaf out of the books of some of our contemporaries; we shall begin and beg for advertisements.

Let none be offended with us for our plain speaking,—we go not round about to show that our circulation is our warranty,—we bring out no parade of stamp returns or the other evidence of extensive sale, to prove the superiority of THE BUILDER as an advertising medium, and by implication to say to the advertiser, take your advertisements from this or that paper, and give them to us. No, we simply ask them to extend their patronage to this new vehicle, and we promise them that, sooner or later, the profit will be abundantly compensatory.

Is it so unusual a thing that they should mix up a little favour with business dealings? we warrant it not; and surely we have shown to many that it would be no more than a return of favour. In plain speech, gentlemen booksellers, we, the Builders, have been good customers to you; do you, in this our new capacity, be good customers to us.

We might affect to say that we are not anxious—but this would be a rank untruth,—we will neither say so, nor pretend so—for of the two species of lying, we prefer the point-blank to the shuffling and equivocating—we are anxious, and we will tell you more, gentlemen, we are anxious on your behalf as well as for our own. We would seek an early and a graciously-established intimacy—we would fain that our mutual reliance were not begun upon a cold admeasurement of our respective strengths, or rather upon your strength and our weakness—we would not, in fine, have it said that you came to our aid when we did not require it, or rather that you never came to our aid at all.

And now for our country friends, as well as for some nearer home—we see many of their advertisements in the provincial and London papers, let us remind them to think of "THE BUILDER" as well—we do not tell them, nor do we tell our friends in "The Row" that we are now the best advertising medium that they can select, but we think that we very soon shall be so—a fortnight ago it was enough for us to print 2,000 copies of our paper, but we find ourselves run out, we increased to 2,500, and are in little better plight—this week we go to press with 3,000—with No. II. we are obliged to go to press again.

HABITATIONS AND HEALTH OF THE INDUSTRIOUS CLASSES.

THE interest we hold in discussions on these subjects is two-fold; the application of right principles in the adaptation of buildings, and the advocacy of all liberal views tending to increase the comforts, and, consequently, to improve the health, of the working population. The time is favourable to such improvements; the removal of disgustingly crowded and filthy neighbourhoods for the formation of new lines of thoroughfare, and the certainty that the ejected population must, unless the duty of providing seemly dwellings is entered upon, have recourse to a still closer packing of similar localities, calls for present exertion.

We have already given (No. 3) our opinions in pretty strong terms on the apathy with which these subjects have been regarded. The positions and state of the houses in which a large proportion of these classes are compelled to congregate have been appallingly described, in every instance where inquiry has been instituted, whether on public grounds or incidentally, as connected with medical or ordinary statistics, and a fearful amount of responsibility rests with all who, having the power, deny or delay the means of amelioration. You, the followers and worshippers of philanthropy in its many protean shapes, turn to this, one of the bases of order, and of the civil unities by which the fabric of society may be best upheld; improve the dwellings of the artisan and labourer, induce the self-respect attendant upon the decencies of domestic life, and thereby originate the germs of a morality of which the absence is fraught with reproach and danger.

For the moment, we refrain from going further, when so much remains to be said, to take up the twin branch of this interesting topic; namely, the sustenance of the physical energies on which labour depends, in which we are effectively assisted by the work of Mr. J. H. CURTIS, the celebrated Aurist, entitled, "OBSERVATIONS ON THE PRESERVATION OF HEALTH."

Though we cannot follow the author as we could wish, through the ramifications into which his subject is necessarily divided, we will endeavour to extend its usefulness by applying the authority of his opinions in aid of our class, and of our cause. No single chapter, it is to be regretted, could consistently be devoted to an exposure at large of the evils under which the working population of this and other great cities of the empire are suffering in the crowded and stagnant localities almost prescriptively assigned to them, but detached observations tending to strengthen the loud call for generous intervention are numerous, and we willingly commence our extracts with a paragraph on the duties of public men.

"As regards public happiness, statesmen and politicians too often forget that though good political institutions conduce to it, yet that they are but one means to the attainment of this end, and that more than these are requisite to make individuals and nations happy. The cultivation of good-will, kindness, humanity, and all the gentler affections, is far more influential in the promotion of private happiness than the justest balance of the political constitution can be; so that though the value of civil and religious liberty is great, and has a large influence on national well-being, still it alone does not constitute happiness; and therefore it seems to me that those writers who devote their energies to the task of endeavouring to soften and improve the social affections do incomparably more to promote the benefit of communities than those who have only in view what is more strictly designated 'the public weal.'"

This remark is of great practical value; it inculcates that it is not mere perfection in the machinery of a government that we are to look for the happiness of a people, but rather to the exercise of the paternal principle, through agencies which promote the kinder feelings of our nature, which reconcile the producers of wealth to prepare its harvests, and to rest contented with the gleanings allotted to industry.

Now with respect to the health of the working classes there are certain elementary requirements, which consist of dry and commodious habitations, air, and light, and the consequence of their deficiency is thus depicted.

"The functions of the body are so closely connected with the operations and feelings of the mind, that it may safely be asserted, a healthy community

alone can be a virtuous, and therefore a happy one. The chronicles, the crimes of every country, furnish abundant evidence how great a mass of wickedness has been occasioned by the exacerbation of disease. This is a feature of my subject too little insisted upon, and perhaps, not sufficiently understood."

Many scientific, but perfectly familiar explanations of the chemical components of the air we breathe, and of the functions of the lungs in maintaining the vitality if the blood follow: the description of the fearful changes going on in crowded rooms bears strongly upon our subject.

"Since, then, respiration completely changes the constitution of the air, consuming the vital portion, and substituting for it a gas of the most deleterious nature, it follows, that a constant and copious supply of fresh air is indispensable to healthy existence. Were it needful, a long list of fatal events caused by breathing impure air might be given. It will be sufficient to refer to the oft-mentioned catastrophe of the Black Hole at Calcutta; which dreadful as it was in itself, has yet, perhaps, been productive of extensive good, by forcibly impressing on men's minds the necessity of paying attention to the laws of nature. Such cases are happily of rare occurrence, but the destructive effects of breathing a moderately vitiated atmosphere, though not so appalling, are not less certain. The inhalation of such air may not leave any marked traces of its baneful influence, but slowly and surely, though imperceptibly, it is working evil—the body is weakened and rendered incapable of withstanding the attacks of disease by being deprived of the nourishment of healthy blood; yet because the process is gradual, it is overlooked; but it is evident, from the foregoing exposition of the function of respiration, that every inspiration of impure air must be injurious. * * * In the construction of houses and public buildings there is, for the most part, but little care taken to provide for due ventilation, which is capable of being regulated on the strictest scientific principles. * * * It is sincerely to be hoped that more attention will be paid to this subject, and that provision for perfect ventilation will not in future be overlooked by architects."

On light, God's beautiful and cheering light, shut out from the courts and alleys tenanted by the sons of labour, we have these remarks:—

"That light exercises a great and beneficial influence on the body may be inferred from the ruddy, fresh-coloured complexions of those who live in the country, and engage in agricultural occupations, compared with the dull, sallow countenances of miners, criminals confined in dark dungeons, and other persons long secluded from the solar beams; the effect is the same in kind on those who reside in narrow lofty streets. The complexion depends upon the condition of the blood, and it is well known that light co-operates with the oxygen to communicate to the blood its scarlet hue."

On the subject of labour, Mr. Curtis offers some consolations by way of comparison.

"Persons whose circumstances enable them to dispense with labour, and who, having no activity of mind, pass their days in listless idleness, are, of all men least to be envied—ennui, hypochondriasis, indigestion afflict these unhappy mortals, who not seldom put an end to their miserable existence by suicide. Let the man who depends for subsistence upon the toil of his muscles or of his brain console himself by pondering on these facts; and let those who are independent of labour recollect that man is a social being, and that the Creator has ordained that useful exertion should be essential to individual happiness. * * * It is, however, deeply to be lamented that, notwithstanding the vast improvements that have been of late years effected, so many occupations of life are still destructive of human health and happiness. It is to be feared that many of the causes of these evils must long remain in operation, and that some of them are immovable. But there can be no doubt that most occupations are injurious, more by reason of the excessive length of the time of labour, than of any inherent unhealthy tendency."

We may on no account omit the context, which occurs after passing over a few pages; it portrays the spirit of the age in a strain ranking with literary diction of the highest class.

"The present age may be termed the commercial era. The spirit of trade prevails over the whole community, to the exclusion of almost every other feeling, and brings into subordination to itself the few feelings that it admits to take possession for a time of the minds of our countrymen. The loftiest sentiments of the soul, destined to rule therein, and to control and guide all the inferior powers of our

nature, are often made subject to the low, the debasing love of gain. This state of society may be one through which it is necessary we should pass in our progress towards a higher civilization; but it is one, notwithstanding, which, inflicting as it does so many evils, both moral and physical, upon those who are in it, it is the duty of every one, to the extent of his power, to endeavour to correct."

Mr. Curtis has no need of our eulogium, but he has our thanks for the good service he renders us. His "Observations on Health" stands first in the list of really useful popular works, and will retain that position, both from the soundness of its precepts, and the agreeable manner in which they are conveyed; familiar as the subjects treated of may be considered, we give an instance of their bearings in illustration of causes which injuriously affect masses of the people, and we feel assured that the author will rejoice in our associating his labours with those now exerted to obtain remedies for the alarming evils which are the subject of this paper.

LIFE ASSURANCE.

No. I.

LIFE ASSURANCE! the very term savours of importance, and the more the subject is canvassed, the wider will be the field opened for general participation. We entertain it on public grounds, and as having hitherto been treated with little regard to a popular understanding of its merits; but we do so without invidious motives, and solely as friends and supporters of a principle at once so extensively useful and so easily applied. Indemnity against the casualty of death is sold at a price! THAT IS THE GREAT FEATURE, and the thousand consolatory as well as equitable purposes to be accomplished by this means are the results.

The history of the first glimmerings of light upon a subject by no means antiquated, and upon which modern science is considered to have exhausted the most finished touches, is curious; the isolated labours of the philosopher, and the abstract calculations of a few mathematicians of the last century, have given birth to a system now urged forward with extreme perseverance, and supporting numerous magnificent establishments, but upon plans and rates of premium so essentially different as to invite inquiry.

While it really does appear that the public are largely aware of the prominent advantages to be derived from the system, the selection of an office is more the effect of impulse on the one hand, or the intervention of interested agency on the other: and, as we have just observed, the great variety of plans that have sprung up, and the discrepancy in premiums, or prices, is so considerable, that an individual acting independently would have some difficulty in deciding to which he might best entrust the fulfilment of the claims of his nearest ties, when death shall have removed him from personal interference on their behalf.

Now it seems to us that there should remain no such uncertainty upon this momentous point, but that the knowledge requisite for judicious selection should be co-extensive with the system itself. Life Assurance in its simplest form, that of *Mutual Assurance*, without original capital, and where participation is equal and general, is least cultivated. Under trading companies, it has been made to assume other modes, in which, and in consideration of first advances, or subscribed capital, the participation of the assured is more or less diminished, though the premiums may be greatly in excess. Military and Naval risks form another branch of Commercial Life Assurance, and civil risks are also undertaken upon lives already affected by disease; and finally, new plans are proposed, combining assurance on lives with the very different business of an advance of loans.

It is, however, with the right understanding of the principle, or rather of the data, from which only can and ought to be deduced sufficient warranty for transactions contingent upon life, that we propose to deal, and not with the pretensions of the several offices to preferable attention. We neither assume to know, nor seek to be acquainted with, their condition, means, or motives; our allusions, where such are unavoidable, will therefore be principally confined to the older offices, whose long-standing and extraordinary opulence secure them from consequences that may

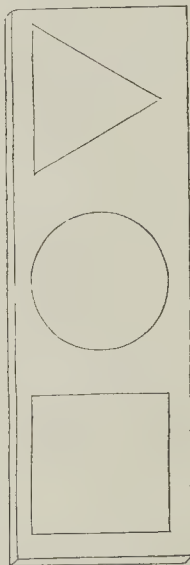
ultimately happen to others of more recent date, where features wholly extraneous to the simple analogies between premium and risk render a long and successful course somewhat doubtful.

It may fairly be presumed, that in the elucidation we propose there are few persons entirely uninterested; the highest classes of society have long been familiar with the utility of Life Assurance, and the middle classes are every day approaching it. The number and moderate amount of the risks of the latter will perfect the averages, and secure the stability of those offices where sufficient, but not excessive, premiums are demanded, and where also complexity appears least interwoven with a business, which in its nature is clear, definite, and easily conducted. Even the artificer, though his means may not reach an assurance for hundreds, should know the proportionate rate which he ought to contribute, through his trade-society, or club, for the ten or twenty pounds to be paid from its funds at his death.

GEOMETRICAL EXERCISES.

MR. EDITOR,—Having amused myself by the solution of the problem given in your last, I beg to propose another for your readers; it is to cut three holes in a thin piece of wood, as shown by the accompanying diagram, and to cut a single piece, a solid, so as to fill each hole and pass through, that is closely fitting. Yours, &c.,

SAM TWAB.



THE LITHOINT PROCESS OF HULL-MANDEL.

THE drawing having been finished by the artist on the stone with lithographic ink mixed with water to produce the various shades, is covered with gum-water, and weak nitric acid, to fix it; after waiting a sufficient time to dry, a solution of resin and spirits of wine is poured over the stone, and as this ground contracts by drying, it cracks into millions of reticulations, which can only be discovered by the use of a microscope; very strong acid is then poured over the aquatint coating, which, entering all the fissures, produces the same effect on the stone as the granulations of the chalk by the ordinary process. The resin protects the drawing everywhere but in the cracks, and having remained a sufficient time to act on the unprotected parts of the drawing, the ground is washed off, and all appearance of the subject on the stone vanishes, until, ink being applied by the roller in the ordinary way, it is reproduced, and ready for taking off the required number of impressions, which in some cases have extended to the number of 2,000.

DESTRUCTION OF WORKMEN'S
TOOLS BY FIRE.

In pursuit of our vocation, which is not to be the mere newsmonger of our class, not either the mere drawing tutor, not a mere lecturer on the arts of design, the sciences of construction, or of any other arts, sciences, or theories pertaining to our craft—yet, not neglecting any one of these, we have a still higher province, in which we are called upon to labour earnestly, yet humbly. We have to cultivate and to call into exercise the virtues of our class, and on the present occasion, one virtue in particular, for which we, who know the working men so well, know them to be, and to have been, conspicuous in all times—and that is, brotherly charity. Oh! if you wish to have an example of the active and self-denying, the single-minded exercise of brotherly charity, seek it among the working men. We have seen it carried to an excess, until the very virtue's self might be called a vice—we have seen privations endured and dangers braved, to work out their fidelity to the principle of succouring and standing by one another, that were worthy of the records and eulogiums of a nation; but every day has its instances. The working man's charity, and still more the charity of the woman, to all whom their sphere includes, is a proverb, and of them it might be said as of the early Christians, "See how these people love one another."

True, it may be urged against us by the over-nice discriminator, what we have just said, that virtue's self becomes occasionally a vice in its exercise; that occasionally passion, or prejudice, or some human weakness of the less amiable quality, impels or guides the hand that were otherwise all beneficence—but what of that?—It may have been, that, as the poet puts it, "they loved not wisely, but too well;" but surely this is no reason for our damning up the current of benevolence; say rather, is it not that, like good engineers, we should turn ourselves to the duty of directing it into channels of bountiful and wisest purpose? Yes, that is the word—*direct*. We said at the commencement that a part of our vocation is to cultivate and to call into exercise—these words we now recall—it is only to *direct*. The virtue exists in almost superabundance; and we take upon ourselves with becoming diffidence the duty of the engineer or director.

One word before we proceed to our narrative. If any thing were wanted to shew the importance of a medium of communication like *THE BUILDER*, such an incident as this would furnish it. We refer back to our first number with some satisfaction, wherein we gave expression to our foresight in this respect; indeed we shall be forgiven if, in our little vanity, we are prompted to refer to it, and to quote a whole paragraph of that advertisement.

"That this description of paper has been long a desideratum, is evinced by the history and character of the associations of years past. The struggles on the part of masters and men, and the attitude taken by the public towards both, required an interlocutor of this nature to promote a good understanding, and to secure equity and justice to all. With such an auxiliary, what waste of time and funds had been avoided—what noble projects carried out—what petty strife suppressed—what distractions kept down. Our dignity would have been maintained, and our cause ennobled."

"But more than this. How many of the claims of humble merit have slept in this interval for the want of a friendly expositor, or a common vehicle of publicity? How many valuable inventions have languished wanting encouragement, or died still-born in the obscurity of their birth? How many toilsome wanderings of the artisan in search of employment might have been avoided?—How many common benefits have been withheld?—How frequently the hand of brotherly charity undirected, and the worthy object frustrated of its aid? In the glut of work in one quarter and its scarcity in another, how promptly would

"THE BUILDER"

have adjusted the balance? Its columns at all times open to inquiries, and the office for reference, would have solved many difficulties and facilitated many purposes of good."

We have printed in italics what applies to the case of this day. We have the "claims of humble merit" committed to our conscience keeping, and "inventions" laid before

us in confidence that shall not, as far as in us lies, lack encouragement. We have artisans resorting to us to aid them to employment, and happy are we to say, that we have had already some small success in the way of assisting them; but we long to attain to more; and now comes the case of "brotherly charity," in which we fondly hope to succeed, by directing the large and bountiful hand of the numerous and wealthy building class straight and promptly to the deserving objects of its brotherly solicitude.

SEVENTEEN CARPENTERS who worked in the shop of Mr. Cumming, in Brook-street, Bond-street, lost their tools in the destructive fire which consumed their master's premises about five weeks ago. We have inquired into the circumstances. We find the value of those tools estimated at 140*l.*, a serious and almost ruinous loss to these poor workmen—poor, we say, under their misfortune, for we would almost scorn to apply the word poor to any builder. To be poor in spirit or poor in means is not like to them; but to be poor from misfortunes such as these is the lot of the most manifold and independent.

These men, then, poor under the circumstances, have appealed to their little circle of friends, and respectable tradesmen have consented to be the recipients of the bounty of those who sympathize with them; but the sum they can hope to realize in this way is very small; we are glad to be able to enlarge the circle, and to put down our mite by way of starting; let our readers join us, and we have no fear of effecting a large amount of relief for our suffering fellow-craftsmen. If only one penny each were forwarded to us from the whole of our readers, it would be a very material benefit to them; but many will not stint themselves to this—let those who can club together collect what they can spare, and remit by post-office order, while those in isolated places, and few in number, can effect their object by the simple remittance of postage stamps. And we say again, that if only one penny stamp were forwarded, it would be a mark of generous feeling. We will take care to see to the just appropriation of the receipts, and to publish an account in our subsequent numbers.

FOR ONCE, then, for the FIRST TIME in the history of building art, let us exhibit the working, through a common medium, of our common brotherhood of feeling. Oh! it will be a matter of pride to us if we shall succeed in this our engineering; again, we say, art, science, intelligence, power, each in their place, but last—brotherly charity, must have precedence, and be esteemed and advocated before all.

EXTENSIVE AND DESTRUCTIVE FIRE at LIVERPOOL.—We have the fearful task to record the calamity of another great fire which, though happily unattended with loss of life, will yet be most serious in its effects, in its destruction of great part of the valuable and extensive works of Messrs. Pawcett, Preston, & Co., founders and engineers, in the delay that will be occasioned in refurnishing large portions of the marine engines and other works in hand immediately wanted, and in the probable throwing out of employment for a long time many of the numerous hands employed by that firm, occasionally in all from 500 to 700 men.

ANTIQUITIES.—They write from Munich on the 25th ult., that the King of Bavaria is now building a house in the park of his summer-palace at Aschaffenburg, near Wurtzburg, which will be the exact copy of the famous house of Castor and Pollux at Pompeii, which was cleared in 1839, under the direction of the distinguished German archaeologist, M. Zahn. The splendid mosaic work, the fresco painting, the altar, furniture, utensils, in short, all the curiosities contained in that ancient building, will be copied with the utmost accuracy in the new structure now in progress of erection at Aschaffenburg, so as to afford a correct idea of the domestic manners of the old Romans in our country, where nothing of the kind exists.—*Journal des Débats*.

METALLIC SHUTTERS.

THE necessary protection of shops from depredation, and also from fire, materially depends upon the article we have taken to illustrate under this head. There are other varieties or plans, but this one of Mr. A. Smith's comes first before us; and, as we have full cognizance of its excellence, we are glad to have the opportunity of setting it forth. In

the elevation, it was our wish to have displayed a larger breadth of shutter, more in agreement with our spacious shop-windows, or that this should have resembled one of several compartments for which it is clearly applicable; but the draughtsman has not followed out our purpose. Nevertheless, it will be plain to the most ordinary mind, that the metallic shutter upon this plan admits of extension to several panels in width, as well as being framed upon two only, as represented here. Mr. Smith is

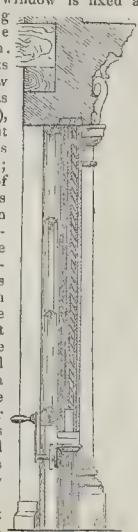


the inventor of other ingenious articles pertaining to building art; such as the swing hinges and pivots for doors, French casement-bolts, and an excellent flooring-cramp, for squeezing up the boards in laying floors, and avoiding the detrimental wedging and knocking, so commonly practised in the country; and therefore his experience is a tolerably safe guide; but it wants little to convince us of the merit and of the practically useful nature of his plan for shutters. We subjoin a description, which will be made clear on further reference to the engraving.

These shutters consist of one or more flaps or horizontal arrangements of panels.

On each side of the window is fixed a grooved (iron) stile, forming a guide or guides for the shutter to travel up and down. Behind each of these stiles is a continuous endless screw (its length being same as the height of the window), which is supported while it revolves in metal bearings at its upper and lower ends; on the lower end of each of the screws a bevil wheel is securely keyed, and is driven by another bevil wheel working at right angles to it, the shaft upon which it is fastened being horizontal; this shaft, with its wheel at each end, connect, and cause the two screws to revolve at the same speed. The whole is set in motion by a small shaft, having on one end a wheel in gear with any of the others, while at the other end a square shoulder is formed, upon which is fitted a handle or winch, and is turned by a person in any convenient position.

To each of the upright screws on each side of the window is fitted a nut or female screw, which travels freely upon it, and is prevented from revolving by a stud in the nut, which works up and down in the grooves of the stiles. To these nuts or female screws the shutter is firmly bolted, and by them propelled up and down.



CHINESE ARCHITECTURE AND BUILDING.

THE late events in China may probably be the opening of a door of interest and discovery, the lock of which has been for all practical purposes fast closed upon us for centuries. To be made familiar with that singular people, and to learn from them—for that we may do, whatever may be the opinion we have formed of their inferiority—will add largely to our stock of knowledge, and in many instances for practical ends. It is true they have been a most stationary and non-progressing people—their buildings of to-day are little varied from those of an aboriginal era—the same features (tent-like) maintain in their every structure, so that when Lord Macartney passed over their territory some fifty years ago, and met the Emperor in convention on its confines by the great Tartar wall, he compared the Chinese encampment prepared for that occasion to one of their complete cities, the same type and character prevailing—the original Tartar tent. There is an exhibition now open in London of Chinese collections, which we propose to visit and make notes upon for the amusement of our readers. The tools used by Chinese builders are there shown, and are very curious in their rudeness and barbarity. An English carpenter or cabinet-maker would feel himself sadly puzzled to set about the fabrication of the simplest article without the aid of more than these; and yet the Chinese are not deficient in the nicest description of joinery, cabinet work, and inlaying.

The grand entrance to the palace is by the southern gate, the central avenue of which is reserved exclusively for the Emperor's use. Within this gate is a large court, adorned with bridges, balustrades, pillars, and steps, embellished with figures of lions and other sculptures, all of fine marble. Beyond this, is the Gate of Extensive Peace, which is a superb building of white marble, 110 feet high, ascended by five flights of steps—the centre one being reserved for the Emperor. Two more halls and three flights of steps lead to the palace of the Sovereign, which is called the Tranquil Region of Heaven; while that of his consort is entitled the Palace of Earth's Repose. This is the loftiest, richest, and most magnificent of all the palaces. In the court before it, is a tower of gilt copper, adorned with many figures, beautifully executed. On each side of the tower is a large vessel of gilt copper, in which incense is burnt day and night. Beyond the residence of the Emperor and Empress is the imperial flower-garden, laid out in beautiful walks, and adorned with temples, pavilions, and grottoes, interspersed with sheets of water and rising rocks, which vary and beautify the scene. Behind this garden, is a library of immense extent, which is near the northern boundary of the sacred city.

East of these buildings, which lie between the southern and northern gates, are the Council Chamber, a number of princely palaces, and the Hall of Ancestors of the Imperial Family. To the west, are the picture-gallery and printing-office, the principal magazines, and the apartments for the females. The palace is about two miles in circumference, with walls thirty feet high and twelve feet thick.

North of the palace wall, is the King-shan, an artificial mount, with pavilions and shaded walks, and abundantly supplied with game and singing-birds. There is also an artificial lake, a mile and a half long, and a third of a mile broad, crossed by a white marble bridge of nine arches. In the midst of the lake is a marble island, adorned with temples, and surmounted by an obelisk, which affords a delightful view of the surrounding gardens. A temple, dedicated to the discoverer of the silkworm, stands near the lake, where the Empress and ladies of the Court attend to the cultivation of silk.

In the Tartar city, nearly fronting the palace, are the courts of the six grand tribunals, with the office of the astronomical board, and the observatory. At the south-east corner of the grand national college, and near it, is the hall where the literary examinations for the capital are held. The northern part of Peking also includes a college for the cultivation of the Chinese and Manchu languages, and one for the study of Tibetan—a Mahomedan mosque, a Russian and a Roman Catholic church, and numerous Buddhist temples—of which the

white pagoda temple is one of the most remarkable.

The Southern or Chinese city is the great seat of commerce and pleasure—theatres and other places of amusement not being allowed in the Tartar City. In the south-eastern part of the Chinese City, and near to the temple where the Emperor sacrifices to heaven, is the Shin-nung-tang, or temple dedicated to the inventor of agriculture. It is surrounded by a high wall, about two miles in circumference, and the Emperor visits it annually in spring, to offer sacrifices and cultivate the ground. The field which the Emperor tills is covered with a kind of tent, made of mats. When he has ploughed about half an hour, he ascends a neighbouring eminence, whence he examines the work of the Princes, Ministers, and Mandarins, who, guided by the most experienced cultivators, plough in the open air. While they are at work, the court musicians sing hymns, composed in ancient times, in honour of agriculture. The Emperor, the Princes, and all who engage in this ceremony, are dressed like farmers. The plough used by the Emperor is painted red, varnished, and ornamented with gold. The horns of the oxen that draw the plough are gilded, and are never used on any other occasion. While the Emperor is at work, the Empress and her women prepare a dinner for him in a neighbouring apartment. The corn produced by the Emperor's labour is used to make cakes for the sacrifices to heaven, and he prepares himself for the performance of these ceremonies by fasting, prayer, and seclusion.

Many places in the vicinity of Peking are sufficiently interesting to merit description, but to prevent this article extending to an unreasonable length, we must limit ourselves to a brief notice of the celebrated gardens of Yuen-ming-yuen. The space included within this royal demesne exceeds ninety square miles, and contains thirty different residences belonging to the Emperor, with all the necessary appendages to each. The hall of audience is one of the handsomest structures. Its length is 110 feet, breadth 42 feet, and height 20 feet. A member of Lord Macartney's Embassy remarks, on arriving at Yuen-ming-yuen, about the dawn of day, "We beheld unusual charms in the hills, trees, and flowers which surrounded us. Fields of nelmabo rearing high its glossy leaves and gorgeous flowers, edged by trees with the foliage of the cassia, spread at our feet; whilst the Tartar Mountains, approximated by the haze of the morning, rose in the distance. All the descriptions which I had ever read of the paradisaical delight of Chinese gardens occurred to my imagination."

TO ARCHITECTURAL STUDENTS.

EVERY three years there is an election of an Architectural Student at the Royal Academy, who has one hundred pounds per annum allowed him to make his continental tour, with thirty pounds towards travelling out, and the same for his return. This is the whole amount of our national munificence in furtherance of the objects of architectural exploration,—we might almost say architectural education! What a reflection on a great country, and this boasted era of civilization! At best, however, this provision for foreign travel, reminds one of a tale told of the meeting of some cognoscenti abroad, at which an Englishman was present, and the question turning upon some celebrated structure in his own country, he had, to his confusion, to confess his ignorance of it, and to submit to the reproachful astonishment of the foreigners, who marvelled that a man should be exploring distant regions and be at the same time ignorant of equal, if not superior, merit at home. So it is, in a great degree, with this foreign mission of our young architects. No sooner do they emerge from their clerkship, than at a great expense and equipment they hurry off to classic lands and scenes to acquire the diploma of travel, without which it is thought by many they are not qualified for practice in their profession. Not that we would be thought for a moment to undervalue the requirements which a well-timed and judiciously pursued search in these supreme territories of art is calculated to procure, but we assert it, that for many, and for most, there is more to be learnt, and more good to be done, by an exploration at home.

To those, then, who think with us, and who are devoted to the prosecution of their art, and who are prepared to take either the one or the other "travel," as it may seem best, we hold out the invitation to co-operate with us in our proposed delineation of the ancient architecture of our own island. We refer to our second and third numbers, under the head "Gothic Architecture;" and now repeat, that our plan is to explore and delineate, in regular series, the various interesting edifices of each era; not only as to the beautiful in design, but also as to the process and character in construction; to show how the mason, carpenter, &c. of each era prepared and put his work together; and to accompany the whole by a glossary and descriptive chapters, that will be invaluable to the author and compiler, as well as to the public, and will form, if properly and assiduously managed, the best possible title of qualification for the young architect or architects, who may be able to refer to their series of essays and delineations in THE BUILDER.

We scruple not to say that this presents more advantages than the provision of the Royal Academy itself; and so convinced are we of it, that if we were young and setting out on our own mission of peregrinary study, and were offered the home circuit without an allowance, and the pages and purpose of THE BUILDER, with its publicity, and the correctness, regularity, industry, and system, which these would superinduce, we would prefer it to the foreign, and the allowance of the Royal Academy to boot. Once only in three years, however, we remind our student readers, that the other chance is open to them. Let those who prefer this accept it while it is open to them, for we are now making our arrangements.

THE PATENT IRON MASON.

TO THE EDITOR OF THE BUILDER.

Dear Sir,—It was my wish, during the past week, to have addressed a few observations to you on the above-mentioned subject, but was prevented, my time being fully occupied; but, as I perceive the subject continued, I take the liberty of submitting the following remarks for you to make that use of them you think proper. Let me preface my subject, however, by saying that I most cordially agree with you on the subject of machinery, and would wish to see more manual and less mechanic aid called into operation for the production of articles both domestic and scientific. But now to my subject: the first time the iron mason was mentioned in the public journals was during that foolish and unfortunate business at the House of Lords, &c.—I allude to the "mason's strike;" if, therefore, any harm arises to the masons from the introduction of machinery in opposition to their labour, it arises from their own folly; "and, like the German student, in some tale of romance I have read, they have created a monster for their own destruction." In answer to the remarks of a "Practical Mason," I beg to refer him, for the capability of steam, to the "marble works in Esher-street," where he will see how much manual labour is reduced by the application of machinery, and which fully corroborates your concluding remarks upon the subject. With regard to the word "foolish," I have used above, my meaning is this,—with the ruinous effects of such "strikes" before their eyes that have taken place, sensible men should resort to such means to redress any imagined wrong. I allude to the great strikes at Preston and Glasgow, 1836-7; was not the consequence then the same as now, the greater introduction of machinery into trade? numbers constructed mills that did dispense with spinners altogether—others have succeeded, by machinery, in reducing the numbers required one-half. I quote from a friendly publication of the time, and from which I can furnish a statistical account if required. I will conclude these observations by saying that I have made them with the very best intentions, and with a sincere wish for the practical man's welfare.

On the subject of machinery I wish to ask a question. Will any of your correspondents give an account of the "machinery for cutting veneers," that makes a spiral cut round the log, and takes the veneer off (as a lady might unroll a ribbon) till the whole log is expended? If these remarks meet with your approbation, you can give them to the public in whatever shape you will.

I remain, dear Sir, your sincere well-wisher,
OFFICIATOR.

With regard to the information required upon "wood bridges, &c.," a great quantity of useful matter on that subject is contained in the first number of the Architects' and Engineers' Journal.

Literature.

The Present State of Ecclesiastical Architecture in England. By A. WELBY PUGIN, Architect. With thirty-six illustrations. London: Charles Dolman.

This book, as the title-page sets forth, and as nearly the whole architectural world knows—professors and amateurs—is a republication from the *Dublin Review*, and we greet it in this shape, collected as it is from the two numbers of that work into the one volume now before us. To over-rate the importance of the subject, or the way in which Mr. Pugin has handled it, would be difficult—for this and the other late productions of his pen and pencil have been adopted (irrespective of his particular religious views and objects), as text matter in the grand question that is now agitating this country as to the revival or adoption of a congruous system of ecclesiastical architecture. Acknowledged or not acknowledged, he is the virtual pope or chief pontiff in these matters, and his bulls are received and deferred to as the canonical ordinances of the orthodox. Whether it may be contended that there was a *silent voice* giving previous utterance and effect to the whole or most of what Mr. Pugin has so loudly promulgated, and thus to argue that Mr. Pugin is not a leader but a creature of the movement, is not for us to heed or care about—and if it be contended that Mr. Pugin has been a little too severe in some of his strictures on the present state of architectural art, and occasionally unfair, as some allege, in his comparisons, it must still be conceded that he had, or those whom he has been so forward and so zealous to vindicate had, endured an ample amount of provocation. While we were boasting ourselves the enlightened, the intelligent, the advanced, and sneering at the old-fashioned wisdom of our ancestors, it was enough to provoke the bile in a less phlegmatic champion than Mr. Pugin, and to give him a sort of malicious pleasure in establishing a *contrast* which told all against us, and all in favour of those whom we had so unjustly, and we may say, impertinently maligned.

But in proceeding to a notice of his present work, we must proceed reverently and deliberately; it is so full upon the point of precedent, and so thoroughly engrosses the subject upon which it treats, that we should deem it a species of profanation, not so much of the book as of the subject, were we to skip it over with a mere running commentary, in the way that is ordinarily pursued in these cases.

Mr. Pugin's long intimacy with the subject on which he treats, "*Ecclesiastical Architecture*," has made him perforce acquainted with the most critical niceties in that particular era or style which he now brings before us—we mean the Gothic. It is well enough known that he insists upon it that there is no other church style, nothing capable of being so considered; and we fear that the tendency of his remarks is to lead to the inference that no other church style can be moulded or invented—yes, *invented*, we repeat the word, because we perceive in all his writings that he seems to inculcate a special abhorrence of every attempt at invention; indeed, he somewhere says that the best we can do is to merely restore or revive. Now this would be the emulation of our ancestors in a grievous spirit of rigid formality; it would be to affect the dry bones, and not the animated spirit which gave life and beauty to their every effort and production. It is to blunder at the very threshold of our imitation, to overlook the principle which guided them, and which, as we have just said, was the life of these workings; to be the mere machines, reproducing the forms and neglecting the essence. The great architects and the artists of former days pursued not this method; they were inventors; every day advancing on novelties, every day pushing forward for the new and varied, but they were guided by a spirit which we have not yet, we fear, learnt to appreciate; there was a depth of knowledge in constructive science, a profundity of feeling, and a pure devotion for their art, that made them, when they turned it to the highest purposes, give it its highest dignity. Even so may it be with us, when we have discussed the question in the true spirit of philosophy, that knowing what we love, we may love what we know.

We said that Mr. Pugin's works had formed

a sort of text matter for others, and it must be in some sort the same with us. We shall recur to this book again and again, and if no objection starts itself, or be started, we must cull from its illustrations for the same purpose that Mr. Pugin sets them, to accompany his words; they are indeed the music, very beautiful in many instances, and we shall have great pride in transcribing fairly, and for the legitimate ends of his and our common object, such as appear to us to most merit the public commendation. In the meantime we recommend our friends to furnish themselves with the book, and accompany us in our readings and comments.

Literary and Scientific Register and Almanac for 1843. By J. W. G. GUTH, M.R.C.S., &c.—London: Lumley, Chancery Lane.

We regret not to have had our attention called at an earlier stage to this valuable little pocket-book, although from the permanent character of the information contained in it, its usefulness is not restricted to the year of its publication. It is a diary and almanac, it is true, but it is something more; it treats on Acoustics, Agriculture, Architecture, Arithmetic, Logarithms, Building, Gardening, Geology, Hydraulics, Mathematics, Mechanics, Optics, Painting, Photography, &c., which we instance as being more or less allied to the building art; but there are many other subjects treated of, and many useful tables, and altogether we have found it a compendious and valuable book of reference, and as such can confidently recommend it to our readers.

WATER.

PASSAGE THROUGH LEADEN PIPES.

It is, doubtless, within the recollection of most of our readers that Professor Clark, of Marischal College, Aberdeen, some months since patented a process for rendering water "less impure and less hard" than the water which is supplied to the London public by the existing water companies; and in a series of lectures, which he delivered at the Royal Polytechnic Institution, deprecated the apathy of those companies, and expatiated on the supineness of their subscribers in submitting to the impure stuff that was meted out to them. Now the Professor's aspersions were well meant, and there was certainly a great deal of truth in what he said, still there exists in London and elsewhere an evil of importance, which a great many families suffer, having in their own power a remedy; and we shall point out in this paper a case which teaches us that it is necessary for our welfare to bestow a little care and thought on such a matter; and we would ask, in what can our reasoning faculties be more judiciously exerted than on the subject of health. When we reflect that every animal on the earth, from the *genus homo* down to the most insignificant living being, is dependent on the "crystal fountain," it certainly is a subject requiring our especial attention; we will leave out of the question the whole race of tee-totalers, brandy-and-water drinkers, &c., as a class of the community capable of taking care of themselves; but we ought not to forget that the poor domestic animal is at the mercy of the ignorant as well as of the intelligent, and can have no means of protecting itself. When we look at beautiful wild nature, and see the stag roaming at his leisure among his hundred companions, we cannot help reflecting on the happy state of those noble creatures; they require no doctors, Nature's instinct is their only counsellor.

They crop the flowering shrub,
And drink of the pure stream,
Which Nature, in her bounty, has dispensed,

without danger; but let us look at the condition of the horse, the dog, &c. &c., how different is their case; for them we must have our veterinary surgeon, &c.,—and why? because we take them from their state of nature, and having done so, leave them without considering either their comfort or health.

Again, to our nobler selves, our own human race; contrast nine-tenths of the civilized world with the beings of unsophisticated nature; instead of the *muling, puling* stamina of the former, we find them healthful and vigorous, both in body and mind. No gout, no dyspepsia, no plethora, no necessity for those abominable pharmaceutical preparations, blue

-pills and black doses, assails him,—he seeks his antidote amongst his native wilds; in fine, there is no living thing in creation not dependent on water. We apprehend that the generality of our readers are aware that the more pure the water, the larger is the quantity of carbonic acid gas contained in it, giving it a greater susceptibility for any impurity from the surface over which it has to pass, and a capability for certain chemical action on different substances, forming what is technically called a salt of the metal with which it may be brought in contact; and yet we find in use, for general purposes, this very application, in the form of lead pipes, tanks, cisterns, &c., &c., either as a means of conveying of water from the supply to our own "locale," or as a reservoir for our own domestic purposes, a practice which cannot be too much deprecated; the action is this:—

The carbonic acid in the water enters into combination with the lead and forms a salt, called carbonate of lead, which is in itself a poisonous compound; and, in all human probability, is the cause of many of the ailments "which our flesh is heir to." Now how much of this inconvenience might be remedied by simply taking notice of the means which nature adopts in the transit of her gifts; does she supply us through aqueducts of poison? No. Neither need we adopt such a proceeding: the slate, the stone, or the brick, as a cistern, and a wooden trough, or other innocuous material, for its supply, would be all that is required. On an analysis of some water from one of the departments of the Royal establishments (which was procured for the laboratory of the Royal Polytechnic Institution for the purpose) being made, it was found that in the first sample, which was taken from the pure spring, the water was perfectly free from any trace of lead. This spring, being at some considerable distance from the place where it is required (*viz.*, the kennel of her Majesty's hounds), it is conveyed thence through pipes of lead; on the second sample (mind, taken from the pipes!) being submitted to analysis, the quantity of lead contained therein amounted to 1.312 grs., or approaching 1½ grs. of carbonate of lead to the imperial gallon of water; there can, therefore, be but strong grounds for presuming that the disease called kennel lameness in sporting phraseology, and which now rages amongst the hounds there, is caused by the quantity of lead taken into the stomach of the poor animals; and what gives us a greater desire to promote some attention to the subject is the fact that, not only the canine race, but the human also are sufferers, as in more than one case a species of paralysis, and effects similar to the painter's colic, has attacked the attendants at the kennel, one of whom (we believe one of her Majesty's whippers-in) is now suffering from it.

Having presented these data, and traced, as far as possible, some probable cause for such casualties, we take leave of the subject with a sincere hope that, in the proper quarter, some investigation of a scientific character will be made *pro bono publico*.—*The Polytechnic Review.*

PICCADILLY AND GREEN PARK.—We are authorized to state, that the widening of Piccadilly and the constructing a fine spacious gravel-walk from the Duke of Devonshire's to Hyde Park-corner will be commenced without further delay. We understand that there is every probability of an ornamental fountain being placed in the waterworks basin, and various other improvements, of an ornamental character, are under the consideration of the Woods and Forests, which department, we are happy to state, under the able superintendence of Lord Lincoln, seems most anxious to carry out the wishes of the public in regard to beautifying our parks and gardens.—*British Queen.*

VAUXHALL IMPROVEMENTS.—Mr. Cubitt has commenced the foundation for a splendid chain-pier on the Marquis of Westminster's Fimlico estate on Thames-bank, opposite St. George's-square. Part of the gas-works are to come down to complete the road now making from Vauxhall-bridge to Battersea-bridge. Mr. Cubitt has also opened a commodious road from Vauxhall-bridge, through Lincoln-place, Brompton-place, Marlborough-square, Eccleston-square, Eaton-square, and Belgrave-square, to Albert-gate, at Knights-bridge. The works at Albert-gate have been suspended for some time, but will now be commenced forthwith.

WOODEN HOUSES.

We gave last week, from the collected designs of Mr. Loudon, a nice suggestion for English wooden houses in rural districts. This has called up a notice, or drawn our attention to a manufacture which is carried on in this metropolis on a large scale, in preparing wooden houses for the colonies, suited to the necessities of emigrants. It is quite amusing, and in truth, we may say, refreshing, to see this species of manufacture in operation for the benefit of the industrious of our own country. The raw material is conveyed hither from the distant foreign tributaries, and operated on by English artisans, to be forwarded in the complete state, ready for setting up, for the comfort and advantage of our emigrating fellow-countrymen. Of course, it will not be expected that any great display of architecture

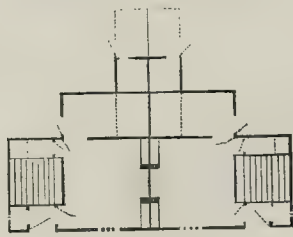
can be attempted in such cases; but there are, in some instances of Mr. Thompson's creations, not a little of this; and some of the plans are peculiarly happy in their arrangement. We could only select for our present purpose the front and end elevation and plan which accompany this article: it is for a double cottage, and would be no bad model for many of our home builders, even in more durable materials than timber. We regret that the information did not reach us earlier, so as to have enabled us to visit Mr. Thompson's manufactory in the Commercial Road, and to have seen, before it was dismantled for packing, a two-story house of twelve rooms, intended for Madras; we feel assured that the inspection would have afforded us much interest, and that a description and draught of it would have been equally gratifying to our readers.



Front View.



End Elevation.



Ground Plan.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

At a recent meeting of this institution, Mr. Papworth read a paper explaining the method adopted by him in 1829, to confine the lateral walls, then inclining outward, of Trinity church, on Clapham-common. Upon a survey of the building, it was discovered that the brick footings of the walls of the church and tower were built upon a continuous four-inch yellow fir planking, containing much resinous matter, and abounding with large knots. In the first instance the trenches were not dug perfectly level, and the bottom course of brickwork was laid dry, thence much of the trench was in winter subject to wet, and at all times to some moisture. In some parts, particularly the north-west angle of the tower and west staircase, the timber was probably never dry: the nature of gravel (absorbing moisture freely), upon which the walls were built, of course admits damp air, and the timber is pro-

portionably subject to the decay common to wood when so circumstanced.

The footings were first examined from the vaults, when the timber beneath the brickwork was found to be in such a pulpy state generally, excepting at the knots and closely adjacent fibres, that the walls, both of church and tower, might really be said entirely to depend on the latter for support, with the addition of the adhesion of the materials and the strength contributed by occasional cross walls. The planking was very soon removed, and York stone steps and proper underpinning substituted.

Although portions of the church walls, from the parapets down to the plates receiving the gallery floors, were leaning outwards, it was found that all beneath was nearly upright; of course this led to an examination of the ceiling, in which, at about the middle, a wide crack appeared, running from the west towards the east end. On examining the roof, it appeared that the fissure and the overhanging

of the walls was caused by the pressure outward of the principal rafters, and chiefly on the south side of the church. This pressure outward had disjoined the tie-beams, which had been scarfed in no very judicious manner in the middle (the church being about 59 ft. wide), the scarfing was merely bound together by slight iron bands, and thin iron ties, depending on staples at their turned-up ends and some spikes to restrain the lateral thrust; which force had almost wholly disengaged these contrivances, and amply accounted for the effects observed. The roof is of a mixed character, uniting the king-post and queen-post arrangement. The queens were framed into the upper rafters, and those rafters, the tie-beam and the king-post united, and made a roof independent of the other timbers, the usual straining beam between the heads of the queen-posts being omitted. The disarrangement of the timbers of the roof, by settlements common to them, and the displacement caused by the thrust, made it proper to prepare for the operation of drawing the separated scarfed ends of the tie-beams somewhat closer, it not being intended to give very much further effect to the power contemplated, because it might have produced injury to the entire roof, and to the upper part of the walls, the gutters and slating—at least it was considered injudicious to risk so much probable damage.

The object was only to prevent a greater separation of the tie-beams at their scarfings, to stop any further thrust to the walls, and it appeared that, by drawing the lower ends of the queen-posts nearer to each other, each having a tendency to urge back its moiety of the tie-beam towards the centre, that much might be done, and at no great expense. It being found that the queen-post mortices in the tie-beam were far from being filled by the tenons of the queens, and that to draw them much out of the perpendicular, might produce a further and serious disarrangement of the timbers above. To keep the queens upright, and therefore nearly parallel to each other, the timbers were bolted together through the heads of the queens, through the struts, and through the middle of the king-post, and iron-blockings, intended to oppose any movement more than desirable, were carefully fitted and bolted to the top of the tie-beam at the foot of each queen-post. The application of iron rods, having powerfully threaded screws and ample washers and nuts, was of course a matter of easy accomplishment, and when put into operation, there would evidently have been no difficulty in bringing the ends of the timbers into close contact; but, as above stated, there was no wish to effect much more than full security, and they were only drawn together enough to close in part the fissure in the ceiling. As will be evident on reflection, this operation of drawing together the posts might, without due care, have left the tie-beams without any check to their tendency to sag, and it was therefore found proper, at the time the iron blockings were fixed on to the top of the tie-beams, to saddle on them iron straps, bolted well through the tie-beams.

The authorities of Clapham church, not doubting the stability of the edifice, directed, in October last, the execution of two additional galleries for about 150 children, when the consequent scaffolding afforded the opportunity of a close examination, and it is very satisfactory to observe that the operation has been completely successful, and that no settlement, nor spreading, of the roof, nor further overhanging of the walls, has taken place.

PRECEPT OF COMMISSION FOR THE IMPROVEMENT OF THE METROPOLIS.

Whitehall; Nov. 30, 1842.

The Queen has been pleased to appoint the Earl of Lincoln, Lord Littleton, Lord Colborne, the Right Hon. J. C. Herries, the Right Hon. the Lord Mayor of London, Sir R. H. Inglis, Bart., Sir S. Lemon, Bart., H. T. Hope, Esq., H. G. Knight, Esq., Alex. Milne, Esq., the Right Hon. S. Gore, Sir R. Smirke, Knight, and C. Barry, Esq., to be Her Majesty's Commissioners for inquiring into and considering the most effectual means of improving the metropolis, and of providing increased facilities of communication therein.

Secretary, T. W. Phillips, Esq.,
2, Whitehall Place.

EXHALL CHURCH, NEAR COVENTRY.

We give the above view of this now complete and interesting little village church. It has lately been enlarged and repaired, by the addition or rebuilding of a south aisle and porch, and a new roof and window to the chancel. The Incorporated Society for the Repairs and Enlargement of Churches and Chapels, contributed in their usual efficient manner to the fund; the rest was raised by rate and subscription. The works were under the conduct of Mr. Charles Hansom, architect, of Coventry, and we need not say that he has executed his task in a very creditable manner.



THE NEW ROYAL EXCHANGE.

INSTEAD of being at all premature, some of the remarks we are about to make come too late to be of the service they otherwise might—that is, supposing suggestions so thrown out to be ever attended to, which may fairly be questioned; for although architects are apt to be not a little sensitive when their productions are animadverted upon, they rarely seem disposed to screen themselves from criticism by attending to, and profiting by, what it has objected to, either in their own works or those of others. It is probable, therefore, that our observations will be of just as much service now as they would have been if brought forward when they could have been acted upon, at least fully taken into consideration before it had been determined to pursue an opposite course. But with regard to consideration, none at all, as far as we can ascertain, appears to have been given to what was one of the most essential points to be deliberated upon at the very outset, viz. whether the new Exchange should be covered in or not. All we know is, that, instead of its being made a question, it seems to have been settled, or rather assumed as matter of course, that it should be a mere open court, such having been the case in the former building. No idea of the possibility of any thing else appears to have occurred to any one—at least not to any one who had a voice in the matter. Yet though we say it should have been made a question for discussion, we do not think there was occasion for much discussion, the advantages of the central area being covered in instead of left open, being so many and so obvious, that merely to specify them would have been sufficient, we think, to carry the decision at once in favour of such plan. What could have been urged in behalf of the contrary mode—the one actually adopted—we cannot even conjecture; therefore, if any arguments at all were adduced in its support or justification, we should be exceedingly glad to learn what they were—which is more, we suspect, than any one can inform us. The only satisfaction then left us, until we are so informed, is the liberty of concluding that, notwithstanding all that was said at the time about the vast importance of the Royal Exchange as “a National Edifice, that should be in every respect worthy of the first commercial city in the world,” and much more to the same effect; very little of careful consideration seems to have been bestowed upon it, great as

was the delay, and noisy as was the squabbling as to who should be the architect.

Had a thought been given to the matter at the outset, it would probably have been perceived that, even supposing it otherwise mere matter of indifference whether the area were covered in or not, there was a golden argument to turn the scale in favour of its being covered—namely, increased rental from the shops on the exterior of the building, in consequence of the greater space that could then have been given up to them, without at all interfering with the accommodation required for the body of the Exchange. According to Mr. Tite's plan, the entire space occupied by the latter will be about 19,000 square feet, but out of this number, 6,500 will be quite open and unsheltered, consequently cannot always be made use of for purposes of business. Now had it been determined that the centre portion of the plan should be covered in, there would have been shelter everywhere, therefore the breadth of the ambulatories might have been considerably reduced, so as to afford an additional depth of nine or ten feet to the shops—some of which will now not be more than 7 feet in depth, or hardly that. Even then the actual space available at all times for business would have been the same, or rather more than will now be the case. And so far from the architectural effect being at all injured by such contraction of the space behind the columns, it would, in our opinion, be improved, and the whole would, in fact, appear to be more spacious than it is now likely to do; for the width of the cloister portion or ambulatories will now be so great, in order to provide a sufficiency of sheltered space, that while they will look low and depressed, they will occasion the open part or court to appear comparatively narrow and squeezed up; more especially as the same space looks considerably less when uncovered than when roofed in.

We have heard it urged as an objection to the Exchange being covered in, that it would be exceedingly difficult to light it from above without a very great sacrifice of architectural character. We, ourselves, however, are of a diametrically contrary opinion. Even supposing it to be covered by a mere skylight as a protection from the weather (as is the case with the cortile of the new structure at Liverpool, called the Brunswick-buildings), we do not see how that could interfere with the architectural elevations of the sides. We do not say it would be an improvement in point of

appearance, but it would not be any great drawback on it. Hardly, however, should we recommend a skylight of that homely description for such a place as the Exchange; and skylights admit of being put into such a great variety of form, whether introduced so as to appear mere cofferings or panels receding little within the general surface of the ceiling; or as lanterns,—which may be ceiled above, and open only on their sides; and further admit of such great diversity of decoration, that a roof of the kind may be accommodated to any style and any design. While it is the most original, its ceiling, with three large skylights of plate glass (each consisting of two sloping panes parallel with those of the external and internal roof), is not the least happy idea in the interior of the Walhalla, and certainly magnificent enough, it consisting almost entirely of bronze and gilding.

For these fifty years at least, not a single edifice has been erected for the purpose of an Exchange for merchants, either in Europe or America, but what has been covered in and protected from the weather, and now, instead of further improvement being aimed at, we are reverting to the old inconvenient plan of a mere open court, and to what, as such, will be no better than a pent-up and dismal area, except, perhaps, during a few remarkably bright days in the course of a summer. Almost might it be imagined that the “open court” had been determined upon, by the company of umbrella-makers, and that of “undertakers” also. The city worthies seem to have either a very singular taste for uncomfortable, or else very singular notions of convenience. No sooner had the public begun to congratulate themselves on the very great advantages attending wooden pavements, than Sir Peter Laurie set about attempting, not to put them down, but to take them all up again.

The architect of the Royal Exchange has, it seems, had sufficient influence with the committee to prevail on them to have the pediment of the portico enriched with sculpture; let him then now recommend, while it may be yet time, that the “area” should be covered in above; for then it would be protected from the atmosphere and its London smoke, as well as from the weather; and as a hall, it would not only appear more spacious than as an open court, but also more lightsome and cheerful—certainly would be more cleanly, because its pavement would be always dry.

As to difference of appearance in regard to spaciousness, there can be no doubt; for what sort of effect, we ask, as to size, would Westminster Hall make without its roof? To an open cortile, in itself there can be no objection; but we must contend, it is preposterous to adopt it for a purpose where something more is obviously required.—*Civil Engineer and Architect's Journal.*

Great progress has been made during the last two days in placing the sculptured coping above the columns as well as over the other parts of the building. The transition is more striking on account of the elaborate workmanship being all performed ere the stone is raised, and but a short time is now required, with the improved machinery at command, to fix it at once in its position.

COMPOSITION ROOFS.—At a meeting of the “Institution of Civil Engineers,” held on the 21st ult., a paper was read by Mr. Hogg, descriptive of the roofs used in Buckingham Palace, which are covered with Lord Stanhope's composition. This composition, which appears to be formed of tar, chalk, and sand, boiled and mixed together, was introduced by Mr. Nash for covering the fire-proof arched roofs, carried by cast-iron beams over the palace. It has been often laid upon wooden joists; and when slates or tiles are imbedded in it, while fluid, a perfectly waterproof roof is formed, which is very durable, demands little repair, and possesses many advantages over roofs covered with metal.

KINNEL PARK.—The splendid mansion now in course of erection in Kinnel Park, the property of the Right Honourable Lord Dinorben, is proceeding rapidly towards completion. The additions which have been made and the internal alterations which are being effected, are taking place under the superintendence of T. Hopper, Esq., architect. Messrs. Bird are the contractors for the building. It will doubtless be in the recollection of most of our readers, that the former mansion was almost totally destroyed by fire twelve months back.

ON THE CONDUCTION OF HEAT.

Bridgend, March 9, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—With feelings of pleasure do I see in your paper of last week that your list of subscribers is daily increasing, and I, in conjunction with many others, do entertain the surest hopes of its success, as its exclusion of party politics renders it acceptable to all grades of persons who have the welfare of the country and its prosperity at heart; and I venture to predict, in a short time, it will be in as large circulation as any weekly paper now extant. And seeing that you have left its columns open to those persons who are kind enough to favour you with their correspondence on all questions which will tend to the advancement and instruction of its readers; much being the case, I beg to say that I, as an humble individual, will contribute the mite of what little information I possess, or my leisure hours will allow me, to its columns, and if it is of any value, you are at liberty to insert it. Then, Sir, I shall first begin with our present theoretical and experimental knowledge of the laws of conduction of heat, and to examine how far conclusions deduced from theory have been tested by experiment, as there is no reference to theoretical investigation, however important in itself, but is capable of being tested by a direct experiment; and the names of the many experimenters on this head I will pass over, as their experiments were not calculated to serve the test of theory. Then, to obviate this difficulty, I will arrange the matter under three heads: two of these are distinctly marked out by the object proposed to be effected, and the third is suggested by the consideration of the former two. Then, first, let us examine what is the present state of our theoretical knowledge of conduction; secondly, into the state of experimental investigation, so far as has been undertaken with a view to test or to illustrate the conclusions arrived at by theory; thirdly, the inadequacy of the few experimental facts with which we are furnished to serve either as the basis of a true theory or as the indication of a false one. I will therefore endeavour to point out, in conclusion, what are the most important results of theory which it is desirable for experiment to test, and to suggest a few of the most simple means of effecting the object desired. First, the problem, in the solution of which consists the mathematical theory of heat is the following:—Having the given state of heating, or the variation of that state from time to time, at one or more points of a homogeneous body of given form and dimensions, to find the permanent or variable temperature at every other point, thus: Suppose a ring to be kept at a certain temperature at one point, and it is proposed to discover, first, what is the variation from time to time of the temperature at every other point; secondly, what is the ultimate temperature to which any given point approaches, as the time the constant heating of one point has been kept up is increased. From this supposition it will appear that the answers to experimental facts, upon which the theory must rest, are answers to the following questions:—First, according to what law does a heated body lose its temperature to the air, or other medium or space by which it is surrounded? second, according to what law is temperature transmitted from point to point of a body? as on the correctness of the answers that may be assumed as given to these questions depends the applicability of the results obtained to the state of things in nature. Then I find that there are three distinct methods of theorizing, each adopted, apparently, in accordance with the known laws of nature, but which differ essentially from each other; and I do not perceive that our existing experiments bear with greater weight in establishing or disproving either of them— as the other two are confirmed by experiments each at variance with the other. I am not aware that it has once suggested itself to any one experimental philosopher to examine into the laws of conduction; but much labour, it is true, has been bestowed in examining the conductive powers of different substances, and to the result of experiments carried on with this object we look naturally with the hope of extracting a law; but unfortunately the nature of the experiments we are presented with is not such as will lead us to what we seek; as they are not originally conducted with reference to the state of things assumed to exist in theory, and are, in consequence, of less value when allowance is made between what they express and what theory requires. Now it cannot be denied that difficulties do attend the experimental examination of this subject, when it is intended to make every thing correspond with the state supposed in theory. The chief and greatest of these I consider to be the presence of the air. M. M. Dulong has shown that the quantity of heat carried off by air is not only very large, but is governed by a law very different from that of ordinary variation; means have therefore to be devised for removing this cause of error; and I am far from thinking that the difficulty amounts to an impossibility. M. M. Dulong

did succeed in determining the rates of cooling a body in *vacuo*, and I cannot see why others should not succeed in shewing the stationary temperature at one point of a body which radiates in *vacuo*; and this leads me to the following suggestions of experiments, by which I will conclude the present letter. First, as to the most important experiments. Second, as to the mode by which they may be conducted. Then, with a view of remedying the state of things to a certain extent, I will exhibit in their most simple forms some of the more obvious conclusions to which the different theories lead. No doubt much can be done in this way; but until called for, by the entry of experimenters on the field, a large and varied collection of formulae would serve no useful purpose; the object being to discover a law of conduction. Then, as this can be best obtained by the selection of circumstances in which radiation plays no part at all, or in which its effect is very simple, and eliminated by selecting a small conducting power, such as a block of marble, and cooling it with a substance which will radiate very slowly, this experiment may be made upon a block of no very great dimensions, and, for many reasons, is well worth trying. I will point out another important experiment,—the determination of the state of temperature at one extremity of an iron bar, which is heated at the other; and if this experiment were made on a variety of bars of different conducting powers, and of different lengths, with a set of careful experiments of this nature, I am of opinion that the true law of conduction would be found, as I do not think the difficulties attendant on the conduct of the experiments to be at all insuperable. The real practical obstacle is the presence of the air, as I have proved that the law of cooling in air is different from that of radiation; even supposing, therefore, that we were in possession of the correct statement of that law, such would be the difficulty of obtaining formulae from it, that to attempt to eliminate its effects, together with that of radiation, would be almost hopeless; if it can be done at all, it must be by means of experiments carried on in air of different elasticities; as it has been proved by M. M. Dulong and Petit, that the velocity of cooling a body, due to the sole contact in gas, depends for the same excess of temperature on the density and temperature of the gas; but this dependence is such, that the velocity of cooling remains the same. If the density and temperature of the gas change in such a way that the elasticity remains constant, the effect, then, of the presence of air is to introduce a term which involves a power of the elasticity, as one feature, and a function of the excess of temperature as another: the latter function may be determined by means of a number of experiments, made at different elasticities; but I should greatly prefer a set of experiments on radiation in *vacuo*. But it appears to me that the difficulty in this case is the same which M. M. Dulong had to contend against in investigating the kindred law of radiation; and I conceive a similar contrivance to that which he used might be adopted to overcome it. All that is required is a certain portion of a bar, heated at one extremity, to radiate in *vacuo*, and that the temperature at every one of its points, the other extremity being one, be capable of constant observation. A copper balloon could be made use of, similar to that used by M. M. Dulong and Petit, which could be exhausted of air, and by means of ice be kept constantly at freezing temperature, notwithstanding the radiation of the heat from the body within. A somewhat similar contrivance, I conceive, would serve for the conduct of the experiment I propose. Then, let a bar of metal to be experimented upon pass through the balloon, and be heated in air, whilst the assumed point of heating might be marked with a thermometer inserted into a hole in the bar, just within the balloon; but this would have been much better, had M. Biott worked his lowest point not at the surface of the heated mercury, but a point a little above it: it would have insured a greater steadiness in the results. Should any one of your readers think of undertaking this experiment, I should recommend to his observation to examine a wider range of temperature than M. Biott has done. The thermometer which represents the heated end of the bar should stand permanently at every 5°, from 0° to as high as can be accomplished; the observations should likewise embrace a succession of bars of different substances,—iron, brass, lead, &c., all of the same dimensions. Different series of observations should be made, in which the dimensions of the bars have constant magnitudes, and others in which they have different lengths. All the substances might be coated with the same varnish, so as to render their radiating powers the same. With such experiments, I have no doubt that the law of conduction, though not, like the law of radiation, an inference from direct experiment, might be readily established, and the science of heat placed upon a footing with the other mathematical sciences.

JAMES WILLIAMS COLE,
Mineral and Land Surveyor, Bridgend.

A WALK THROUGH THE POLYTECHNIC INSTITUTION.

OUR country readers, many of them at least, will ask the question, what is the Polytechnic Institution? The best answer we can give is the plain English meaning of the word polytechnic; it is a compound from the Greek, signifying many arts,—and of a truth this institution is a collection of many, almost multitudinous works of art; and the exhibition of these, together with the lectures and the classes for instruction, form a means of imparting knowledge the like of which we know nothing of in the whole range of this kingdom.

But we have walked through it with a builder's eye, and thought as we walked of the effect that a Builder's Polytechnic School of this species would have, where the various specimens of natural and artificial products could be classified and arranged; where the processes in the superior departments could be explained and illustrated; where combinations of the beautiful in mechanism, in plini handicraft, and in the artistic section could be exhibited; where paintings, sculpture, carving, glass-staining, could be appropriately arranged; where drawings and models of ancient and modern works could be collected together, and drawings and models of the famous constructions, and indeed of the more simple, for the enlightenment of the artisan; where books, in fact a whole library of building literature, could be shelved and consulted; where lectures should be given directly applicable to building science, and many other things, all, one would consider, of manageable compass, as much so at least as this motley collection; and what is more than all, that it should be accessible to the workman at a very moderate rate.

We do not mean by this to say that the Polytechnic Institution has any thing in it so motley in character as to take the least exception at—it is perhaps, under present circumstances, the best technical gathering of a popular character that the public are disposed to receive and encourage; nor do we mean to say that the one shilling charge for admission is one penny more than is right—in fact it is surprisingly moderate; nor, again, do we mean to say that it does not present a sufficient number of articles of a particular cast, so as to be of highly profitable interest to almost every class of artisans—perhaps, indeed, for present objects, it is the most captivating book of information into which the general public can be tempted to look, and it may have the effect, and undoubtedly has the effect, of turning the minds of thousands from desultory processes of research and investigation, and winning them, as it were, to a more critical mode and object of study and experiment; but after all, we cannot help wishing for that important following out, for the builder's behoof, which will give him what this gives to the more superficial and the merely curious inquirer.

In a previous number of this Journal the suggestion in part was thrown out by a correspondent, in reference to an architectural exhibition-room, independent of the Royal Academy, and we penned a few remarks upon that suggestion, which embodied most of what we have now given utterance to. We shall indeed be very ill-content until we see a step taken in advance towards this desirable and all-important end.

But how could it be expected that any such object could be carried out without, in the first place, a mouth-piece of the character of THE BUILDER? Our efforts, like ourselves, have been scattered and kept back for want of the one secret power, the organ of communication and publicity; but we proceed to our purpose; we would, however, venture to express a hope for the present that the Polytechnic collection could be enriched by a larger amount of building products, and an arrangement of reader reference; but above all, that some scheme could be devised for giving to the workman an access, privileged it may be, but at a price more within his means.

There are specimens, however, of many articles of exclusive interest to the builder; at our very entrance in the hall, on the right hand, we have a complete workshop in turning manipulations, and the curious in such matters may dwell here with profit on the various processes to which ivory, hard wood, and metals are here submitted, through the agency of two lathes, worked, as are all the machines in this hall, by steam power. We have here a model of

Ainslie's patent brick and tile making machine, said to be capable of throwing off 10,000 to 20,000 bricks or tiles per day. The best we can wish this friend is a superseding of his influence by the introduction of a richer style of brickmaking and bricklaying than at present prevails, as hinted at in No. 3; the slavery and drudgery he is welcome to, if we can procure that a taste may set in for a more refined and intellectual species of workmanship on which to employ his human and humane competitor.

There is here also, as in other parts of the building, a model of an improved kitchen range and cooking apparatus, matters of especial regard in our eyes, knowing so much to depend upon the effective and economical character of these agents in household and house-building completeness.

Of steam-engines and steam-engine models, we have an unusual supply; many of them in action, for the sake of exhibiting their several peculiarities. We have the condensing and high-pressure, rectilinear, rotary, revolving—land and marine engines, stationary and locomotive—applied, in some instances, in connection with operations in manufactures, &c. An atmospheric and a horse engine are also exhibited, which, with an almost endless variety of models of parts and details of each, will afford much amusement and some instruction to our engineering friends.

Then there are, for the same class of inquirers, models for bridges in wood and iron, on the suspension principle, and the analogous one of tension. Models of railway-engines, carriages, and safety apparatus; and of a suspension railway. Next we have an excellent illustration of canal-locks, with the barges being lowered and raised—the gates, with their sluices—foot-bridges, &c.; indeed, a single glance from the balcony of the great hall would suffice to convince that the English were an engineering as well as a naval people. These two features of their superiority are exhibited here in the most intelligible language—the former, in what we have just adverted to, as regards engines and engine-work—the latter, in an almost endless variety of nautical models and marine apparatus, which it is not in our way, nor, perhaps, more so in the way of our friends, that we should stop to particularize.

This peculiarity, however, has its ramifications in building art, for we find in that section devoted to architecture, meagre and inferior as we must confess it to be, that no little display of maritime taste and affection, so to speak, has been called into action in this department. There are a great number of models of columns and other memorials in honour of our great naval hero, Nelson; the next, as exhibiting our peculiarity as a religious people, is in designs and models for churches; and we have these models in various materials—ivory, cork, plaster; then we have designs for cottages in various styles, and gate lodges, and there are two propositions for the long-desired viaduct at Holborn-hill; the paucity, however, of objects of architectural interest, and of building generally, is, as we have already observed, such as to shew the necessity for a different method of exciting and developing the public and the professional taste. That we are a building people it must be admitted, and upon no paltry scale; not a nation in the world employs so large a portion of its people in the building art, and yet, while we have in this institution, as is already shewn, the very mirror of our national characteristics in some respects, in this one we see so dimly, and are reflected so feebly, that we might be tempted to deny our figures, and to say that, instead of a population of some three to five millions being dependent on building, and of five-and-twenty millions on the enjoyment and comforts to be derived from the successful practice of the building art, that we were yet a mere set of migratory adventurers. The Polytechnic Exhibition tells of a thousand appliances for locomotion on land and water, it reveals that we are a restless, run-about, and roving people; but it tells little or nothing of the truth as to the large exercise of the quality of settlers for which a great portion of our people are distinguished, nor does it, although there are some very nice cases of models of agricultural implements, say much for this section of our national peculiarity. Architecture and agriculture have been passive and unprejudiced, and we are afraid we must say, hum-

bler in human than becomes us; but a change has set in, the signs of which are so significant, and the suggestions of its necessity so strong, that we cannot walk through the Polytechnic Museum without its being obtruded upon us at every step.

We look around us almost in vain for any thing pertaining to carpentry and masonry—there is nothing at all as to the bricklayer's art, unless the brick-making machine already adverted to, and two others, can be so considered;—yes, there is a relic or two of antiquity, of old Roman tesserae or pavement, which we may assign to the bricklayer's province under the head of earthenware pavement, and from which he may derive instruction as to a process which, if cultivated, would lead to a refined species of practice in his art, as well as contribute to enlarge the sphere of employment for the increasing numbers of his craft; and we had forgotten there is one subject largely treated on, in which he is not very remotely interested—we mean as to stoves and chimneys; in the basement story there are cooking stoves repeated, and heating stoves, as well for common fuel as for gas, in which latter, as well as for the many plans and models exhibited in reference to chimneys, to fire-escapes, fire-detectors, chimney cowl, fire-extinguishers, and the like, he will take more or less interest, as his attention is brought to the philosophy of heating, ventilation, &c., which these things undoubtedly serve the good purpose of giving a stimulant to.

The mason of the higher grade may take an interest in the sculpture and statuary embellishments. There are many busts, and some statues, a few specimens of polished native granite, some Swedish porphyry, Page's new method of lettering marble, a process of mechanical sculpture, and models of implements useful to his department; such as an improved screw-jack, a patent level, &c. He may also turn his attention with profit to such matters as the model for a stone coffin and coffin-case; and even to slate-works; such as cisterns, slabs, &c., which are here exhibited. The cases also may interest him in geological products, and of the quarry; but beyond these, we cannot promise him more of a direct bearing upon his calling.

The carpenter will find two or three specimens of marquetry or inlaid floors, a practice, by the way, that we advise him to turn his attention to, as an art it would be well to revive. His higher aims also may be directed to, and obtain encouragement from, an inspection of carving in wood. There is one specimen, said to be the handiwork of the great Michael Angelo, and another, curious from being the production of a boy of nine years old. There is something after the Elizabethan manner—but in this department no abounding—of an inferior grade; we have an improved window-sash frame, weather-tight sash fastening, and cill-bar, or sash-suspender, hinges and door fastenings, alarm-locks and trussed girders, wooden bridges, as before named, and, so far as the materials made use of and the mechanical labour go, he will have abundant occupation in looking over the many models of wood-pavements—indeed, nearly all the descriptions are deposited here. From this he may pass to sawing-machines, of which there are several, and some of the inferior tools used in his calling; next to the specimen of kyanized timber, a subject demanding in no small measure his investigation, as connected with seasoning his materials; and in the kindred department of cabinet-work there are a few subjects of common interest to both; such as improved castors, door-plates, picture-rail mouldings, English japanned wood, inlaid, improved tables. Then there are a few tools; such as the improved holdfasts for chair-makers; but yet, as in the mason's department, very few.

In the plasterer's department we have various specimens of cements, fire-proof, metallic, &c.; Scagliolas, ornamental stucco, for house-fronts; but no collection of ornamental designs, modellings, or the like. There are two nice specimens of encaustic and fresco, which lead us by a transition to the painter's department; but with the exception of these, and some stained glass, together with the higher range of the painter's art, such as in pictures, there is not much to interest him. A beginning, however, has been made by the introduction of the fresco and encaustic embellishment; and if it be pursued by farther illustrations of decorative painting, as appli-

cable to building, a considerable service would be rendered to us.

As might be expected, seeing the great mechanical preponderance, we have something for the plumber. There are varieties of pumps; and we are sure he will be deeply interested with the curious hydraulic belt, or water elevator, the zinc pipes, and drawn tubes, the process of soldering, called the patent autogeneous process;—and in glazing he will be rewarded by an inspection of various matters bearing thereon; in particular with Parr's patent ventilators, the engine turning on glass; specimens of colourless plate-glass, illuminated coal-cellar plates, Hudson's embossed glass, and the like. These, however, with a small amount of *papier maché* products, some marble paper-hangings, and a specimen of oiled paper-hangings, and a few minor and unimportant matters, must complete our list of matters to which we would direct the particular attention of our craft.

We do not, by any thing we have said here, wish to have it implied that the Polytechnic Institution is not what the public encouragement and universal voice attest, and, indeed, what we set out with saying, namely, that it is an unrivalled and most admirable school, or the best of all vestibules to the school of practical art and science; but infected as we are with a disposition to measure things as they have a tendency to promote, and to correctly estimate the all-important art of building, we have given utterance to something exceptional, and only in that respect; we shall, however, return to the subject to render a sincere tribute of justice in our remarks as to the other objects of pleasure, and we may add of wonder, as well as to the valuable direct educational arrangements that are included under its roof.

TO THE EDITOR OF THE BUILDER.

SIR,—As one of the building community, I have much pleasure in saying that your publication shall have my very sincere support. My present reason in troubling you with this is, that I see some of your correspondents have taken alarm at the notice by Sir James Graham, that Government is about to introduce a Building Act, to repeal or supersede the 14 Geo. 3, c. 78, and one of your correspondents imagines this may be "a hole and corner" proceeding. It is my wish to disabuse the minds of those persons who fear that the intended bill will be detrimental to the building interests; I can assure such persons that it will be an improvement upon the old act, taking out some of the obsolete clauses, altering the thickness both of party and external walls of additional buildings (they now being required to be the same as the principal building), to the thickness of the rate the additional building itself measures; to permit indents in party walls for soil and other pipes, which are now prohibited by the act, but permitted by the district surveyors, as a necessity grown up with the times; to extend the superficial quantum in the second and third rates; to give to the builder of a party wall, instead of as at present, only 7l. 15s. per rod, with many other improvements upon the old act, and to extend its operations to large towns, as well as the metropolis. As regards the fear that it may be a "hole and corner" proceeding, I beg to say, that the matter has been under the consideration of the Master Carpenters' Society for nearly two years past, and I have only to refer to the Parliamentary Report in the last session, before the "Building Regulation Committee," and especially that portion of the evidence given by the president (Mr. H. Biers) and other members of the society, to convince the most sceptical that a bill including the several enactments as there recommended, will be a very great improvement upon the present act. I need only further observe that a bill injurious to the building interests has but little chance of slipping through Parliament without being brought under the notice of the trade, by the committee of the society appointed for the purpose of watching the progress of any bill or bills that may be introduced in Parliament relating to the building interests.

The insertion of this in your next will oblige.



A great number of labourers in Bohemia being in considerable distress for want of employment, and from the partial failure of the harvest, his imperial majesty has given orders that the public works, to the amount of 300,000 florins, shall be immediately commenced, at the public expense.

WOOD PAVEMENT: PERRING'S PATENT.

[SECOND NOTICE.]

Our second illustration of wood pavements embraces that of Mr. Perring, patented in July, 1842, which, although among the latest in the arena of competition, appears destined to run a very successful course. Both in principle and detail it differs essentially from the mode described in our last number.

In the manufacture of Mr. Perring's wood-paving, the best Scotch fir is chosen, of a growth (about thirty-five years) which will admit of its being squared into convenient lengths of six inches in thickness, the heart of the tree occupying the centre, as near as may be. These lengths are then cut off at a right angle or of 45 degrees, so that when placed upon the ground, with the fibres of the wood inclining at that angle, the block may be six inches deep, six inches square, measured at right angles, and with a surface of six inches by about eight inches and a half; the elongation of the surface in the direction of the slope being occasioned by the angle at which it is cut. The reason assigned for this particular form of block is, that in all cases the younger and weaker fibres of the wood will be assisted in supporting any superincumbent weight, and in resisting abrasion, by the older and stronger fibres; whilst, as block leans upon block in one direction, and is connected with the blocks on each side in the other, pressure or percussion must be diffused over a large surface. Thus formed, the blocks are pierced on their vertical sides for the reception of pins or pegs of oak, with which subsequent cohesion is to be obtained.

It will be obvious that in squaring the blocks from the round tree, four slabs will be cut off, containing a considerable quantity of material, which, under common circumstances, is comparatively worthless. These slabs, however, are turned to excellent account by Mr. Perring, for he procures from them slips one inch thick and four inches deep; which slips, having holes drilled through them to admit the connecting pins or pegs, are affixed between each course of blocks as interstitial pieces, and, whilst thus reducing the cost of the general structure, form transverse grooves of sufficient depth to carry off the soil and water from the surface, and at the same time provide a certain and secure foot-hold for horses and other animals, to assist their progression and prevent them from slipping either forward or backward. We should here observe that these transverse grooves, one inch deep and of the same width at the bottom, open out to one inch and a half at the surface, by chamfering off a corresponding portion of the obtuse angles of the blocks; and that the acute angles of each block, chamfered off seven-eighths of an inch,

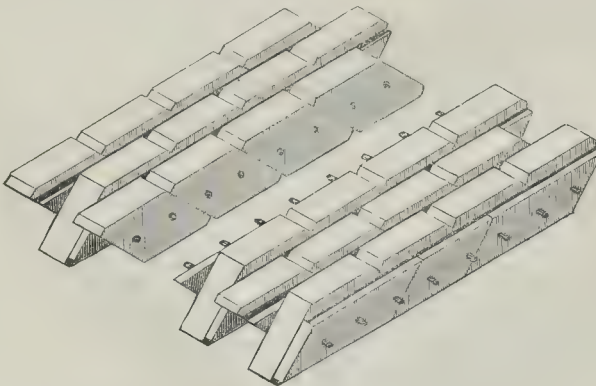
form, with the inclined part of the adjoining blocks, longitudinal grooves to aid in discharging the soil and water into the deeper and more capacious transverse grooves, and prevent horses from slipping towards either side of the street.

The blocks and slips thus prepared are connected together in slabs, in which the courses of blocks lean alternately in opposite directions across the street; but to avoid the necessity of reducing the thickness of the slips on both sides of the slab, so that when one course of slabs should be placed alongside another, the interstices between their outer courses of blocks should not be disproportionately wide, an interstitial slip of the regular thickness is placed on one side only, and the blocks on the other side are held together by iron cramps. It will be observed that the interstitial pieces are cut at such lengths as provide for their holding the blocks together, transversely, by the same pegs that keep them in connection longitudinally.

A number of slabs or panels being prepared in the manner described, for the superstratum of any given piece of work, the ground is prepared by laying a concrete foundation of six inches in depth, at a curve sufficient to carry off the soil and water from the crown of the carriage-way to the side channels; and one of these panels being cut off to abut against the channel blocks, which are one inch shallower than the others, a second dovetail, as it were, with the first, and so on one after the other to the opposite side, where another abutment is formed. In this way, the whole work is completed.

Now it will be seen that if the blocks and their accessories were formed with the nicest mathematical accuracy—which is practically impossible—and if the materials were non-elastic, the slabs would only lie with their surfaces perfectly horizontal; but the interstices which must occur between the blocks, however minute, and the elastic property of the wood, together admit of the wood-paving taking the required curve, and throw all strain upon the pins, &c. in an upward direction, so that however great the superincumbent pressure, it can only tend to relieve the fastenings from the upward strain, and in no case fracture or injure them. Our professional readers will have been previously aware of this, but those of less practical pursuits may not be so cognizant of the fact.

In the accompanying drawing, the blocks in the direction of the line of traffic are of half the size of those we have described; and the slab is divided in the centre to shew the mode of fastening the courses of blocks to each other. This is the modification we prefer; and between it and the other extreme, any proportions can be used, suitable to the size of the wood from which the blocks have to be cut.



N.B.—The Engraving exhibits the panel separated, or cut in two, to give a clearer exposition of the construction.

Having thus described the mode of manufacturing and laying down Mr. Perring's wood-paving, we shall now let the inventor speak for himself, by quoting his comparison of this system with that adopted by the Metropolitan Company, in which will be found other very important advantages of construction and application, beyond those we have mentioned; of which, we will merely premise,

that we consider that of being able to turn the under surface to the traffic, after the other has been partially worn, as the most prominent.

"The conditions which have been assigned by the best authorities on the subject as essential to the formation and application of a good system of wood-paving, consisting of an efficient substratum of concrete—a cohesive superstratum of wood—a simple mode of construction, inclusive of facility

of removal and replacement—an elastic position of the fibre of the wood—and a means of using any necessary grooving,—are all comprised in Perring's Patent Wood Paving; and to at least an equal extent with that of the Count de Lisle, whose system has hitherto received the most extensive patronage.

"But Perring's system of wood-paving comprises more. It supplies every deficiency in the Count de Lisle's:—

"First—By forming a surface which presents so secure a foot-hold for horses and other animals as to be unaffected by rain, and, at the same time, afford a safe and efficient means of laying down wood-paving in the carriage-ways of the steepest streets in London.

"Secondly—By breaking or bonding the joints at the surface, so that the softer or harder portions of the blocks do not run in continuous lines, but intersect each other throughout; and, therefore, prevent the formation of ruts,—and very considerably to the strength and solidity of the whole structure,—and insure greater uniformity of surface. These very material advantages apply to both surfaces of blocks; so that when one surface is partially worn, the other may be used. The general result is a great reduction in the cost of repairs.

"Thirdly—By opposing, in blocks of similar size, at least 80 per cent. more of solid material to the wear and tear of traffic passing over the carriage-way; Perring's system, in a block of six inches deep, affords two inches and a half of solid material between the connecting points and both the upper and lower surfaces—the other, only one inch and a half. The former, therefore, admits of the use of blocks of five inches deep, as more than equivalent to those of the latter of six inches deep.

"And to these self-evident mechanical and practical advantages may be added one of not less consequence in a financial or commercial point of view. From the economical construction of Perring's wood-paving, due allowance being made for an excellent substratum of concrete, a positive saving may be effected of about one shilling per yard."

TO THE EDITOR OF THE BUILDER.

SIR,—In THE BUILDER of last week you expressed a desire to have the opinions of your readers on the subject of wood-paving, especially with reference to the various modes to be described in your columns; and I will assume your permission to be one of the number.

I agree with you, that sufficient examination has not been generally extended by professional men to this important improvement; and I have always nurtured the opinion that public discussion, courteously and honestly conducted, will best elucidate the hidden facts of any new system, in whatever science it may be classed. And it is with these views that I propose to enter the excellent arena you have provided, in friendly controversy with those whose premises or conclusions I may consider to be incorrect.

To begin, let me have a slight "passage of pens" with your good self. In your notice of Mr. Stead's wood-paving you say, "We believe a hearing is about to be had before the Privy Council on his petition, setting forth that he is the first inventor, and holds the ground to the exclusion of all subsequent comers." This involves every variety of legal difference to which contrary opinions can give rise, and is not a subject to be even mooted in a journal devoted to mechanical demonstrations. Mr. Stead believes that he can establish an exclusive monopoly of the use of the material, as well as of certain forms, of wooden blocks. I believe that it is just as possible for him to pave "the milky way;" and these opinions are doubtless entertained with equal sincerity by each. But as the extent of his claims, as well as the conflicting claims of many others, can only be disposed of by legal process, I think you will admit that we may as well wait for their solution by law or equity, and not waste time or space in speculating upon their uncertainties; a course scarcely to be avoided when they are mentioned at all. And here I must beg permission to repeat what I have taken occasion to say, whenever I have lectured or written on the introduction of wood-paving, that, apart from any consideration of the merits or demerits of the modes to which that gentleman has given preference, the public owe a debt of endless gratitude to Mr. Stead for his surprising zeal and perseverance. Without his untiring efforts, the practicability of substituting wood for granite, in the formation of our carriage-ways, might have remained classed with the idle theories of the age for half a century to come.

Let me now turn to matter more germane to the purpose—to certain premises which we should test by reason and facts, and either accept or reject as

truth may determine. "The particulars of the merits of the plan" of hexagonal wood-paving you have "collected from Mr. Stead and Mr. Blackie" are comprised under five heads, viz. —

- 1st. The superiority of the vertical position of the grain of the wood over the inclined, in respect of wear upon the fibre.
- 2nd. The economy of conversion from the round timber.
- 3rd. The compact fitting of block with block, and the grip or collaring which each receives from the six surrounding and close-fitting blocks.
- 4th. The simplicity of laying down, and subsequent economy on this score.
- 5th. The easy method of extracting any single block or series, and laying down again, &c.

I am satisfied, Mr. Editor, that the long experience of Mr. Stead and Mr. Blackie will enable them very readily to define their reasons for assuming each of these positions. With respect to the second, they are unquestionably right, as regards comparison with any other plan that has been publicly demonstrated. But referring to the other four, separately or in connection, I respectfully submit to these gentlemen, through your medium, the following queries: —

- 1st. Upon what reasoning, course of experiments, or practical results, is the vertical position of the grain of the wood assumed to be superior to the inclined in respect of wear and tear? And further, is it assumed to be more elastic, too? And why?
- 2nd. Is it assumed that the fitting, gripping, and collaring described in position No. 2 is so perfect as to distribute the pressure thrown upon any individual block among those that surround it, and to prevent the force from being at once transmitted from the surface to the base of the block receiving it? And if it be so assumed, upon what grounds?
- 3rd. In what respect is the mode of laying down the hexagonal blocks, removing, and replacing them, more simple, inexpensive, or easy than in the case of De Lisle's, Carey's, or Grimm's? —Awaiting their reply,

I am, Mr. Editor, yours, &c.

J. LEE STEVENS.

Southwark, 13th March, 1843.

ON PATTERNS OF PAPER-HANGINGS AND CARPETS.

WHILE I am on this topic, it may not be amiss to mention some other absurdities which may not be out of place, although they do not belong to metal-work. I will commence with what are termed Gothic pattern-papers for hanging walls, where a wretched caricature of a pointed building is repeated from the skirting to the cornice, in glorious confusion—door over pinnacle, and pinnacle over door. This is a great favourite with hotel and tavern-keepers. Again, those papers which are shaded are defective in principle; for as a paper is hung round a room, the ornament must frequently be shadowed on the light side. The variety of these miserable patterns is quite surprising, and as the expense of cutting a block for a bad figure is equal, if not greater than for a good one, there is not the shadow of an excuse for their continual reproduction. A moment's reflection must shew the extreme absurdity of repeating a perspective over a large surface with some hundred different points of sight. A panel or wall may be enriched or decorated at pleasure, but it should always be treated in a consistent manner. Flock-papers are admirable substitutes for the ancient hangings, but then they must consist of a pattern without shadow, with the forms relieved by the introduction of harmonious colours. Illuminated manuscripts of the thirteenth, fourteenth, and fifteenth centuries would furnish an immense number of exquisite designs for this purpose.

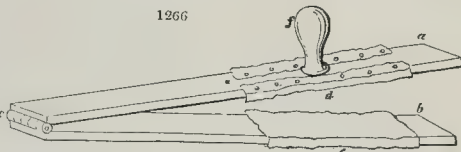
The observations will apply to modern carpets, the patterns of which are generally shaded. Nothing can be more ridiculous than an apparently reversed graining to walk upon, or highly relieved foliage, and perforated tracery for the decoration of a floor. The ancient paving-tiles are quite consistent with their purpose, being merely ornamented with a pattern not produced by any apparent relief, but only by contrast of colour, and carpets should be treated in precisely the same manner.

Turkey carpets, which are by far the handsomest now manufactured, have no shadow in their pattern, but merely an intricate combination of coloured intersection.—*Pugin.*

KNIFE-CLEANER.

THE furniture of a cleaning-house, or knife and shoe-house, may either contain a wheel for cleaning both knives and shoes, and all moveable parts of grates—such as we shall hereafter recommend as particularly suitable for inns—or the very simple knife-cleaner, fig. 1266, may be

1266



"In using it, lay powdered Flanders brick, or any similar dust, on the lower leather; shut the boards together, lay the left arm on the upper board, holding the handle, put the knife, well wiped from grease, between the leathers, and four or five rubs backwards, not sideways, will produce a beautiful polish on both sides. The shoulders and back may be polished by rubbing on the part of the leather turned over." This knife-board has been found to give great satisfaction.

No machine for beating and brushing clothes has yet been invented, but it would be easy to make such additions to the knife cleaning machine above mentioned, as would not only beat and brush clothes, but beat carpets. Already a machine for scouring floors has been patented in America; and we sincerely desire that it may soon come into use in this country, as well as the other machines mentioned: for there are few labours more unsuitable for women than scouring floors, cleaning grates, and wringing clothes. The American scrubbing-brush is to be worked backwards and forwards by a lever, operating in the manner of a pump-handle. A flat board, on which the operator stands, is placed upon the floor on castors, and from this rise two uprights to sustain the pin that is the fulcrum of the lever. To the lower end of this lever the scrubbing-brush is attached. It would be easy to modify this machine in such a manner as to render it fit for rubbing tables.—See *Mechanics' Magazine*, vol. xv., p. 109.

OXFORD ARCHITECTURAL SOCIETY.

At a meeting held at the Society's room on Wednesday, the 22nd ult., the Rev. the Master of University College in the chair:

NEW MEMBERS ADMITTED.

Sir Stephen Glynn, Bart., M.A., of Christ-church, M.P. for Flintshire.

The Right Hon. W. E. Gladstone, M.A., of Christ-church, Vice-President of the Board of Trade, &c.

Rev. G. Moberly, D.D., of Balliol-college, Head Master of Winchester School.

Rev. Edward James, M.A., of Christ-church, Prebendary of Winchester.

C. R. Mackarness, Esq., Merton-college.

Rev. E. T. Richards, M.A., of Corpus Christi-college, of Farlington Rectory, near Havant, Hants.

Rev. E. C. Swainson, M.A., of Worcester-college.

M. Buckle, Esq., Oriel-college.

PRESENTS RECEIVED.

The Temple Church; an Account of its Restoration and Repairs. By William Burge, Esq.: presented by the author.

A Few Remarks on Pews. By J. W. Bowden, M.A.: presented by the author.

View of the Abbey Gateway, &c. at Bury St. Edmund's. By L. N. Cottingham, Esq.: presented by the committee for its restoration.

Views of the Rectory-houses of Bressingham, Norfolk, and Wetheringsett, Suffolk. By S. S. Teulon, architect: presented by Mr. Teulon.

Mr. Freeman, of Trinity-college, presented some pen-and-ink sketches of St. Cross Church, Milton, Northamptonshire, and gave some account of the church, which is in the decorated style. The lower part of the tower is square, the upper part octagonal and much smaller, from which arises a dwarf crocketed spire. At the east end of the south aisle is an elegant wheel window, set in a square, with the spandrels open and foliated. In the north aisle is a window of flamboyant character. The pillars of the nave are remarkably light and tall.

The Chairman called the attention of the members to the casts of some very beautiful early English sculpture from Lincoln Cathedral, lately received, and pointed out some of the distinctions between this carving of the best period and that of after ages, as well as modern imitations, in which the boldness and spirit of the early sculpture are generally frittered away and lost, by the too great minuteness of the carver, and that beautiful roundness of the edges which is observed in all the old work is also lost in modern imitation. He took the opportunity of mentioning Mr. Brathwaite's invention of carving in oak by means of iron moulds burnt in and then cleared with the chisel, the effect of which is in many cases so good that it is hardly possible to detect it from old work; and he thought this invention stood on very different ground from any sort of composition, as we here have the solid oak, only worked by a different process, which is much less expensive than if done entirely by hand. Several very good specimens were exhibited, lent by Mr. Theodore Jewitt for the purpose.

Mr. Sewell made some observations differing from the Chairman's view, and pointing out that as under-cutting cannot be produced by this

process, much of the beautiful effect of light and shade in the old work is necessarily lost. He mentioned that the Earl of Dunraven has had a great deal of very good oak-carving executed by the peasantry on his estate in Ireland, whom he had trained and taught for the purpose upon an efficient clerk of the works. He much preferred this method to the employment of machinery, and as one advantage, pointed out the much greater variety of patterns that can be obtained by hand over any moulds.

The President of Trinity made a few observations in support of the Chairman's view, and thought that, provided the effect is the same, the process by which it was obtained is a matter of indifference, and nothing could well exceed the beautiful effect produced in some of the specimens exhibited.

The Rev. W. L. Hussey, of Christ Church, presented the Impression of a Brass, with a curious Latin inscription, in explanation of which he made a few observations: the title of "Armiger Domini Regis" occurred in the inscription, with the precise meaning of which he was not acquainted. The President of Trinity explained it as an "Esquire of the King's body-guard," and observed that it is of frequent occurrence on inscriptions of the 15th and 16th centuries.

The President of Trinity also presented a ground-plan of Garsington Church, which he had made in pursuance of the recommendation of the chairman of the last meeting, and hoped others would follow the example.

The Chairman also wished to direct the attention of the members to a work just added to the library,—"The Churches of Lincolnshire, by S. Lewin, Architect," now publishing in monthly numbers at a very cheap rate, and containing a good deal of information which may be useful, that district being proverbially rich in churches, especially of the decorated style. Some very beautiful examples have already appeared in this work, and though it is not got up so well as might be wished, yet, considering the smallness of the price, it is very respectable. He also recommended "The Churches of Yorkshire" to their attention, and was glad to observe that another work of the same kind,—"The Churches of Kent," is announced to appear shortly; he thought that all these undertakings should be encouraged, that they are a favourable sign of the attention which has been awakened to our country churches, and that each person should study principally the churches of his own neighbourhood. He also mentioned that some of Mr. Rickman's sketches of the tracery of windows have been etched by a member of the society, and are now published on single sheets, each containing from eight to twelve window-heads, and the series will be continued, if these are found useful.

LICHFIELD SOCIETY FOR THE ENCOURAGEMENT OF ECCLESIASTICAL ARCHITECTURE.

THE first annual meeting of the members of this society was held on the 5th of January, at the Diocesan School-room, at Lichfield, and was numerously attended. The chair was taken by the Rev. Prebendary Gresley, upon the motion of the Hon. and Very Rev. the Dean of Lichfield. The report of the proceedings of the committee for the past year was read by Richard Greene, Esq., F.S.A., Hon. Sec.; and we are glad to perceive thereby that, although in its infancy, and with but small present available funds, the society is stimulating the desirable object of church restoration upon correct principles, and is, in conjunction with sister societies, strenuously resisting the gradual destruction of our venerable churches by time, and that great innovator, ignorance. We trust the day is arrived when the beautiful remains of those fabrics raised by the piety and skill of our forefathers, and venerated by us, will be rescued from the tender mercies of agrarian churchwardens, and own the fostering care of better guardians.

The report was followed by an address from the Chairman, in which he set forth, in his usual plain and felicitous style, the leading characteristics of Gothic architecture, from the earliest period to its abasement in the reign of Elizabeth, and offered some strictures upon the cheap church building of modern times.

Thomas Johnson, Esq., followed the chairman, with some most excellent practical remarks upon the care to be observed in effecting what are termed restorations. He admitted the great utility and advantage to be derived from the combined talent and inquiries of such societies; but, as a practical architect, he held out a warning to their members to remember the ancient adage, "*Ne sutor ultra crepidam.*"

The proceedings were concluded by the honorary secretary, Richard Greene, Esq., who read a paper upon the sculptures of Norman architecture, in which he advanced the somewhat startling opinion that our earliest Christian church embellishments are essentially pagan, and of idolatrous origin. He supported the proposition with great ingenuity, and most interesting facts, elucidating the paper throughout with numerous drawings.

ENGINEERS.

In a work recently published, under the title of "*Railways, their Uses and Management*," containing much interesting matter on the subject of railways already executed, as well as those in course of progress, we find the following passage having reference to some of our leading engineers, which will doubtless be perused with interest by our readers:—

"Most happy should we be if the undertaking had to depend for its success in Parliament upon its own value, without the intervention of counsel, as not only would time and money be thus saved, but the real merits of the proposed work would be brought forward more honestly, or if it had not these pretensions and that recommendation, it would lose a false bolster and fall. It is well known that the skill and science of the different engineers are frequently useless to them, with all their assured knowledge, by their failure as witnesses. Thus George Stephenson is never put into a witness-box, if his friends can keep him out; he has not the temper for cross-examination by persons he considers ignorant of the subject, and with his opinion of himself, it would be impossible to find any person he would submit to. No man, however, deserves more credit than George Stephenson for the manner he has advanced himself in the world, which is in itself no greater proof of his natural abilities than his acknowledgment of it is of his real unaffected excellence of heart—he is however a theorist of the wildest kind, and until he became a coal-owner, felt that the first things in the world were railways, and the first person George Stephenson. He has, notwithstanding his energy and knowledge of coals, failed to introduce them into public use at a reduction in their price, as he promised he would, and no inland coal will do so, however much its introduction into the metropolis may interfere with the sea-borne supply. His railways are not always the best or most profitable, and we think he has made a mistake also in becoming chairman of any

railway company. Robert Stephenson, with a higher education, is more calm and self-possessed, and makes a better witness. Walker, sharp, quick, and clever, may always be relied upon for all he undertakes. Sir John Rennie, however possessed of all the knowledge on the subject, cannot stand the badgering of counsel, and forgets his professional service in his gentlemanly feelings. George Rennie is too retired and modest to make known his extensive information and great mechanical knowledge under the ordinary examination of counsel—he must be drawn out, and thus makes an honest, conscientious, and intelligent witness. Young Brunel is clever and self-possessed, and would not easily be put down. Locke's testimony would look hard, matter-of-fact, and solid—economical in all its parts. Giles is hasty, anxious, but determined not to be put down; Cubitt, quiet, calm, and firm. Vignolles, energetic and fiery, looking the very personification of some new and wild theory, to be put into immediate practice by his instrumentality, would rather astonish his audience by his bold expostulations and warm support of them, than convince by his arguments and facts, except in matters of detailed and minute expense in practical experience—his evidence has, however, been largely counted on by his employers. Braithwaite is a clever machinist, with an inquiring mind; and, in our opinion, has been spoiled by being made a railway engineer; and in this latter position his only experience is the Eastern Counties line, and his declaration of the correctness of his original estimates for the whole line to Yarmouth, made at a public meeting a year and a half after obtaining the act, will hardly add to the confidence of the public in his future undertakings; his self-opinion and readiness will always support him, whether as a witness or advocate. Bidder is, perhaps, the most perfect witness; for though Raistrick has the hardest mouth of any, and the most imperturbable determination not to be beaten, yet Bidder, with all the same pertinacity, has, in addition, an effrontery of manner (however unintentional) which defies the most resolute opposition; Gibbs is honest and straightforward, and having bought his experience on estimates somewhat dearly on the Croydon, would never again deceive himself, or others."

FREEMASONS OF THE CHURCH.

The Fifth Monthly Chapter of the College held on the 14th inst., at Warwick-house, Gray's-inn, the Rev. F. P. Pocock, B.A., in the chair, was numerously attended, and the following business was transacted:—

A proof on vellum of the Fellows' St. George Election-diploma being presented, the illuminated printing of the diploma was ordered to be carried into execution, and one copy thereof to be given to each fellow, and a duplicate on parchment to be preserved in a book with the college muniments.

The Architectural Associates' Election-diploma was ordered to be printed, and one copy thereof on paper to be given to each associate, and a duplicate on parchment of every copy to be also preserved with the college muniments.

A deputation was appointed to fill up the diplomas, and the college seal was ordered to be engraved.

Messrs. F. East and F. Leake were elected architectural fellows; Messrs. F. Lloyd and J. Catchpole were elected lay-fellows; the honorary fellowship was conferred on Sir H. Fleetwood, Bart., M.P., Messrs. — Jerdan (editor of the Literary Gazette) and H. Shaw, F.A.S.; and J. W. G. Gutch, Esq., was appointed meteorologist to the college.

The discussion of the laws was then commenced, the grades of membership being fixed as follows:—1st, Architectural-fellows; 2nd, Architectural-associates (under twenty-four years old); 3rd, Clerical-fellows (ordained clergymen of the Church of England); 4th, Lay-fellows; and 5th, Honorary-fellows. The monetary contribution was set at half-a-guinea entrance for each contributing member; a guinea and a half per annum from architectural fellows, or twelve guineas at one time, in lieu of all future payments; and from all other contributing members one guinea per annum, or seven guineas at one time from clerical fellows and lay fellows.

The chapter being, from the lateness of the evening, unable to proceed farther in the discussion, or to complete the elections, adjourned till eight o'clock in the evening of Tuesday, the 28th inst.

TO THE EDITOR OF THE BUILDER.

Bristol, March 14th, 1843.

SIR,—To receive a boon from any source, and not to return thanks for the same, I have no doubt the world would pronounce ungrateful,—I mean to say, that portion of society that have the power of reason and justice to bestow praise where merit shines forth in all its splendour, as the morning sun does through the hovering mist, spreading its genial warmth alike around the worthy and unworthy of mankind, making all bright and gay that would be otherwise dark, cold, and gloomy.

The boon I speak of is your new work, and most heartily do I hope that you are fixing your foundation on a rock that will last for ages, when time, and things of time, have passed away.

I consider, with many others of our ancient city, that a work such as *THE BUILDER* has been long wanted; it will be always useful as a book of reference, one always suited to lay before the building gentry; for thousands of pounds are spent by our merchants for articles that are made in London alone, or goods of superior quality. This will show at once the advantage of persons in professions, trades, and callings advertising in the work, likely to become the companion of the counting-house, workshop, and office. It is frequently the case that country people are at a loss to know the town price for all useful articles, and under the present mode of transfer by steam, it is a secondary consideration as to carriage.

To illustrate what I mention, I will simply refer to two or three instances. First, I was rambling along the streets of this city a morning or two back, and by chance I strayed into the church of St. Paul's, Westminster, where some tradesman had just finished a handsome altar-piece; the design is in the decorated Gothic, for the church is a Gothic one. The carving is of exquisite work; all the spandrels are foliated, and the buttresses are terminated with crocketed pinnacles, and two handsome canopies, with finials and hexagonal ribs, or net-work, cover the tops. But what attracts the general attention most, is the catalogue plates; they appear like tables of brass, and the letters are highly finished. The characters, I believe, are what professional persons call illuminated, and are, in fact, the first in the west of England; and if the maker's name were known, I think they would become general. They were manufactured in London, I cannot say by whom. The altar-piece is done in Painswick stone of a very fine texture, and as a modern piece of architecture, I should say, is the best of the decorated Gothic style in this city. I remember seeing, some time back, at a little distance from this city, a roof constructed of paper, and I believe the person that constructed the same was a Londoner. How useful it would be to have a reference to all London improvements and inventions, the names of such inventors, and the cost price attached. I could say much more on the subject, but I have intruded too long already on your attention. My sincere wish is, that I could render the slightest assistance to your praiseworthy work; and I have no doubt but it will meet the encouragement it deserves, for I am convinced it will rectify abuses, disperse the gathering clouds of ignorance, and expel the vices of drunken tradesmen, who frequent the taverns more for information and company than from vicious habits. Happy am I to say that such a book as *THE BUILDER* will, I trust, have the desired effect, as the price is within the power of the most humble tradesman, of which I am one.

With every respect, I remain, gratefully,

A MECHANIC.

Miscellanea.

NEW BRIDGE OVER THE RIVER WEAR.—This stupendous bridge, which connects the city of Durham with Newcastle, South Shields, and Sunderland, and is destined to form a portion of the great chain of railway to Edinburgh, is built on the spot originally selected by Mr. Telford for a bridge on the line of the projected great road to the north; it was designed by Messrs. Walker and Burges, after the model of Trajan's bridge at Alcantara; and, with some modifications to suit the locality, has been constructed under Mr. Harrison, the engineer of the railway, by Messrs. Gibb, of Aberdeen, whose perseverance and skill in the execution of the structure, and in contending with the difficulties of it, are highly praised. The bridge is entirely constructed of freestone, from the Peasner quarries, close adjoining; and as a plain, simple structure, containing boldness of design with excellence of execution and economy, rivals any other work of the kind in Great Britain. It was commenced in 1836, and finished in 1838, occupying 714 working days, and cost about 35,000l.

LOCK HOSPITAL.—The old building has been entirely pulled down, and the new and handsome edifice now in course of erection in the Harrow-road is very nearly completed.

THE BUILDER,
NO. VII.

SATURDAY, MARCH 25, 1843.

It is most consolatory to us, in that course of enlarged experience which the exercise of this our vocation has called us into, to find so many evidences of the right selection of the period we have chosen, and so many circumstances in agreement with our intentions, presenting themselves on every side. Nothing but the standing in the position in which we do could enable us to form a correct estimate of the real state of feeling of the different parties in the community towards each other; by placing ourselves midway between the employers and the workmen, between the privileged and wealthy classes and those who have to labour for their competence, we are enabled to test in a great measure the disposition of each, and it is a great happiness to us to find that the good opinion we had previously entertained of both is being strengthened and corroborated. We are convinced that the wealthy and the working classes only want to be brought to a better knowledge of each other, to revive the old feeling of good fellowship which formerly existed between them. But the barrier of the middleman, or of that class of middlemen, whose only feeling seemed to be for self, caring not one groat for, nor sympathising one tittle with, the two great classes whom his intervention separated,—this barrier, and the false interpretations which it promoted, had threatened to alienate the two great dependent interests, and the working man was becoming estranged from his natural leaders and protectors.

To have listened to the auguries between them, one would have thought that a cordial hate existed, instead of a sincere affection; but what do we find to be the case? The gentry and clergy, on the one hand, exhibiting the greatest zeal and interest in the condition of the working classes, and the working classes eagerly responding to them in a spirit of grateful yet manly fidelity on the other. Witness of the first, the efforts now being made to turn attention to the improvement of the labourers' dwellings—but, above all, that sweeping down of distinctions in places of worship; hitherto it has only been at elections, and in the betting-ring, that it was said all distinctions were levelled, but now we see the lovelier influence of art instrumental in opening a worthier field; the discussion of correct principles of church architecture has led to a sequence of proprieties as to the occupation of our churches, and the doom of the system of separation and exclusion is sealed; pews and select places are to be abolished, the rich and the poor are to be equal brethren before the altar. Depend upon it, this will be followed by a practical brotherhood out of doors; but we need go no further than to the evidence which our own working has produced—the letters that we have received from all classes breathe the most generous and friendly spirit, and simply because we have set up an organ for the advocacy of the just interests of all classes: the rich admire it for the sake of the poor; the poor cling to it because it exhibits their virtues to those above them, and shews how worthy they are of affection and confidence.

Another subject for congratulation with us is the growing taste for a style in Art, which promises to provide abundant employment

for our increasing population, and removes from us the fear that infected many as to the threatened inroads upon the labour province; it is for us to cultivate it, and by so doing to solve a problem which statesmen and political economists are at fault in, or beaten with. Public opinion, it has been said, is omnipotent, and public opinion in matters of taste will of a truth be found to be so; let that opinion and that taste be moulded into the channels of variety and originality in ornament, and we have a guarantee of an extension of the field of labour to an incalculable amount. We have lately looked on the new Catholic Church of St. George's Fields, building under Mr. Pugin, and our gratification has been excessive to witness the beauty and variety, yet perfect affinity of every bay of the exterior side of the church. Every window differs in the line, though harmonising in the expression of its tracery, and the exquisite perforated parapet is regulated in the same manner. Let but this taste prevail, let each compartment of a building, and each building, present this feature of unique varieties, and art and artists have nothing to fear. Then, in the painting of our edifices, public and private, in the staining of glass, the frescoes, the carvings, the encaustic tiles, mosaics, why are not all these to be pursued and cultivated as of old? They are to be so; and we direct the attention of every youth, and every artisan with the hope of days left in him, we direct them to this, and implore them to make a timely and an earnest application of their faculties in preparation for the forthcoming change.

We think it of great importance to our readers to call their attention to an invaluable means of their attaining that proficiency as draughtsmen, designers, and modellers which the spirit of our preceding remark points out the necessity of. For many years it has been the reproach of this country that so little was done under the auspices of government for the promotion of the arts of design as applicable to the decoration of buildings and to our manufactures. At length, however, the British Government has set about it in right earnest, and in a spirit of liberality that contrasts most extraordinarily with its former apathy and exclusiveness. We were at the Somerset House School of Design yesterday, and it is really most exhilarating to see that which is now placed at the disposal of the youth of our country, to enable them to pursue the study of the art of Design, and acquire a skill in artistic delineations and in modelling. A large and noble suite of rooms is set apart for their use; it is crowded with objects of instruction—casts and designs; and already, we understand, some 300 pupils, boys and young men, under the training and superintendence of first-rate masters, are availing themselves of these unheard-of advantages at the rate of 4s. per month, for five hours in every day except Saturday, which is four hours, and at 2s. per month for the evening classes; but the morning pupils have the privilege for the 4s. payment of attending the evening classes as well!—A council of gentlemen, eminent for their professional and amateur taste, preside over this great and important school, assisted by Mr. Dyce, the professor of architectural embellishments to King's College.

Now, we tell every young man who has the opportunity, and who requires to know any thing of the arts taught here, that he is guilty of a gross injustice to himself, and is most criminally negligent of his own interests, if,

unable to procure it by other means, he neglect this noble opportunity. Branch schools have been already established in York, Nottingham, and Sheffield, we believe, and are intended for several other cities and towns, and we enjoin upon the inhabitants of all those places where the chance is vouchsafed to them of having these branch schools, to bestir themselves to secure for their youths the immense advantages which these institutions are calculated to secure to them. We shall enter into farther particulars at our first leisure, and, so far as the facilities may be accorded to us, will give the most practical information for our friends and readers.

MOST IMPORTANT INVENTION AS
AFFECTING ARCHITECTURE.

We gave, in a former number, a paragraph respecting the new method of galvanizing iron, in other words, protecting it from rust; we now resume the subject; and we beg to call the attention of our readers, in the most impressive terms we can command, to this grand revolutionizing agent in the matter of style in architecture. Thank God! we may say, we have no style, and therefore nothing to be knocked down by it; a revolution, therefore, under such circumstances, is not to be dreaded. For three centuries we have been flitting about, reviving old styles, but settling upon none, as indeed was certain to be the result, for nations do not make steps in retrogression. The Greek and the Gothic had been worn out, and various compounds had been tried, and compounds upon compounds; a premium offered for a new style, or a new order of architecture, as it is termed; various abortions have been produced, all failing, because of the misdirection of men's ingenuity, seeking to re-work a principle that had been fairly exhausted, and forgetting, or it never occurring to them, that the creative origin of all styles has to be sought for in other elements than mere reproductions. The horizontal structure and style in marble and stone had been carried to its boundaries by classic nations; the arch had grown out of it, and through all the phases of human ingenuity had run its existence, from the acutest point of the lancet to the most depressed oblique of the Tudor era; aye, even to the horizontal lintel again, as though extremes had met after ages of wanderings, and confessed an end of their respective cycles. Marble, stone, brick, timber had done ample service to both styles, in the respective modes of applying these materials; but iron, the deep-drawn product of a new quarry, to England what Pentelicus was to Greece, and Cararru to Italy, and what her own ancient forests of timber and surface quarries of stone were to her,—Iron, from its deep embowellings, with its kindred and associate tributary, coal; these, under the guidance of new workings of chemical and mechanical science, have been evoked to create, as it were, a new world, another hemisphere of art, and all the forms, essentials, and characteristics of the old world and its products became inapplicable, or only so far applicable as to serve for a basis of knowledge and a groundwork of principles. The mode, manner, or fashion is destined to a change as signal as ever marked an era—the transition has been nearly run through, and that, one of chaotic and versatile imaginings or imitations. But for a little time longer shall we be doomed to hear of the Greek, Roman, or Gothic style in modern buildings—it is a solecism in expression. In England, at least, we shall hear of what we ought to hear, an English style, or more reasonably still, we may not hear of style at all. Who asks for a definition of that which defines itself? Adapt your buildings, as the ancients did, to the object or convenience required, to the locality in which they are situated, and to the materials with which you are provided, and, like them, you will not be asking what style they are in. Think you that the subjects of our first Edward troubled their heads with antecedent styles? or with any denomination of their own? No; they would as soon have engaged in building a medley of all styles and eras, as we are doing—running through our copyisms in some quarter of a century, raging vehemently in turns for this or

that fashion of revival. No, their manner was rational and congruous, and ours can only be so by imitating the principle which guided them, and which is eternal, rather than the manner which is varying, and perpetually under the influence of accident or newly developing circumstance.

To iron, then, we look as the determining circumstance in our career as an original architectural people, and are only amused at the simplicity of the objections that are continually being raised by those who are destined to follow in the crowd and not to lead in the movement. At present a dozen little knots of adventurers under their respective leaders create a stir, and compel attention by the vehemence, and we will add the sincerity and the talent, with which they pursue their respective fancies. But there is a quiet progression of a less obtrusive party, whose way is being heralded by the note of successive discoveries, and whose purpose is being moulded in the deep matrix of a calm philosophy. It is not for us to say more for the present, by way of anticipation, but we will just take leave to liken the case to an analogous one within recent experience; we descend from what may be thought high, to humble ground, from architecture to road-making.

A few years back we were being amused, interested, and profited by experiments and plans for improvements in road-making, and McAdam gave his name along with his ingenuity to a system, which, if fairly examined, was little more than a revival of a very old method, or a close imitation of it; instantly a tide of improvement set in, and new lines of road were devised and carried out in every direction; old materials and old methods were adopted, and we congratulated ourselves on a perfect system. No roads like the English roads, nothing so perfect—but what was going on quietly in and for the service of our mining districts?—An Iron way,—the new material and a new mode, with Iron and Coal at the bottom of it. The railroad from Stockton to Darlington was one of the quiet and comparatively unobtrusive first steps of the movement; the vehement advocates of the *old style*, and the learned and experienced authorities in road economy, marvelled at the ignorance of the new-light men; and even the grave authority of the sages in science was opposed to the admission of the very moderate first results predicated of the new system. What was the case? Why, on the Manchester and Liverpool Railway, the world was startled by more than the verification of all the terms of the problem; and—but we need not dwell upon it—the results are all familiar to our readers. Railways cover, or promise to cover, the face of the country. Iron has thus been at the bottom of a revolution in road-making; it is, in our firm opinion, destined to be at the bottom of a revolution in architecture. Would that we could persuade our class to think so; that, opening their eyes to the consequences, they may be prepared to avert all disturbing and mischievous effects. But we fear it—we fear that, like the road proprietors, coach proprietors, inn-keepers, road-trustees, and others having a vested interest in the old roads and modes of conveyance, that they will be lulled into a false security, and consoled by the assurances of false prophets, and thus suffer a ruinous amount of damage; while the country itself has experienced a disruption which threatens to counterbalance all the benefits that the new system promised, or really had in store for us.

Returning, however, to the question, which will serve us for many turns of disquisition and future illustration, we will content ourselves by saying, that we see, and have long seen, all the objections on the score of detail as to mouldings and members of a structure, vanish into thin air, as we also saw the other objection a frivolity, which grounded itself on the impracticability of preserving iron from oxidation. We always answered, Wait awhile; chemical science will in time produce the remedy, and that remedy we have now detailed before us in a prospectus, from which we extract the following report of an opinion of Professor Graham.

"The effect of zinc in protecting iron from oxidation has been known to chemists for some time. When these two metals are in contact, an electrical or galvanic relation is established between them, by which the iron ceases to be susceptible of corrosion

by dilute acids, saline solution, or atmospheric humidity. It was found in experiments lately conducted at Dublin and Liverpool, that small pieces of zinc attached to each link of a chain-cable were adequate to defend it from corrosion in sea-water. The protection was observed to be complete even in the upper portion of the iron chains by which buoys are moored (and which, from being alternately exposed to sea-water and air, is particularly liable to oxidation), so long as the zinc remained in contact with the iron links. The protecting influence of the zinc could not be more certainly secured than in the articles prepared by the patent process, the iron surface being uniformly coated over by that metal. In trials to which I have had an opportunity of subjecting them, the iron escaped untouched in acid liquids, so long as a particle of the zinc covering remained undissolved. The same protection is afforded to iron in the open atmosphere by zinc, with a loss of its own substance, which is inappreciable minute. The zinc covering has the advantage over tinning, that, although it may be worn off, and the iron below it partially exposed, the iron is still secured from oxidation by the galvanic action, while the smallest quantity of zinc remains upon it; whereas tin, in common tin plate, affords no protection of this kind, and not being absolutely impermeable to air and moisture, the iron under it soon begins to rust in a damp atmosphere. The simplicity and perfect efficacy of the means employed to defend iron from the wasting influence of air and humidity in this process of *zinc tinning* certainly entitle it to be ranked as one of the most valuable economical discoveries of the present age.

"THOMAS GRAHAM, Professor of Chemistry."
University College, London,
April 17th, 1838.

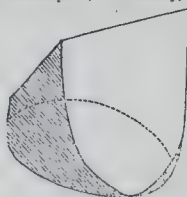
GEOMETRICAL EXERCISES.

TO THE EDITOR OF THE BUILDER.

SIR,—In answer to the problem of Sam Twab, I beg to hand you the following solution:—

Take a round bit of wood, like a cork (or a cork will do as well), let it fit the round hole, and be made equal in height to its diameter, it will fit the square hole; then cut off from two opposite sides, so as to form a triangle, and it will complete the figure, a perspective of which is given below.

Yours faithfully, X.
We have received solutions also from James Pearson, Northampton; W. Musker, &c.



TO THE EDITOR OF THE BUILDER.

SIR,—It has afforded me much pleasure, from the commencement of your excellent periodical, to mark its progress in society, and likewise increase of numbers printed (more especially as a young beginner), feeling convinced that it will greatly assist and forward me and my fellow-students in the fine art of architecture, of which I am an admirer and student. The following problem I beg to transmit to your notice for the solution of your readers, and by the insertion of which you will greatly oblige your wellwisher, and

A YOUNG STUDENT.

March 20, 1843.

A gentleman possessing an estate in the country, in the form of a perfect hexagon, bequeaths it in the following manner:—The triangle marked A to his wife, the rest among his nine children, viz. six of them to have the whole of their portion now, and to be all of an equal size and form; the remaining three to have the rest; theirs to be also equal in size and form, but of such dimension that at the death of the mother, her triangle divided amongst these three shall make each of theirs equal in contents to each of the other six.



[All propositions should have the solution accompanying them.—Ed.]

TO THE EDITOR OF THE BUILDER.

SIR,—May I beg of your intelligent readers to be favoured with a solution of the following proposition:—

Required, to cut a circular piece of wood or card so that the parts into which it is cut may form two ovals.

Yours obediently,

E. M.

ARCHITECTURAL COMPETITIONS.

So much has been said and written on this subject, and so much ill blood engendered by the faulty system of adjudication, that we feel called upon at this early opportunity to endeavour to throw over the troubled waters the oil of peace. We have always contended that there was a way to conduct these matters equitably and satisfactorily. We had in our private circle propounded our plans, and we longed for the time when we could more effectually urge them upon the attention of our brother professionals; we think the time is come, and we congratulate ourselves on its having fallen in our way to dwell upon the following—a short memoir of Lorenzo Ghiberti, which we extract from the last number of the *Illustrated Polytechnic Review*.

LORENZO Ghiberti.

"It was in the year 1401 that the priors of the confraternity of merchants at Florence invited the artists of Italy to assemble in that city and vie with one another in the production of plans for one of the gates to the baptistery of St. John. Many obeyed the invitation, and seven were chosen, to each of whom the priors gave a sum that should cover his annual expenses and indemnify him for the loss of a year's labour, on condition that at the expiration of that time he should produce a panel in gilt bronze, on which should be sculptured, in bas-relief, the sacrifice of Isaac. When the year had expired, thirty-four persons, sculptors, painters, partly from Florence, and partly from other places in Italy, assembled to adjudicate the prize. It was determined that the adjudication should take place in public, and be supported by the reasons, orally delivered, of each judge. Jacobo della Quercia, of Siena; Niccolò d'Arezzo, his pupil; Simon da Colle, surnamed de' Bronzi; and Francesco di Voldunbrina, produced works that were inferior to those of the other three; while Brunelleschi and Donatello, the latter but eighteen years of age, confessed at once the superiority of the seventh, a young man of three and twenty, Lorenzo Ghiberti, the son of Uguccio, a citizen of Florence, the member of a family illustrious by the offices which its members had filled, and their success in the arts, more especially that of carving in gold and silver. Lorenzo had all the tastes proper to its family, and more power than was ordinarily allotted to it. As an architect he was associated with no less a person than Brunelleschi. As a painter he made himself a name by a figure of St. John the Baptist on the window of the church of Or-San-Michele, and the painting on glass of Santa Maria de' Fiori; as a writer he distinguished himself by a treatise on sculpture, a copy of which is to be found in the Magliabechian library.

His fellow citizens did not raise him to the supreme dignity of gonfaloniere of justice; but he died in the rank next to it, as major of the council degli Signori, about the year 1455, and in his 78th year.

We have here two themes suggested to us, both matters near to our heart, both placed in the most favourable light we could wish for—we have the *OLD* or confraternity, and the competitive trial and tribunal; but it is with the latter only that we propose to deal on the present occasion.

How true it is that "there is nothing new under the sun," and if we would condescend to look into the records of past time, we should find a working precedent, applicable with but slight modifications to almost every case of difficulty in modern experience. Here we have a competition carried on in a spirit that engenders no bitterness, excites to no unworthy tactics, degrades no one, and, if possible, elevates the art. How different to the plan pursued now-a-days in this country! We have known many competitions wherein from sixty to one hundred architects have been engaged, many of them for a month, six weeks, and two months, in the formation and production of their designs—bringing to bear upon them all the acquisitions and talent of which they were masters, and if we sum up the aggregate value of these plans measured by the time and labour and outlay absorbed, we might venture to place them at £3,000 to £5,000; well, these plans, the anxious care of so many pro-

professional men, are to be submitted to the decision of—what? not a jury of architects, certainly, not a jury of artists, not a jury of amateurs, but a committee of gentlemen, it may be of highly honourable purpose, but many of them hardly capable of understanding a map or ground plan—gentlemen who would not defraud their neighbours of an ounce in the weight of a commodity, or a yard in the award of his land, but who little think how huge a fraud they are now thrown upon the risk of committing, and which it is a hundred to one but they do commit. Here they have placed before them a number of beautiful designs, things far beyond their powers of production, and yet, strange to say, not thought to be beyond their powers of adjudication. This sort of committee we admit again is frequently made up of most worthy persons in their respective walks of life, who would scorn to do an injury or an injustice designedly; aye, and who would shrink from the discharge of duties for which they considered themselves inadequate; but in the case of architectural competition, without reflection, constitute themselves a jury to determine on the superior artistic merit of sixty to one hundred competitors; not only dealing with the question of property, that is, of every man's absolute interest to the extent of his outlay, and the value of his plans, which may be of many hundreds of pounds, but with his professional fame. The thing is monstrous, and will come to be regarded as such when "THE BUILDER" has outlived a year or two, and become the recording page of disquisitions on this subject. Yes, and men will shrink from the assumption of such power; they will as soon grasp at the reins of the national government.

But we will put the case again; for it is only by constant iteration that great enormities or absurdities are exposed, or that men can be stirred up to the rectification of things.

Recurring to the case of one of these large competitions, we will take the instance of one in particular of the competitions. Say it is a town hall, a music hall, a public school, an Exchange, or the like. Here we have before us one of the ardent and devoted students of a superior profession, one who has spent his three seven years, it may be, in all that labour of research, calculation, trial, in that union of mathematical investigation and practice, with the cultivation of taste which are required to fit him to be the professor of so distinguished an art and science. He has entered into this competition heart and soul, early and late he is engaged in it; his thoughts at every leisure and out of leisure are absorbed by it; he rakes together every particular to bear upon the question; he consults authorities, weighs, rejects, adopts,—brings more intense anxiety, in fact, to bear upon some one point of his composition, than his judges will give to the whole; aye, and even to the whole labours of all the competitors. Well, after two or three weeks of this species of deliberation, more anxious and more constrained to his subject than if there were a reality and a certainty about his success, he next engages in the more mechanical duty of completing his finished draughts upon paper; he goes on labouring with his assistants, bestowing all the care of the practised and the skilful hand, and produces a volume of beautiful drawings and writings, each sheet worth their covering in coin; they are completed and despatched; he now snatches a little repose from his labours, and indulges for the day or two that he knows his designs are in transit, in the first moment of comparative indifference; all the rest is, as we have said, anxiety and solicitude. His drawings arrive at their destination—they are opened out by the irreverent hand of some attorney's clerk, who, with his master, views these productions of the artist's hand and the philosophic mind with much less *gusto* than an engrossed parchment, or even the draft of a lease or bond—the drawings are laid out, and fumbled over by a few privileged committee-men and a little knot of "picture fanciers," or, as they are esteemed, great judges of "pretty" designs; the effects of a previous canvas begin to exhibit themselves; favourites, personal favourites, have their mottoes deciphered, if indeed such process were necessary from its being too well understood beforehand.

(To be continued.)

PROPOSED BUILDERS' COMPANY.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—If I have any foresight of the progress of THE BUILDER, judging that it will be conducted in a gentlemanly manner, I should say that it will be supported by all classes.

Looking at the great bulk of property erected daily and yearly, the thousands of builders, joiners, carpenters, masons, and others existing in this country at all times, I would suggest to your subscribers that a new Builders' Company should be formed on the same principle as the Goldsmiths', and other great important companies now in existence, and whose accumulated wealth at all times affords a relief to thousands in distress, in sickness, and in decrepit old age.

Such a company would, in my opinion, be soon formed and established: THE BUILDER would, by that means, be read in all parts of the United Kingdom. In order to effect this humane society, let a committee be formed, a prospectus issued, and rules and regulations drawn up, and secretaries and other officers appointed, in London and all the principal towns in the kingdom. Such an institution may be like Solomon's Temple: "And the house, when it was in building, was built of stone made ready before it was brought thither." You may command my best exertions in this part of the country.

Leeds.

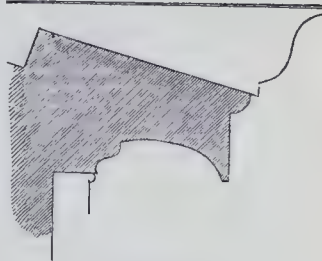
F.

ON MOULDINGS FOR CORNICES.

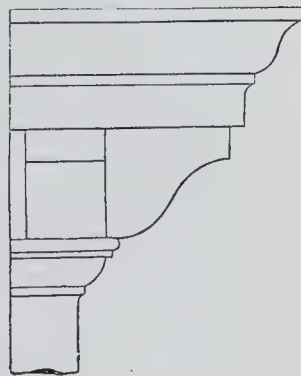
WE have this day, without any fixed system, or a view to consecutive arrangement, laid hold of one subject for illustration, by way of directing the attention of the workman to a beginning point in the consideration of what is proper and reasonable as regards the application and character of mouldings—and the instance we have chosen is that of cornices. A large majority of our ordinary houses display no higher pretensions in the way of exterior ornament than a cornice at the eaves of the roof, or to the shop front, or to the principal door-stead, and therefore to lay down a rule by which the workman may be guided towards correctness in this particular may be a more practical lesson than to dilate upon greater refinements, such as styles and orders, which appertain to structures of greater pretension, and where an architect is expected to preside. We know well that most workmen, in following out their fancy in the selection of mouldings, seldom pursue any such rule as is suggested by the following guiding considerations; but if they did, we are sure the result would be much more satisfactory to themselves, and we need not say, more conducive to a fixedness of judgment or taste—the rule we allude to arises from considerations as to the object required, and the material employed. It is quite clear that a difference should prevail in the case of using stone or wood—the mouldings should be different, and the general form and character of the cornice. Stone should represent its own massiveness, and not be cut or moulded so much as when a lighter material is used. Wood will admit of greater projections, and more play of appropriation—the cornice of wood may shelter the house front more than the stone can be adapted for; but where the projection is large, a reasonable amount of support should be provided in the way of truss, cantaliver, block, or bracket. Stone will require more of this support than wood; that is, the blocks more frequent and more massive; and with attention to these particulars, wooden cornices may be applied equal in beauty and appropriateness to the best in stone—propriety is the first element of beauty.

We shall not further enter into this subject on the present occasion than to give examples of the ancient methods of cornices: the first is from the Greek, the next from the Roman, and the third from the Gothic style. These were all executed in marble and stone, and exhibit much variety; but yet are all of them characteristic of the material used. It may be questioned, however, whether the Gothic cornice is not the least to be admired or approved of in this respect. The fourth example is one that will afford a little amusement, being brought in the way of contrast, and the first that presented itself to our eyes in the way of "carpenter's style" of the modern taste. It will dispose many to smile, and yet we are bold enough to avow that we prefer it,

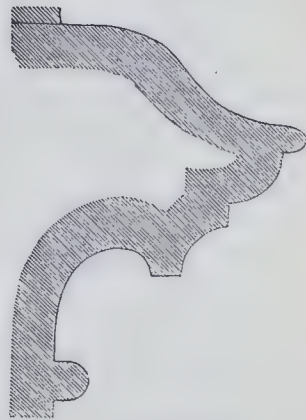
as being in wood, to the scores of repetitions in the same material of massive cornices borrowed from stone exemplars. The rude and inartistic way of moulding will be objected to, but the propriety of application of the slab or plank of timber is as defensible on every ground of reasoning, as that of the stone or marble in the best of the three of its predecessors. The main principle observed is right, and we shall take occasion to pursue the subject on this assumption, and to give a few forms of cornices where more appropriate mouldings are combined.



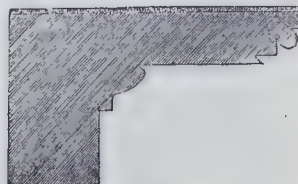
Grecian Cornice.



Roman Cornice.



Gothic Cornice.



Modern Cornice.

PROFESSOR COCKERELL'S LECTURES,
No. IV.

THIS lecture, in accordance with the programme with which the Professor set out, was devoted to an exposition of domestic and villa architecture, and abounded in interest. To the attentive listener it afforded an intellectual treat, interspersed as it was with historical and traditional jottings of the nationalities, manners, domestic customs, and requirements of the ancients; presenting, as it were, a diorama of this division of the art; in which the prominent exemplars stood forth boldly and beautifully in the foreground.

To the Eastern origin of the great nations of antiquity, the requirements of their climate, and the accumulation of knowledge of which they were common heritors, may undoubtedly be traced the manner and peculiarity of arrangement which extended to domestic architecture. The descriptions of the luxurious villas of the wealthy Roman patricians were vivid and interesting. That of Hadrian was instanced by the Professor, as "the depository, within a wall of ten miles in circumference, of all the acquisitions in skill, and collections of taste, made by that Emperor during incessant travel of twenty-one years throughout his dominions. The wreck of this gigantic museum, truly Roman in conception and extent, furnished the baths of Caracalla, eighty years after, and centuries since, the Vatican, in some of its most precious adornments." The nineteen villas of Cicero, and the taste for collections in the fine arts, and that of letters and *virtù*, were then introduced; and the epicurean taste cultivated by Pliny in his villa at Laurentum pleasingly described. These are indeed the classical touches which an accomplished teacher only commands, and they were applied by Mr. Cockerell with a tact combining great attraction to an auditory, with relief to the student, from the tedium too often experienced in his attendance at professional discourses.

The Professor, for the sake of continuity, proceeded to notice "the modern villas of Rome, built by the Popes and Cardinals since the fifteenth century, which convey to us some of those graces in which the ancient villas abounded. In these, all the great masters of the revival have displayed their research and ingenuity."

No doubt, the ancient site of military supremacy, and treasury of the world in wealth and art, afterwards equally towering as the patrimony of the Christian Church, did, in effect, stimulate the revival through the munificence of her princely hierarchy. Always intent on vastness and decoration as essentials to the fitness of buildings dedicated to sacred purposes, they had never lost sight of the arts of construction and manipulation, which were cultivated within the cloister, when all without that refuge was chaotic; no sooner, however, had the limitations imposed upon despotism by the increase of population, and that bonding of interests which so largely promotes individual security, been brought about, than we find churchmen to have been amongst the first to encourage styles adapted to the peaceful enjoyments of advancing civilization.

Of the progress of our own domestic and villa architecture, we must give the Professor room to speak for himself, coinciding as we do in the far greater part of his observations and deductions.

"Our own architects of the sixteenth century, encouraged by Bacon, Burleigh, and Wotton, certainly studied these works, and engrafted some of their principles on our Elizabethan Architecture, which adapts itself admirably to our climate and the extent of our establishments. Bacon (*Essays*, vol. i.) describes his idea of a villa with great detail, insisting upon the aspect and the seasons as primary considerations. Indeed, all authorities agree upon this subject, except those of the nineteenth century, and especially the patentees of hot air or hot water apparatus.

"*The Elements of Architecture*, by Sir Henry Wotton, being the *Rules and Cautions of this Art cast into a Comfortable Method*, are amongst the most precious and the earliest in our language. He was long ambassador at Venice, from Elizabeth and James, and seems to have been personally acquainted with Palladio. Domestic and villa architecture are special subjects with him; for, says he, 'every man's proper mansion and home being the theater of his hospitality, the seat of self-fruition, the comfortablest part of his own life, the noblest part of his son's inheritance, a kind of private princedom,

may, to the possessor himself, an epitome of the whole world, may well deserve by these attributes, according to the degree of the master, to be decently and delightfully adorned.'

"In truth, during three centuries the cultivation of this branch of architecture may be said to be peculiar to England, and that, while monumental and palatial edifices are better illustrated on the continent, the constitution of this country, and of the English mind—prone to the salutary retirements of home, the centre to which all its desires and warmest imaginings are ever pointing—have made the English house of every grade the most perfect in comfort and convenience, and the villa the *beau idéal* of individual possession, and the branch of the art in which our country excels beyond all others.

"The compact square villa, after Palladio especially, was introduced by Inigo Jones, and much advanced by the model of those at Genoa, published by Rubens, who recommends them as full of beauty and convenience, and admirably suited to gentlemen of moderate fortune, such as the republic of Genoa is composed of. But the extension of the habits and the requirements of the present day have outgrown the square villa, and we are constrained to build a house beside the villa to accommodate them, with the worst possible effect in the group and in detail; for in vain the plantation attempts to hide it out; an anomalous composition is the result, and we had better have reverted to the Elizabethan mansion, which cast the house and offices into one in the extended E or H, or the French mansion, 'entre cour et jardin,' of the eighteenth century, reserving the centre for the best apartments, and the wings for offices, and the entrances in the angles communicating easily with all.

"The least rational of English productions in this sort is seen in the castellated elevation adapted to this plan—the battlements and dungeon-keeps of Edward the Third upon the Italian villa of the sixteenth and seventeenth centuries. The menacing aspect, the machicolations, threatening hot lead upon the intruders in the distance, are, on the approach, found to be peaceful and harmless; the fortress is accessible at every window, and expresses a security from danger, on better acquaintance. On direct contradiction to its fortified exterior. On entering the baronial hall, where you expect the paraphernalia of chivalry and the chase, retainers and bondsmen, you are addressed by a powdered footman, or may discover a housemaid sweeping the marble pavement."

When speaking of French architecture, the Professor took occasion to instance the liberality with which the palace of the Louvre, and its magnificent galleries and collections, were opened to the people. It is not many years since that an exclusive system prevailed with respect to the British public, highly derogatory in comparison with the freedom with which foreign nations permit their ecclesiastical buildings, palaces, museums, and other collections of art to be visited; a change, however, has come over the temporary possessors and guardians of our national monuments and depositories of art, and we hope to see the time when no restraint, more especially of a pecuniary kind, will be interposed to an inspection, under proper regulation, of every building and collection emanating from, or supported by, the public purse.

"France, until recent times, essentially monarchical and aristocratic, has ever delighted in palaces; and since the reign of Francis I. they have been the most remarkable of Europe. Du Cerceau, Philibert de l'Orme, Mansard, and Blondel, and many able successors, afford us the fullest information on the iconography adapted to these grades. In conception and design, and in many respects in execution also, the Louvre is the most magnificent palace of the world. Situated in the metropolis, and occupying thirty-two acres, its galleries, and museums, and its gardens, form the recreation of the people. The paternal monarch invites them into his courts and vestibules, of which he esteems them the best ornaments, the most familiar and acceptable guests at all hours; participating with them his refinements and his delights, they are endeared and elevated, and the Palace of the Arts and Sciences, a part of the entire composition, and ranging in the axis of the first court, forming the chief object from its windows, assure them of the nobleness of his views for their honour and real advantage. The palace itself, the work of centuries, still unfinished, is the great atelier of artists—the field in which they may exercise their genius for centuries to come in their several works—the great harbour in which talent may find protection and employment.

"A military people delight in pavilions; each apartment was to represent a tent. So in the Tuilleries the line of tents is terminated with two, distinguished by the name of Pavilions de Flore and

Marsan. A maritime people delight in their ships; thus the English apartments convey the idea of 'between decks,' and the larger buildings are often like the man-of-war hulk laid up in ordinary. So in Russia the palaces have the air of barracks; vast and forlorn, they remind the spectator of the plains of Siberia. In Egypt, the Troglodyte excavation was revealed in the temple palace; in Greece, the log-house in the temple structure; in China, still the tent, in its simplest form."

After tracing the domestic architecture of the middle ages to the only referable models—the monastic structures of that period, the Professor reverted to the chronological order of his discourse, alluding briefly to the great works planned and executed by the Freemasons. Of that body, so singular in its constitution, intact in order and regulation, and pre-eminent in talent, we have yet no satisfactory history; the movement going on will, however, presently supply, as far as industry and research can do, this untoward chasm.

"We now enter that melancholy period of history, in which all ancient ideas of human enjoyment were absorbed in loftier and more serious aspirations; and the art during the next 1000 years was employed alone in military and ecclesiastical buildings, by means of the Freemasons. The original institution of that order is traced even to the Greeks and Romans. Numa established the first corporations of architects (*Collegia Fabrum*), together with the inferior *Collegia Artificum*. They were invested with a religious character, and rights of framing laws and treaties amongst themselves. They greatly contributed to the increase of the Roman power amongst the barbarians, as have done our own people amongst the North American Indians, with whom an article of treaty, on their part, has always been to send a blacksmith amongst them. The Collegia were greatly promoted by the Roman Emperors in the rebuilding of cities, in the aqueducts and public works, and endowed with peculiar privileges; as freedom from taxation, holding councils with closed doors, &c. Victor relates that Hadrian was the first to attach a corps of architects to the Cohorts (about 120, A.D.)—an example which the admirable Institution of Civil Engineers at Putney, in favour of our colonies, promises to follow with great advantage.

"But it was at the termination of the eighth century, that the masons of Como assumed their peculiar form of Freemasonry, raised into importance by the patronage of the commercial and zealous Lombards, in the building of churches and monasteries with new materials; and dispersed, after the destruction of that kingdom by Charlemagne, they spread themselves over Europe, obtaining bulls from the Pope, and maintaining peculiar rights and mysteries. Collegia had existed in England, but, destroyed by the ravages of the barbarians, were revived by King Athelstan, who gave them a charter in York (926), the original of which is still to be seen in that ancient city. It cites the Oriental Church, the history of architecture from Adam, with Rabbinical tales of the building of Babel, the Temple of Solomon; Hieram, the Greeks and Romans, Pythagoras, Euclid, and Vitruvius, are quoted; that St. Albanus (300, A.D.) obtained a charter from King Caracaus, with sixteen laws, agreeing with the *corpus juris*, relating to the Corpora or Collegia of ancient Rome. Another precious document preserved to us was written in 1450, under Henry VI., a great patron of Architecture, published in the *Gentleman's Magazine* (1753, p. 417).

"In 1459 a grand lodge was erected at Ratishon, of which the architect of Strasbourg Cathedral was the grand master. Charters and privileges bore added by Maximilian, 1498. In 1717, Sir C. Wren was the grand master in England; but shortly after the ancient fraternity altered its original form and purpose, and became what we now understand by Freemasonry. Wren was then extremely old, and probably unequal to oppose the perversion which then took place, and which, from his known services to the craft, we cannot doubt was contrary to his wishes."

The Professor then went on to say that,

"The middle ages laboured after ancient models with many divergencies: in the revival with the masons, the conviction of their pre-eminence was admitted, and their laws and principles were confessed as unalterable. Nothing then was wanted but to revive them, and the zeal with which this object was pursued was immense. * * * From an early period in the fifteenth century to the present day, we have a race of able architects in an uninterrupted chain, each adding some new grace or invention to the art, on which their merit and celebrity are founded; all these we now appreciate without appreciating their difficulties, and these progressions; or due acknowledgment to each for the contributions gradually made to our common stock.

It must be premised, that the revival found the art under very different circumstances. The growth of liberty in the Middle Ages, magnifying the individual, whose house now became his castle, an aristocracy balancing the kingly authority, the increase of commerce, and many other causes, altered the whole face of domestic architecture; it might safely be asserted, that no palace of the solidity of the Strozzi or of Burlington House, ever existed in antiquity. The remains of the most insignificant temples and public buildings are still found, but the absence of any remains of such solid mansions as those throughout the ancient world might be adduced in proof that the domestic architecture of the ancients was slight and ephemeral. The houses of the ancients, like those of the Turks, were of wood and brick, covered with plaster and with paint. Columns, indeed, abounded, but they were moveables, or furniture, the objects of manufacture at the quarries, and of trade. These reflections were sufficient to shew that the features which the architects of the revival, in their endeavour to restore classical architecture, were new in execution and design, and required a stretch and effort of mind, which we do not sufficiently take into account. Those who may be considered the active restorers of architecture are,—Brunelleschi, Bramante, Alberti, Peruzzi, Serlio, San Gallo, Michael Angelo, Raphael, San Michael, Sansovino, Galleazzo, Alessi, Vignola, Palladio, Scamozzi, L'Escot, Philibert de l'Orme. Many others might be added, but none more remarkable than these. The question occurs, in what particulars were these men great? The answer will always be, that not only were they eminent practitioners, but they advanced their art, and contributed new views and inventions towards its perfection."

The close was devoted to a sketch of the principal works of the architects whose names had been enumerated, and was given in so succinct and useful a form that we shall avail ourselves of it in a future article, referring, at the same time, to some peculiarities of opinion in the discourse, which, on the present occasion, we have not space to enter upon.

WOOLRICH'S PATENT PROCESS OF MAGNETO-PLATING.—Among the discoveries in connection with the mechanical arts which have been made within the last four years, the most extensively valuable are undoubtedly those relating to the coating of one metal with another metal, as copper with gold, tin with silver, &c., by galvanic precipitation. They have already gone far to supersede entirely the older and more mechanical methods of gilding, silvering, and plating. Since Mr. Spencer first led the way, with so little pecuniary advantage to himself, he has been followed by a host of fellow-labourers, each striving to appropriate either the titular proprietorship or the more profitable usufruct of some portion of the new field of invention which he laid open to their enterprise. Patents have been taken out for a great number of modes of precipitation, differing more or less from one another, but all coming under the now universally accepted denomination of electro-plating. Among the more prominent and successful of these patentees are the Messrs. Elkington, who have established manufactories in London and Birmingham, at which the most beautiful articles of manufacture, such as vases, candelabra, tea-urns, coffee-pots, dish-covers, &c., are plated with silver and gold by the galvanic agency. We have now the pleasure of being the first to bring under public notice an equally remarkable application of science to this branch of art which has been just made by Mr. J. S. Woolrich, of Birmingham. It consists in the accomplishment of the same purposes by means of *magnetism*. Every one is acquainted with the property which the magnet possesses of attracting steel needles and of communicating the magnetic property to iron and steel, but it will no doubt surprise most persons to see the same power employed in the art of plating metals. Referring the reader for a full explanation of the details of the process to the inventor's specification, we shall here content ourselves with pointing out some of the more prominent advantages which this process of *magneto-plating*, as it is appropriately termed, appears to possess over electro-plating. Being effected without the aid of galvanism, neither acids nor salts are employed, and there is no wear and tear of galvanic batteries. In fact, when the apparatus is complete, the cost of which is moderate, it will last for an almost unlimited period of time; for as there is no destruction in working it of any of its parts, except by friction, it must be long before any renewal of them can be required. The apparatus, too, may be relied on for working with the greatest certainty and regularity, in both which respects the galvanic battery is greatly deficient. The facility with which it may be managed is also remarkable, the same machine being capable of plating articles from the size of a pin's head to that of a candelabra.—*Mechanics' Magazine*.

A WALK THROUGH MR. BIELEFELD'S MANUFACTORY OF PAPIER MACHE.

WHAT a fertile theme of discussion and disputation does this suggest to minds disposed to analyse and to criticise, who enter into the investigation of every subject, neither blinded to its defects, nor wedded to it "for better and for worse." We frequently feel thankful that we have by education and other circumstances been so thrown into contact with men and things, as to be able to draw a line for ourselves between the partialities and prejudices of the mere partisan, to see good where he denies its existence, and detect the evil which he is in no disposition to recognise; this may and does subject us, 'tis true, to an occasional temporary alienation of friendly feeling, and puts us in the position of the impartial arbitrator, who incurs the dislike of both those whom his judgment is directed to serve. Time, however, removes his clients from the exciting and disturbing influences of mutual hostility, and they both agree then in paying that honourable tribute of approbation which the efforts of their friend who dared to be honest between them entitled him to. So we are resolved to hold an even balance, as far as possible, between parties and interests, and to trust to time to test the merit and the value of our impartiality.

It is in this spirit that we approach the question before us; neither the arguments of the plasterers nor the putty-composition ornament makers on the one hand, nor the revilers of what they call "*cheap imitations*" on the other, shall deter us from looking into what we think worthy of attention, or influence us to suffer the reproach of ignorance to attach to us, for fear of offending any party.

That this subject is worthy of attention, it is only necessary to put our heads within the doorway of Mr. Bielefeld's show-rooms and manufactory to be convinced. One glance will settle this point—and although the collection and display is, with so many articles, necessarily of a mixed and medley character, there is still enough in the way of arrangement to excite emotions of pleasure and delight as we steadily turn from one series of enrichment to another, and contemplate these lively representations of the beautiful details of ancient architectural ornament. If it were only of value as a book, so to speak, in which the all but perfect reality of far-distant and widely-scattered embellishments were vividly portrayed—more vividly of necessity than the best penicillings, and still more so than the best descriptions of the pen—it would be deserving of our commendation; but when we consider the influence it must have on the promotion of a national taste; that, carried to every man's door as these copies of the best exemplars are being continually, and only requiring to accompany them the interpreting voice of counsel and instruction, to make them the best agents in the schooling of our artizans as to principles of design; we say, when it is considered in this light, we are sure it will come to be regarded as we regard it, as one of the most important institutions which private enterprise has set up in aid of that branch of ornamental art to which it refers.

The facilities which this manufactory presents for indulging in the taste for ornament, at a time too when this taste is confessedly at almost its lowest point, is to be regarded in every light as an advantage. The taste once formed, it expands its means of gratification, and, by degrees, turns to the realization of beauties similar to, or suggested by, the cheaper fabric, in more costly and durable ones. The wooden hut led to the marble temple, the chaplets of natural leaves and flowers, to those in silver and gold. Art steps forward in this way, in simplicities, and ascends through these to greatness and dignity.

We would carry a knowledge of this manufactory into every country builder's house and workshop, and we propose to ourselves to do as much as we have time and space for in directing him in the application of it to various uses. Little experiments in decoration may be easily instituted in the parlour of his own cottage, and from that he may essay to bolder attempts in the superior village house, the parsonage, or "the hall." Cornices that he would never think of setting about in plaster, may be added, that is a frieze upon deal, and painted, and a soffit, both with most elegant ornaments; slight bed or cornice moulds, or broader enrichments, may be placed in the angles; the

doors and door-case mouldings may be of the enriched character "planted" in. Picture frames in permanent panellings, after the manner of the old wainscoting, or otherwise, may be indulged in at an insignificant cost; on these points, however, and numerous others, we shall take an early opportunity of giving drawings and examples. We have an ample store to draw from in this manufactory and the published book of Mr. Bielefeld's, and we are sure we shall render considerable service to our country friends by rendering them more familiar with both.

(To be continued.)

NEW CEMENTS.

I HAVE for many years past been induced to experiment on the best mode of making cement, to join wood, glass, china, &c. Amongst other works, I had to "glue" the parts of my artificial shafts for my apparatus for flying in the air by purely mechanical means, in which I so far succeeded, as to form shafts 24 feet long, and weighing only 3lbs., that would support my weight suspended from the middle. This was in 1824.

I also endeavoured to form a cement much stronger than glue, and indissoluble in water, for joining parts of fishing-rods, dozens of which I have made for my own use, far superior to those of the trade. White of egg and oyster-shell lime make a very good cement; but the best was a basis of shellac. This I united with another substance; and that you, as well as Mr. Joiner, may judge of its adhesive power, I will mention a fact. In 1833 I purchased a huge globular bottle, called a tar-bottle, for the purpose of forming it into a vase, in which to keep gold and silver fish. To suit it for this purpose, it was necessary to cut off the neck, so as to form an aperture of, at least, six inches diameter. This I accomplished in the well-known way of winding round it several turns of string soaked in spirits of turpentine, then setting the string on fire, and throwing on it a bucket of cold water when the flame is about to expire. The separation instantly takes place cleanly where the string was burning. But in this case I used too much turpentine; some drops ran down the sides and caused several vertical cracks. To remedy this error, I wound round the upper edge of the glass globe a long piece of silk riband, steeped in the compound shellac cement I above allude to. The vase remained exposed to the weather and rain during two months in my garden, but I observed that the riband firmly adhered. I took it into my head to try its state upon the glass. Upon tearing off a part that touched the glass, numerous scales of glass were brought away, and adhered to it like scales upon a fish!

I then placed a joint of a fishing-rod, joined with this cement, in a water-butt. After a week's immersion the cement was as firm as ever, without any binding over the joined part, or any varnish.

So much for marine cement—except, that I must say, that shellac will not do alone. Its tenacity is wonderful in a straight pull, but as your intelligent correspondent, Mr. Joiner, justly remarks, it is somewhat too "brittle." I have opened many a well-corked bottle of wine with a stick of sealing-wax; but if the pull be not quite vertical, the connection breaks.

It is well known that Indian rubber, when once dissolved, merely by heat, will never again solidify, but remain a clammy tar-like substance, without any power of adhesion. I endeavoured to combine caoutchouc with shellac, but did not succeed to my wish, probably from lack of manipulative skill and other means. But the composition which I have above alluded to, which pulls scales off a glass bottle, and is unaffected by the rain for many weeks, will do for all the purposes that I can think of.

For the amusement of your chemical readers, I will mention that I have made an artificial caoutchouc, which in appearance and elastic feel cannot be distinguished from the real, but it is not quite insoluble in water. It is thus: Dissolve an equal weight of glue in as much treacle, over a mild fire in an iron vessel; then add the like weight of linseed oil. This mixture will soon amalgamate, and the product will be such in appearance and elasticity, as to make anybody swear that it is caoutchouc.—COLONEL MACERONI, in *Mechanics' Magazine*.

THE OLD CHURCH OF ST. MARIE'S, ISLINGTON, RESTORED.

This plate was prepared to accompany our second notice of Mr. Pugin's work, but the great length to which the lecture of the Rev. W. Drake extends, and its being upon the same section of art—Ecclesiastical Architecture—made us hesitate to so far press the subject upon our readers. The reason of our having selected the accompanying illustration is, to deal with a question which our love of impartiality prompts us to, and, in fact, to put the good which Mr. Pugin's exertions are calculated to bring about, upon a sound and worthy basis. We have prepared a similar block of the new Church, Islington, by Mr. Scoles, and we think that by shewing the two, we shall not be lending ourselves to an injustice, or the risk of committing one. We shall therefore continue the subject next week.



ANGLO-NORMAN ARCHITECTS.

THERE can be no doubt that in England the art of building derived its great stimulus and ascendancy from Norman skill. In the latter country it must have been regularly cultivated, and the gradual deviations from the Roman manner well established; while in Britain, from the departure of the Roman legions, and until the conquest, architecture may be said to have retrograded. No sooner, however, had the policy of the Conqueror begun to be developed, than we find the allotment of the soil amongst his chieftains promptly followed by the ejection of the Saxon prelates from their sees and abbeys, and a general substitution of Norman clergy in their stead; of these several were remarkable for their skill in architecture, and still more so, considering the disadvantages under which they wrought, for the perseverance with which their buildings were carried on to completion.

Of this class of churchmen-architects, contemporary with the Conqueror himself, were Wakyln, Bishop of Winchester, Gundulph, of Rochester, Rimegius of Lincoln, Osmund, of Sarum, and others of inferior dignity; and we may reasonably conclude that their known ability in the art was among the motives for selecting them. Builders they were, not only of churches, but of castles; domestic architecture, in the modern understanding of its appliances to personal comforts and conveniences, was unknown; the nomenclature of grade, was limited to lord and vassal, baron and serf; and now it was that strongholds of military chieftains, and religious edifices arose simultaneously through the land, under the hands of these proficients.

The Norman style comprehended extent, or rather, considering the scantiness of population, vastness of dimensions, but combined with great regularity of plan and structure, and was fully exemplified in the building of the Cathedrals of Canterbury, York, London, Winchester, Rochester, Lincoln, Worcester, Durham, Norwich, Chester, Hereford, and Sarum, with many other important religious structures, and this was accomplished within the strictly Anglo-Norman era, viz., A.D. 1066

to 1189, including the reigns of William I. and II., Henry I., Stephen, and Henry II.

It cannot be supposed that any examples at large exist of Norman architecture, but portions of some of our cathedrals exhibit the Norman impress in characters not to be mistaken, while in the ruins of many of the minor religious houses it is yet more apparent; time is fast destroying these memorials, but the zeal, and we might almost say, affection for early art, of such men as *Britton*, and the labours and works of the Society of Antiquarians, have effectually preserved them from utter oblivion. It is from these sources, in the highest degree authentic, but, from the considerations of time and cost, inaccessible to the majority of our readers, that we purpose hereafter to draw many beautiful examples for their gratification and instruction; but to resume our immediate task.

The proceedings of the bishop-architects seem with respect to the erection of their churches to have been fully consistent with their duties; they commenced by building the choir, and eastern parts, and fitting it for divine service, leaving the nave, towers, and less essential parts to be more leisurely completed. Buildings such as these were required many years of labour, far exceeding in intensity that which modern science aids by its discoveries, and thus several of the original projectors were in the interval removed by death. In the prosecution of the several works by their immediate successors in the see, that is to say under their express superintendence and direction, we have convincing proof that architecture was studied as a necessary qualification for high station in the church. It is probable indeed, that the individuals cited were of the superior class of Freemasons well versed in the science of geometrical construction, that they were in communication with the universal fraternity of that name, and had facilities for assembling the craft in such numbers as might be requisite for carrying on their operations; in no other way can the prosecution at the same time of so many large structures, in a country which must have been comparatively destitute of experienced masons, be accounted for.

Neither was this skill in Architecture proper, only to those churchmen inducted by the Conqueror, but we shall find traces of it during several successive centuries. As an instance, we select from among their first successors, Roger, Bishop of Sarum, or Salisbury, who was consecrated to that see in 1107 (*temp. Henry 1st*). This prelate affords an instance of talent and acquirement so remarkable, as to bear some parallel to that exhibited in after years by William of Wykeham; though with far less of the kindlier affections and munificent benevolence of the latter.

Roger, originally a priest of Caen, in Normandy, appears to have been domiciled in the family of the Conqueror, for we find him exercising the office of comptroller or governor of the household to Prince Henry, afterwards Henry 1st, whose confidant and counsellor he was in all affairs of church and state; having, as chancellor, charge of the kingdom during the frequent and protracted visits of that monarch to his Norman dominions. With Roger of Sarum architecture was a passion; it is recorded of him by William of Malmesbury, the chronicler of the time, that he not only dignified his cathedral with matchless buildings and ornaments, but that, in accordance with the policy of the age, built the castles of Malmesbury, Devizes, Sherbourne, and Sarum. By Mr. Britton the building of the celebrated Abbey Church of Malmesbury is also attributed to him, and we think on sufficient grounds; the ruins still remain, and present fine examples of the Norman manner.

During the reign of Henry, the splendid career of the Bishop was unchecked. His nephews, Alexander and Nigellas, were Bishops of Lincoln and Ely, the latter holding at the same time the high office of King's treasurer; and it is singular that both these prelates were equally intent and active as builders. Alexander completed the Cathedral of Lincoln, commenced by his predecessor Remigius, and it is probable that the towers and portals of that edifice are his work. Nigellus, in addition to ecclesiastical examples at Ely, built also strong castles at Aldrey, Ely, and Newark.

At the death of his patron, Henry First, Roger and his relatives became embroiled in the civil feuds between Maud, or Matilda, the late king's daughter, and Stephen. To Maud, the allegiance of the bishop seems to have been due and pledged, but, cajoled by Stephen, he suffered the time to pass when he might have effectually served her cause, and met his reward from that unprincipled king in the deprivation both of wealth and liberty. For some time his nephews held the fortresses at Lincoln and Ely against Stephen, but were compelled to succumb, and pending these transactions the bishop died about the year 1140.

It may be necessary to notice that the Norman cathedrals of Sarum or Salisbury occupied a site at *Old Sarum*, and were within the line of circumvallation of a castle there; the whole of the erections were raised by an edict of Edward III.

The present cathedral of Salisbury, with the exception of the celebrated spire, since added, was commenced by Bishop Richard Poore, in May, 1220; the choir, opened for divine service at Michaelmas, 1225, and completed under Bishop Giles de Bridport in 1258. The estimated cost was forty thousand marks, a sum equalling nearly twenty seven thousand pounds.

FIRE AT THE COLLEGE OF CIVIL ENGINEERS, PUTNEY.—On Sunday, shortly after six o'clock, a fire broke out at the College of Civil Engineers, Putney, in the students' reading-room, adjoining the chapel. A student sitting in the room gave the alarm. The lampflamer at the bridge seeing flames issuing from the building, also gave the alarm to the neighbourhood, and mounted expressmen were immediately despatched for the London engines; but happily, the night being very calm, the fire was got under with the parish engines, and with the strenuous exertions of the students and inhabitants, before the arrival of the London engines. The damage is happily not very great, being confined to the entire destruction of the reading-room and its contents, and some considerable injury to a class-room of the civil engineering department. The fire is supposed to have arisen from overheating the air-stoves of the chapel. No accident whatever occurred, and there will be no interruption to the business of the college. The building is insured in the Sun, and the furniture in the Hand-in-Hand.

ON SEEKING EMPLOYMENT.

We take occasion to lay down a new method in assisting our friends to employment, knowing that every encouragement is necessary to those who are contending with the difficulties of these times. Many persons, for want of the quality of self-confidence, or of right judgment in such matters, are constantly struggling more against imaginary than real difficulties; they depreciate themselves, or their chance of success, and exaggerate the obstacles to their honest progress in life. Now, while we would urge upon every man the policy, and we may add, the duty, of sticking to any engagement he may have until he is called out of it, or sees a clear way of mending his condition, yet to those who have no option—and there are many whose situations are in their nature temporary, or who, by the accident of circumstances wholly beyond their own control, are driven into the market of labour-seekers, to those we urge a timely and a vigorous policy—to use the phraseology of such matters, we say to them, "Carry your eggs to the best market you can, and carry them quickly."

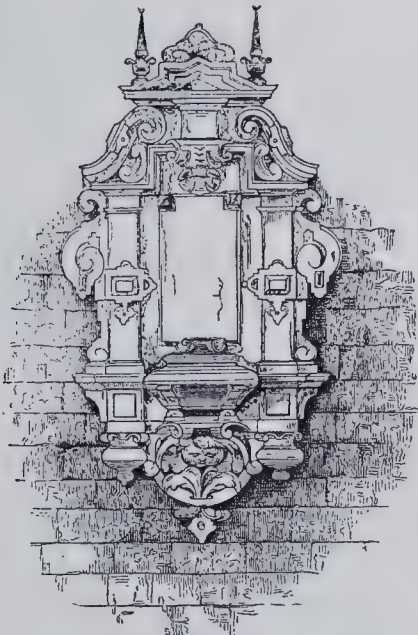
In this active, bustling state of society, we live, as it were, dependent on our own exertion for making known our wants, and if we have any thing to sell, labour or goods, we must go at least half-way, we must go into the market and offer it to customers; it is very rarely they will come to us. There should be no misgivings in this respect; the matter of parading ourselves before the public is a duty, and like the dealer in a market-place, we must produce the article or a sample, and obtrude them before the eyes and upon the attention of those who are likely to buy.

In our first number we had an advertisement from a young man under the signature of A.B., professing to be a draughtsman and designer in the Elizabethan style, and wishing for employment amongst architects, builders, decorators, &c. He has since succeeded in part to his wishes, but we will venture to say, as much from the influence of advice he then received,

which led him to combat his natural diffidence and to see in its true light the duty of exertion and a full avowal of his wants, as much or more from this circumstance as from his own merits and ability as an artist. Depend upon it, it will not do for a man to shut himself up in his lodging-room, or to walk the streets with timid glance or downcast looks, when his bread depends upon the getting into employment. However great his talent may be, it will as ill grow or display itself in such circumstances as the beautiful flower in a cave or a cellar. No man opens his shop in a back parlour; or, if he open in front, neglects the ordinary appliances of display and show. We do not speak of puffing and boasting, and we have no fear of its being so construed by the diffident and the humble. It would take a good deal of such advice as this to make them come up to the mark of bare propriety.

We take the particular instance which we have cited, and thus enlarge upon it at an unusual length; not for the sake of the individual referred to, but to lay down a principle for the guidance of others, and we carry out our views by an illustration. We have not advised it, but we were requested by this same young man to give him the facility for the exercise of his new acquirement in honest worldly wisdom by inserting the accompanying design for a monumental tablet from his hand. We have already said that he has succeeded in mitigating the pressure of his immediate wants, but he is anxious for employment in this way, and in making designs for furniture, decorations, &c., and we most gladly seize the occasion of setting so good an example to many others who by some such exhibition of their ability may have a chance of success which the more obscure circumstances into which they are thrown may appear to deny to them.

We will return to this subject for the purpose of shewing to many others how they may pursue the same principle, though it may be in different ways; and by setting their qualifications before the world, may advance their legitimate interests, and secure the good that is their due.



ON STATISTICS.

The importance of statistical knowledge in a country like this cannot be over-rated, and perhaps there is no country in the world that has paid less attention to it. A crowd of figures have a repulsive aspect to an Englishman, and the facts that depend upon, or are supported by, such figures, are mostly overlooked, in fear, as it were, of their digital concomitants. What we long to see is a par-

ticular census of the building classes, and the statistics of matters connected with them. We are now referring to an abstract of the population returns for 1841; but we have also before us an excellent little manual of statistics, entitled "A Universal Compendium of Mills, Manufactories, Manufacturing Establishments, Agriculture, &c. in the United Kingdom, and of Foreign States," by Mr. Fowler, of Leeds, which comprehends what we are in search of, viz. a table that ought to be in the hands of

every builder, and which we have directed to be reprinted in our 12th page.

For the present we must content ourselves with a few general notes on the more prominent points. We cannot, this week at least, run through the whole series of counties, and shew the comparative ratios for each under the heads we are about to enumerate; we therefore take a general deduction from the three great divisions, and we think it will be seen that to pursue the subject in this way, in reference to counties and to towns or districts, that much useful and valuable information would be put into the hands of the inquiring workman and other persons interested in an exact knowledge of the building statistics of each.

Without going into any troublesome decimal calculations, we will give in round numbers, as near as we think advisable, certain characteristics of building progress in England, Scotland, and Wales, upon a system of averages which will repay attention, and interest the curious observer. Taking the total number of houses inhabited, uninhabited, and building, and comparing it with the population, we arrive at this result: that in England five persons or individuals are assignable to each house; in Scotland nearly the same, but rather less; and in Wales very little more than an average of four and a half; from which we arrive at the conclusion, that in Wales the inhabitants are less crowded together in their residences, and that those of England and Scotland are pretty much alike; but in England the most crowded.

To arrive at a correct notion as to the greater activity of building business in each division, we compare the number of houses in process of erection with the whole population. In England it is one house building to every 580 of the population; in Scotland, 1 to 1,000; and in Wales, 1 to 370. England and Wales, therefore, are nearly alike in this respect, but there is a great disparity between them and Scotland; shewing that the activity of the building business is not so great in the latter country.

The proportion of uninhabited houses to the inhabited ones gives for England every seven-tenth house vacant or uninhabited; for Wales nearly every nineteenth, and for Scotland every twenty-fifth; from which, what we may term the surplus of houses is nearly alike in England and Wales, and much greater in both than in Scotland.

We take one more ground of comparison, namely, that of the number of houses building, with the total number of inhabited and uninhabited houses in each country, and we find it as 1 to 116 in England, 1 to 118 in Wales, and 1 to 191 in Scotland; still revealing the near coincidence as regards the two former, and a large disparity as to the latter.

The calculations pursued in this manner in reference to particular counties and to districts, will be important, as shewing where the demand in the building business is greatest, and will thus form a clue to many persons out of employment, to lead them to make their inquiries and applications with a reasonable prospect of success. We therefore propose to resume this subject, and with the best data we can procure, to lay such information before our readers.

SCHOOLS FOR SONS OF THE CLERGY, AT MARLBOROUGH.

The Committee of Sons of Clergymen received tenders on Monday last for sundry alterations and additions about to be made to that extensive building known as the Castle Hotel, at Marlborough, which they have taken for the purpose of converting into the schools. Mr. T. M. Nelson is the architect, and the contracts sent in were as follows:—

Messrs. Hayward and Nixon	£3,999
Mr. Couchman	3,738
Messrs. Lawrence and Sons	3,688
Mr. Jackson	3,508
Messrs. Woolcott and Son	3,410
" Coles	3,287
" Newton and Reek	3,069
" Rigbye	2,985

The late Sir F. Chantrey's equestrian group of the Duke of Wellington, to be erected by the City in gratitude for his grace's municipal services, will be opened on the 18th of June next, the time originally agreed upon, and the 28th anniversary of the glorious victory of Waterloo.

THIRD LECTURE ON CHURCH
ARCHITECTURE.

By the Rev. Mr. Drake.

AGAIN we remind our readers that it is through the medium of the lectures and the writings of the various zealous labourers for the advancement of architecture that we hope most effectually to accomplish the great object we have in view. As to the religious opinions of each we stand in this journal independent—that is to say, we are not their advocates. Our province is in the glorious territory of art, and we welcome every auxiliary, whether he burn with the zeal of religion—the highest—or the inferior grade of impulses; whether devotion to God, or the equally necessary, yet subsidiary, duty of the love of his neighbour animate him. In another part of our paper we have enlarged on this view of the subject, and to that we beg to refer. We now proceed to give a report of the lecture before us; it is necessarily much abridged, though still of considerable length, and we fear that the mutilations we have been compelled to make may be thought to have impaired it.

"The lamentable ignorance which even now exists on the subject of church architecture and church arrangement renders it probable that many of my hearers, if they were to commence an attentive examination of any of our old churches, would find many objects present themselves, the use and meaning of which would be totally unintelligible. The natural good taste of some would, doubtless, enable them to appreciate the harmonious adaptation of such detached portions to the combined effect, even when there was no apprehension or understanding of their immediate purpose. I shall in this lecture give a brief account of the details which present themselves internally and externally to the students of ancient models. We shall find much of deep symbolism, much that has reference to customs long since lost. Some things we shall find which need but to be pointed out to excite the desire for their restoration. It will be remembered then, that, in the first instance, we propose to speak of things as they were, and that we are not to be understood as expressing any opinion on the practicability or propriety of reviving all or any of the observances to which the details about to be spoken of refer; contenting ourselves with a general approbation of the principle of symbolical representation, as at once sanctioned by the authority of antiquity and appropriate to the objects had in view, we must defer to the latter part of our lecture our views on church arrangement and church adornment, such as we believe to be consistent with the forms and practices of our church services.

"Attehrance to the church-yard to many of our smaller churches, especially in the borders of Wales, but also not unfrequently in England, we find a small covered porch of rude construction; it consists of two simple walls of stone or wood, sometimes with a tiled, sometimes with a thatched roof; this is the Lych-gate, or corpse-gate, so called from the Anglo-Saxon *leic*, a dead body. This gate was (or rather, I should say is; for in one instance (Llandyfo near Tintern) it is still used) only opened to admit the departed to their last resting-place in the hallowed precincts of the sanctuary; here the coffin is set down for a few minutes before burial.

"In or near the church-yard, we shall frequently find the remains of a cross of stone, which, previous to the rebellion, was always placed there—there are many beautiful models in the south-west counties—some of which are elaborately carved, and filled with canopied niches. They were generally cast down by the iconoclastic zeal of the Puritans, though some were probably purposely hidden, to save them from the hand of the spoilers, as they are occasionally dug up. It would be well if the cross still stood within the church-yard's hallowed round; raised on a spot so peculiarly its own, it could not but be considered appropriate; and it may be feared that there are many who go up to the house of prayer, whose thoughts are engrossed by subjects which would be well exchanged for those which such 'a dear remembrance of our dying Lord' would not unfrequently suggest.

"The yew tree may also be regarded as part of the church-yard furniture; in some parts of England it is never wanting. At Easter, Whitsuntide, and Christmas, its boughs are used to ornament the interior. The preference given to this tree is thus stated: 'This yew tree, as I imagine, may be accounted a fit emblem of a Christian. You see it hath but little outside rinde or bark, only a small flin, to teach us not to make a fair outside and formality of our religion to the world. Then it is a very fine hardy timber, to show the soundness and sincerity of a Christian. It hath many branches large and fair, to remember us to be plentiful in good works. It is always green and prospering, to declare unto us that a Christian should always thrive

and grow in grace. Yea, green in winter and the hardest weather, to show that a Christian is best in affliction: yea, then it hath berries on it, to teach us as then we are the best Christians, so then and always to bring forth the fruits of righteousness. It is a long-living and lasting tree, to be unto us a type of immortality and lasting life. Thus you see a man may read a lecture from a yew tree."

"Whether the church-yard graves were usually marked or not, it is not easy to say; the present incongruous and grotesque head-stones, and frequently absurd inscriptions, will be records of under the general head of monumental records.

"So much for the church-yard, and before we enter the church we may notice one or two of its minor exterior points. Over the east end of the nave a small erection is frequently found, to contain one or more bells; this is the Sancte-bell-cot; it contained the little bell, rung to give notice that the *Sanctus, sanctus, sanctus Dominus, Deus Sabaoth*, in the celebration of the mass had commenced, and to warn the people of the approaching elevation of the Host: the custom of ringing a bell on the commencement of the Eucharist is still retained at St. John's College, Cambridge. The gable end of the nave and chancel frequently bore a cross; that of Louth Church is by far the most striking of any I have seen; the crown of thorns is hung upon the cross, and the carving is as sharp as the day it was executed.

"Some persons have objected to the use of the cross in church decoration, and this upon the old plea that it has been abused. For myself, I cannot imagine a more beautiful ornament, nor a more appropriate finish to the summit of the gable of a Christian church than the symbol of faith to which it is dedicated; what have *urns*, and *bells*, and *balustrades*, and *such like enormities* to do in such a place?

"On entering the church, either by the north or south porch, or at the west end, we frequently find beneath a niche, and projecting from the wall, a stone basin. This is the *Benaturne*, or holy-water stoup, into which, in ancient times, each worshipper dipped his finger and crossed himself. The custom fell into disuse at the Reformation, and most of the stoups were mutilated or destroyed; it was far from a universal appendage to a church, as the stoup was frequently a moveable vessel of metal.

"Having passed the stoup, the first thing which should meet the eye is the font, because being at once the symbol and instrument of baptism, it represents the entrance into the spiritual temple, the Church of Christ. As far as we can observe, this arrangement was never departed from in ancient churches, and it is one of the wilful neglect of which is deserving the most unqualified condemnation. The treatment of many of our most beautiful fonts, and the little regard paid to this most important feature in the arrangement of a church, is one of the most lamentable signs of itching ears rather than devout hearts, which postpone alike the teaching of the church and the word of God, to the gratification of its own taste for preaching. The sacrament of baptism, that solemn ordinance of our blessed Lord, is raised by Scripture to a place of peculiar reverence in the mind of the Christian, as the instrument whereby he is engrafted into the Christian Church, and our church has wisely ordained that this sacrament shall be duly received by the infant candidates for her privileges and love, in sight and hearing of the congregation, that they may be profitably reminded of the solemn vow and promise and profession which they have made to God. For this purpose the font in large churches was elevated on one or more steps; while in small ones this was unnecessary; because in those days there were none of those dens of spiritual pride and exclusiveness called pews, to overtop and to hide by their superior height the very laver of regeneration. If we were not checked in our scourge of the ludicrous by a feeling of the solemn importance of the subject, we might laugh heartily at some of the many instances in which symbolical propriety has been violated in the position, and decent reverence forgotten, in the treatment of fonts. Our own observations will supply some powerful examples. What, for instance, can be more absurd than to place two fonts in one church, as though our Lord had appointed not one baptism, but two? And yet two fonts are placed to match each other in the otherwise well-appointed church at Balacliff Temple. The chancel, which, in the symbolic language of church architecture, represents, as the place set apart for the celebration of the eucharist, the church in heaven, is a singularly inappropriate, but very favourite locality for the font in these days. There we find it in the little church of Ashow, with a marble slab and a blue basin stuck upon the ancient Norman work, which is also disfigured with paint. There, too, we find it at Stoneleigh Church, while there is abundance of

room by the church door; and the same is the case at Knowle, where the taste which has preserved and renovated the rood-screen has unhappily not yet reached the font, nor prevented its cover from being painted and sandied to look like stone. I heard a traditional rumour when at Knowle, that this font-cover was designed by Pugin. If so, his usual good taste failed him, or, perhaps, his designs were altered and cut down to save expense."

After mentioning many instances of desecration, and of irreverence used towards fonts, some as cattle-troughs, some as sun-dials, garden-pots, &c., he proceeds thus:—

"Of the usage which fonts experience in churches we may say a few words. Frequently they are painted in the most barbarous way. At Sandhurst, in Kent, the font is cut to make it stand close to the wall. The following is an inventory of the two fonts when lately visited. That at Pentlow, Essex, contained—

1. An old cotton umbrella.
2. A common hand-basin.
3. A smaller do.
4. A brown stone jug.
5. A dust-broom.

That at Sandiacre, Derbyshire—

1. A smock-frock.
2. A pair of leather gloves.
3. Some iron bolts.
4. A piece of lime.
5. Wooden wedges.

"All this is at once ludicrous and sad; it shews the utter ignorance which exists of the proper use of a font and of the respect and reverence due to it and to the sacrament to which it ministers. We may observe here, as elsewhere, how one neglect leads to another; had the administration of baptism been continued as a portion of our congregational worship, the font most surely would have escaped the desecrations and degradation which now await it, and would never have been removed from its own ancient position."

The reverend lecturer then proceeded to describe, by reference to numerous drawings of existing specimens, the peculiarities of each style in regard to fonts, and concluded his remarks on this subject as follows:—

"Of the glorious canopies by which so many fonts were covered, but few now remain. Luton, in Bedfordshire, has one which is *sti generis*; it is of stone, supported by eight pillars, is twenty-eight feet high, and forms a small oratory, capable of holding seven or eight people. The most frequent cover was of rich tabernacle-work in oak, sometimes enriched by gilding.

"Castle Acre, in Norfolk, is a magnificent example, 16 feet in height; the canopy is raised by a pulley, and its counterpoise was sometimes a silver dove, so that as the font-cover ascended, the holy dove descended. Sometimes these covers were padlocked down and the key kept by the priest, as I believe is still the custom in Roman Catholic churches. From the font, when in its proper position at the west end of the church, the eye of the worshipper is almost instinctively drawn towards the altar at the east; at least, when the heart is impressed with a deep and proper sense of the object for which the church ought to be entered. This eastward direction seems in ancient churches to have been studiously encouraged and sought after; nothing was allowed to interrupt or break the view; the floor with its tiles laid in the form of a cross; the low open benches all looking the same way, and with a carved poppy-head at the end of each seat; the nave pillars and arches; the clerestory windows; and finally the groined and open wooden roof, were so many separate but harmonizing channels, along which the eye was conducted towards the great east window and the altar.

"Besides, the pulpit, the nave, and the aisles of the present day seldom retain in their ground plan any thing of their ancient simplicity, being almost universally choked up with huge pews (or puses), and not unfrequently with stilted pews or galleries; the consequence of this is the utter destruction of that beauty and unity of design which ought to prevail. We may still, however, occasionally find objects to attract attention; sometimes we find a monumental brass half hidden beneath the flooring of a new deal box; sometimes, in large churches, at the east end of the aisles we find traces of the chantry altars which were placed there, in the piscinas and brackets which yet remain.

"Anciently, churches seemed to have had no fixed seats, other than a solid mass of masonry raised against the wall, and forming a long stone bench or seat. In Norman and early English buildings they are chiefly found; seats for the congregation are noticed in the Synod of Exeter, held A.D. 1287. Open wooden benches, which from the form, height, and ornaments they admit, harmonize so well with a Gothic interior, do not seem to have come into general use before the 15th century;

they have now all but disappeared, though many churches contain portions of this ancient and most appropriate furniture. I shall have to speak again of the beauty of simple open seats, when I come to shew the advantages which they possess, not less on this account, but also in the economy of room, and their superior suitability for the requirements of our Liturgy, over the wasteful and hideous boxes with which churches are now oppressed.

"We pass on now from the nave to that most essential portion of a church built in a catholic spirit—the chancel. There are two parts, and only two parts, which are absolutely essential to a church—CHANCEL and NAVE: if it have not the latter, it is at best only a chapel; if it have not the former, it is little better than a meeting-house. The 12,000 ancient churches in this land, in whatever else they differ, agree in this, that they have or had a well-defined chancel, i.e. an eastern portion expressly appropriated to the more solemn rites of our religion. In this division our ancient architecture recognized our emblem of the holy Catholic Church; as this consists of two parts, the church militant and the church triumphant, so does the earthly structure consist of two parts. It is well also to observe here, that this practice is not confined to the older churches; those which have been built since the Reformation are not deficient in this point; for instance, Leighton Bromswold, built by George Herbert; Little Gidding, by Nicholas Ferrar; and South Malling, in Sussex. The symbolical idea of a separation conveyed in this division of the chancel and nave seems always to have been clearly marked; in early times it was made by a veil or cloth stretched across, while the chancel arch in many Norman churches is richly ornamented in many instances, probably with ornaments symbolizing this distinction.

"Subsequently, the practice obtained of separating the chancel from the nave by a beautiful open screen-work, often exhibiting an endless variety of pattern. These were called cancelli, or rails, whence the term chancel. Here, before the Reformation, the rood or crucifix, and the image of the Blessed Virgin and St. John, were placed. A crucifix remains at Sherbourne, in Dorset, and at Horsely, Derbyshire, where it was dug up in the churchyard, and placed over the gable of the south porch. The doors of the rood-screen represent death as the entrance from the church militant to the church triumphant; hence they open inwards, and the sculpture upon them frequently has reference to this. The lower part of the screen was often painted with figures of apostles and saints, and may now frequently be found behind pews, when the rest of the screen has been destroyed. Above the rood-screen was the rood-loft, approached either by an external turret or by stairs in the walls or piers of the building.

"It may be said that the rood-screen is a Roman innovation, and did not exist before the fourteenth or fifteenth centuries. So far from this, that we find St. Gregory of Tours describes that in the church of St. Cypryan, and one of rare beauty existed in St. Sophia, at Constantinople. Moreover, our reformers did not abolish them; many were put up in the reigns of the first James and Charles. There is one at Geddington, Northamptonshire."

"After describing at length the several appendages to the chancel,—sedilia, piscina, Esser sepulchre, &c. &c.,—and illustrating this subject with a series of beautiful drawings from churches principally in Warwickshire, he concluded this part of his subject by some excellent remarks on the altar: the following is an abridgement.

"In speaking of the altar itself, we must observe, that we have now probably no single model of a high altar remaining, nor do we think it well, in our zeal for what is ancient, to advocate the restoration of the altars of stone in preference to those of wood, which were introduced at the Reformation. For practical purposes their advantages are the same, and granting that the circumstances which called for their destruction at the Reformation exist, the connection in the minds of the common people between stone altars and the doctrine of an actual, carnal, expiatory sacrifice of the very person of our Lord (in the Eucharist) have now ceased to operate, we still consider that we have the argument of appropriateness and of antiquity as strongly with us as against us, in using wood as the material of the altar. The origin of the stone altar seems to have been the necessity which existed for secret worship in the ages of persecution; this was offered frequently in the catacombs, where the bodies of martyrs and holy men presented the most sacred and sacred spot on which to consecrate the blessed Eucharist. Hence, naturally enough, arose the custom of stone altars, after the original necessity had ceased to exist. With respect to a symbolic meaning, the Romanist reasons thus: *Ex lapide una petra erat Christus*; nor can we repudiate this notion as wrong or absurd; but surely we may, with

equal force, reason that it was on the wood of the cross that the sacrifice was effected which we on the altar commemorate."

"After a long and interesting description of some remains of altars, particularly to chantry chapels, he commenced the subject of painting, as follows:—

"In St. Mary's, Leicester, very beautiful paintings in ornamental patterns have been lately brought to light. This sort of ornament was not confined to large churches. I have lately learned, that in clearing the church of Twyford, in Leicestershire, a large quantity of paintings was brought to light: only one has been spared; a figure above one of the piers, holding a scroll, on which, probably, a Scripture text was written. At Radford, in Gloucestershire, the whole surface of the walls of the church was found to be covered with a legendary story told in painting, which was washed over again, as inconsistent with the proprieties of a Protestant place of worship.

"When such paintings are executed with a tolerable respect to harmony of colouring, they would give, even in their rudeness, a rich but subdued tint to the walls of a church. They would, moreover, accord with those pointed windows, with which it would seem all our finest churches were filled. Seen by the modern glare of light which streams obtrusively into our churches, through the thin and disproportionate, because unstained, windows, the general details are thrown into a prominence, and invite a contrast with more finished pictures, which they will not bear. But seen, as they once were, by the dim religious light of painted windows, they must have wrought an admirable effect; giving to the sacred place that dim indefiniteness which Christian architects seem to have studied so successfully. Who is there that will not join in the lament that the glorious blazoning of our ancient fanes has passed away? When we see the few shattered remains of stained glass of former days, when we contrast its deep rich colourings with the wash and weak tints of modern efforts, or with the plain glass which has succeeded, we are almost tempted to cry *Ichabod*, the glory is departed, even amid the countless beauties which yet remain.

"'Thro' storied lattices no more
In softened light the sunbeams pour,'

is true of far too many of our noblest churches. Against these, the frailest portion of the holy pile, the rage of ignorant zeal was most furiously directed, and many a saint which had looked for years down from the lofty window, many a legendary tale of piety and devotion to God, many a glorious blazoning of heraldic achievement, perished beneath the hand of the destroyer. Enough, however, is left to tell us what church windows once were, to guide us in our efforts to imitate and restore. Of these we mention the windows of York Cathedral, especially the lancet windows in the north transept, known as the Five Sisters; the windows in King's College Chapel, Cambridge, and at Great Malvern in Worcestershire. There is some good glass in the window over the tapestry in St. Mary's Hall, and in the east end of St. Michael's. It is, however, only in those churches where nothing but stained glass is used that the perfect effect can be seen. Destroy but one window through which the dim come struggling through the many-coloured panes, and let in the pure white light of day, and you destroy the whole harmony and effect of the remaining lights; the contrast is too striking and unfavourable not to be observed. Nothing can exceed the beauty of a church thus wholly lighted, as at St. Nect's, in Cornwall, in the windows of which the legend of its patron saint is graphically told. Here we have casements high and triple arched—

"'All garlanded with curven images
Of fruits and flowers, and bunches of knot-grass.

And diamonded with panes of quaint device,
Innumerable of stains and splendid dyes,
As are the tiger-moth's deep damask wings.
And in the midst 'mong thousand heraldries,
And twilight saints and dim emblazonings,
The shielded scutcheons bluish with blood of kings and queens."

"Stained glass seems to be an essential feature in later Gothic; we have seen it was introduced in compensation for the increased light, when the lancet windows were abandoned for the flowing tracery and large windows of the fourteenth century; unless, therefore, we use Norman or lancet windows, of a size appropriate to a building, we ought to have painted glass,—and not only so, we must have painted glass after the ancient models. If we strive to attain pictorial effect, as in West's cartoons in St. George's Chapel, and in the beautiful chapel of Magdalen College, Oxford, we need not wonder that we fail to equal the ancient glass-stainers. The attempt to paint pictures shews a mistaken idea as to the real capabilities of the glass-painter's art. Modern stained glass should be in smaller panes, with less attempt to conceal the lead-work, and the glass

should be both thicker and coarser than it usually is; there should be less of the painter's hand, and more of a mosaic character. As these happier views of their art gain ground among glass-stainers and their customers, we shall hear fewer complaints of our inability to rival our predecessors. In this one happy method of restoring the stainer's art in our cathedrals and churches, has been suggested the proposal to supply the place of our present monuments by the insertion of painted windows in memory of the dead. This practice has been commenced in high and authoritative quarters, and we trust it will meet with many imitators."

He then entered into a very lengthy discourse on monuments, following principally the writer of the article on monumental devices, &c. in the last number of the *British Critic*, which will be too long to insert.

"But of all the evils which have gradually resulted from our neglect of the various offices of our Liturgy, and our exclusive attention to the preached word, to the neglect of the sacraments of grace—none has spread more widely, none has produced more unhappy results in the estrangement of those who separate from our communion—none calls so loudly for reform as the system of exclusion and pride which introduced and which still fosters and defends pews in our churches. It is quite impossible for me now to enter into a history of these nuisances, or to detail at length the numberless reasons which call for their abolition; one or two of these, however, I must (in vindication of the unqualified condemnation in which I speak of them) go into briefly.

"Pews are unscriptural; they keep up earthly distinctions in the very place where we are taught their vanity and instructed to look forward to their abolition. They shut out the poor, who ought, if there be any difference, to be first cared for in the church, not last. 'If there come unto your assembly,' says St. James, 'a man with a gold ring, in goodly apparel, and there come in also a poor man in vile raiment; and ye have respect to him that weareth the gay clothing, and say unto him, Sit thou here in a good place, and say to the poor, Stand thou there, or sit here under my footstool, are ye not then partial in yourselves, and are become judges of evil thoughts?' It would almost seem as though this passage of inspiration was penned in direct anticipation of the system of pewing in our church. The rich man lays his sacrilegious hands upon a portion of the Lord's frehold; he fences himself off, lest he should be contaminated by the contact of his fellow-Christian; collects within the precincts of his pew the appliances and means of ease and self-indulgence, and leaves to the poor a scanty strip of room in the place where all are equal. This is no exaggerated statement: there are few country churches in which it is not exemplified. Then, having once claimed as earthly property that which peculiarly belongs to God, he hesitates not still further to transgress God's commands by exercising the lucre of gain, and setting up the table of the money-changer in the temple of God: it is notorious that pews are bought and sold. Within the last few days I have seen a public advertisement of pews for sale in a church at Lynn. In the meantime the poor are driven from the church, where their presence is looked upon so jealously; and driven at length from her communion.

"Again, pews are evidently hostile to the spirit of our Liturgy and the voice of our church: it was not without a struggle that they first gained ground. They were strictly forbidden by many bishops and others who had authority in the church, men who were martyrs for the truth. They tend to make us forget that in the house of prayer we are all one body, and thereby offend against our belief in the communion of the saints. They prevent the congregation from seeing or being seen from the altar, towards which every worshipper ought to be turned; they encourage people to come late to church, because they know their pew will be kept for them however late they come, and they who sit in them are encouraged to many acts of irreverence of which they would not otherwise be guilty—as going to sleep, or amusing themselves with other concerns than the service which they ought to be attending. Once more—and this in a utilitarian age may possibly be considered as the most cogent argument of all—pews under the most favourable circumstances, when compared with open seats, cause a loss of about thirty in every hundred, i.e. a church which without pews would hold nearly four hundred, with them, holds but three hundred. This fact may be proved by actual measurement, and it results from the great ease which open seats present for fulfilling the requirements of the rubric in the services which we render to God in the church. To kneel in a pew, we must assume either a careless posture or one most painful and difficult to maintain. The kneeling in an open sitting, is easy and natural. The back of the next seat forms a convenient rest for the arms, while for sitting, the height of the

CENSUS.

POPULATION AND HOUSES, 1841.

backs is far more suitable than the lofty back-boards of high pews. The floors of St. Michael's and Trinity would accommodate far more worshippers in open sittings in the nave and aisles than, with the pew system, they now do, aided by numberless galleries and seats intruded into the chancels. Against the appropriation of particular spots for individuals, so long as they are regular attendants on divine worship, and shew their love and reverence for it by coming in time, I say not a word; but I do condemn as utterly unjustifiable the exclusion of any individual from any seat which is vacant after service is commenced.

"And, indeed, so glaringly inconsistent is the pew system with the whole spirit of Christian devotion, that it almost seems enough to point out its offensiveness to insure its abolition. Already it is tottering to its fall; high authority has once more spoken out against it; and though the petty pride of human nature is making a vigorous struggle, though the magnanimous people of Tuxford have issued a placard calling on the ecclesiastics to rise and maintain their sacred rights, by proclaiming that the sanctuary is about to be polluted by Popish superstitions, and the seats to which themselves and their ancestors liberally contributed are about to be wrested from them by Jesuitical intolerance; though some of the so-called respectable inhabitants of Ipswich have set themselves to oppose the authority of their spiritual pastors, episcopal as well as priestly, and have asserted their horror of being brought to the level of those poor to whom our Saviour came to preach the Gospel, by deserting the unpewed church, and betaking themselves to the chapel, where they can rent and do what they like with their own—in spite of all this, the advocates of open seats are not dismayed; the right is on their side, and right is here made might. The question of the abolition of pews and galleries is now but a question of time; let us hope we shall not be behindhand when our glorious churches will be swept clean from end to end of these signs and records of an earthly and unchristian spirit; let us hope that we may awaken from our long slumber of indifference, and neglect of decent order and propriety, only to vie with each other in our zeal for reformation.

"I am persuaded that this step, under God, would do more to reclaim the lost affections of our people to the church than any thing else; this would vindicate to her that noblest title, which she now seems in some cases scarcely to desire, that of being the poor man's church; and this claim can justify to the eyes of intelligent men her retention of the privileges and advantages which she derives from her connection with the State. Surely we have no right to complain of that abandonment of their duty in church matters, which is so painfully evident in the acts and omissions of the statesmen of the present day, so long as our own resources are not taxed to the uttermost; so long as we hesitate to render unreasonable claims, and to promote those reforms which must come from the church herself. All that we ask of you is to take up the subject, and in a candid and unprejudiced spirit, test the pew system by Scripture, by the history of the church, by your own experience, and I feel assured that its fate is sealed, and that we shall yet see the areas of our churches filled, as of yore, with crowds of devout worshippers, who, whatever be the salutary distinctions which mark their station in worldly matters, meet in the presence of God with perfect equality, and in the unity of the Spirit, and in the bond of love, confess one Lord, one faith, one baptism, one God and Father of us all, members of one mystical body, recipients of the same grace, the communion of the Saints on earth."

The change of feeling in Coventry on the subject of church arrangement, since the commencement of these lectures, is perfectly magical. Parties of influence, who were heretofore sticklers for their pew rights and pew comforts, have voluntarily resigned all claim and title to their carpeted boxes, and have offered to subscribe largely to have them all swept away and replaced by open benches: this is no singular instance.

HUNGERFORD AND LAMBETH SUSPENSION-BRIDGE.—The works of this most useful undertaking are progressing very satisfactorily; at a recent meeting of the subscribers, it was stated that the bridge would most probably be completed and opened before the close of the present year. When finished, we learn it will present a most ornamental and graceful appearance, and prove a decided embellishment to the metropolis. We understand that there is every probability of the suspension-bridge between Miblebank and Lambeth-Palace being erected, which certainly will not be before it is wanted.—*British Queen.*

COUNTIES.	Population.		Increase.	Houses building in 1841.	Houses, 1841.	
	1841.	1831.			Inhabited.	Uninhabited.
ENGLAND.						
Bedford	107,337	95,483	13	211	21,235	521
Berks	160,226	145,389	9	200	31,472	1,566
Buckingham	155,899	146,529	6	198	31,071	1,157
Cambridge	184,590	149,955	14	237	33,112	1,218
Chester	305,300	334,391	18	523	73,390	5,845
Cornwall	341,269	306,338	13	228	65,611	4,936
Cumberland	177,012	169,681	4	199	34,444	2,369
Derby	272,028	237,170	14	444	52,010	2,482
Devon	533,731	494,478	7	893	91,037	6,117
Dorset	174,743	159,252	9	201	31,539	2,012
Durham	321,277	255,010	27	554	57,439	3,572
Essex	344,995	317,507	8	567	67,002	2,482
Gloucester.	411,307	387,019	11	123	23,461	1,428
Hereford	114,138	111,211	3	183	30,155	1,375
Hertford	157,327	143,341	9	61	13,637	1,383
Huntingdon	58,699	53,192	10	766	80,856	5,790
Kent	548,773	479,155	14	809	95,547	5,013
Lancaster	1,667,064	1,356,884	24	3,831	289,166	23,604
Lancashire	815,835	577,003	9	457	44,649	3,206
Lincoln	362,717	317,465	12	456	73,638	2,250
Madagascar	1,576,010	1,298,200	16	235	207,670	9,850
Manxmouth	134,749	98,130	36	235	24,890	1,417
Norfolk	412,621	360,851	11	450	49,093	3,711
Northampton	199,081	179,845	10	412	48,704	3,031
Northumberland	159,468	122,913	12	218	56,341	2,749
Nottingham	249,773	225,237	10	281	22,141	1,410
Oxford	161,573	132,135	10	31	4,297	120
Rutland	31,810	19,385	10	31	4,297	120
Salop	320,014	222,308	7	298	47,223	2,063
Somerset	436,093	404,280	7	893	66,599	3,274
Southampton, Hants	334,940	314,286	6	800	97,676	5,435
Stafford	310,206	418,318	24	890	97,676	5,435
Suffolk	313,129	285,317	6	577	64,081	2,317
Surrey	582,613	486,486	19	1,210	95,755	3,648
Sussex	289,779	274,340	10	353	54,066	3,047
Warwick	409,121	336,610	19	667	81,445	6,899
Westmoreland	66,469	55,641	3	40	10,419	870
Wiltshire	356,087	340,155	5	235	50,986	3,419
Worcester	235,484	211,365	10	351	45,062	2,922
York	195,676	168,891	14	426	38,390	1,675
City and Ainsty	38,322	35,202	8	7	7,710	269
North Riding	284,662	190,756	7	596	42,589	2,632
West Riding	1,154,924	976,350	18	2,221	226,473	18,870
Total	14,995,408	13,091,005	14	25,882	2,753,293	169,736
WALES.						
Anglesey	50,809	45,325	5	131	11,488	746
Brecon	83,923	47,703	11	27	10,634	833
Cardigan	66,380	61,730	5	125	15,102	811
Cardiff	106,482	106,740	5	23	23,407	1,392
Cardigan	81,068	66,448	23	134	18,869	771
Cardigan	89,291	83,629	6	167	18,485	991
Denbigh	66,547	60,012	10	101	13,320	616
Flint	173,463	125,013	37	101	33,245	1,466
Glamorgan	173,463	125,013	37	101	33,245	1,466
Merioneth	69,229	65,313	11	72	8,467	347
Montgomery	69,229	66,482	4	33	13,650	884
Pembrokeshire	88,262	81,423	8	143	18,892	1,022
Radiol	25,166	24,631	1	19	4,687	234
Total	911,321	806,182	13	1,760	188,196	10,133
SCOTLAND.						
Aberdeen	199,283	177,637	8	288	32,103	1,095
Argyle	97,140	106,973	8	131	16,514	917
Barr	161,312	145,055	13	69	30,247	1,297
Barr	50,076	48,604	3	83	11,238	478
Barr	34,427	34,018	1	28	7,495	382
Barr	14,151	10,919	10	15	5,667	93
Barr	15,093	14,329	4	53	6,062	214
Barr	36,497	14,729	29	6	3,593	372
Barr	10,116	14,729	29	6	3,593	372
Barr	44,295	33,211	33	51	14,375	724
Barr	73,845	73,770	0	1	1,000	114
Barr	223,623	219,345	2	121	39,903	2,801
Barr	34,994	34,221	2	39	8,137	379
Barr	140,310	126,839	9	135	29,065	1,502
Barr	110,310	126,839	9	135	29,065	1,502
Barr	35,781	35,143	1	29	8,899	793
Barr	33,023	34,737	5	32	12,182	578
Barr	8,763	9,072	3	10	1,866	114
Barr	41,009	40,899	1	22	5,198	318
Barr	42,113	316,819	24	863	80,321	3,964
Barr	26,818	23,291	15	19	5,309	297
Barr	9,923	9,354	6	18	2,390	169
Barr	66,007	58,239	11	3	2,119	134
Barr	138,151	142,894	4	89	29,172	1,798
Barr	154,755	133,443	15	92	24,636	1,692
Barr	78,058	74,820	4	115	16,166	385
Barr	45,069	43,063	5	38	8,674	365
Barr	7,089	6,833	10	4	1,446	79
Barr	83,179	72,621	13	38	4,972	167
Barr	24,066	23,318	3	35	12,837	76
Barr	44,068	36,238	21	56	8,512	296
Barr	4,425	—	—	—	—	—
Total	2,628,957	2,305,114	11	2,760	503,357	24,307
ISLANDS IN THE BRITISH SEAS.						
Jersey	47,356	36,582	30	—	6,671	254
Guernsey, Alderney, Sark, Herm, and Jethou	38,538	36,128	9	—	4,514	244
Man	47,685	41,000	17	—	7,974	367
Total	134,679	103,710	10	—	19,159	865

Those places marked * in the column of increase have decreased, viz.—Argyll, 3.9 per cent., Dumfries, 1.2, Haddington, 1.0, Kinross, 2.5, Peebles, 0.5, Perth, 3.4, Sutherland, 3.4 per cent.

GREAT THAMES IMPROVEMENTS.—The Lords of the Treasury, the Commissioners of Public Works, and the Corporation of London, called some time ago a report and estimate to be made on embanking some portion of the river Thames. A select committee of the House of Commons took up the inquiry upon an infinitely more extensive scale, and engineers of first-rate eminence were employed to examine the river within the whole of the juris-

diction of the Lord Mayor, and to report upon the entire question of making the noble river advantageous in every respect to the public. By a great deal of labour the most satisfactory evidence has been collected and laid before the Government of the corporation, and from the active proceedings adopted, it appears reasonable to calculate that the health, beauty, and convenience of the metropolis will, without much delay, be considerably augmented.

METEOROLOGICAL SOCIETY.

Tuesday, March 14.—Anniversary Meeting.

The Right Hon. Lord Robert Grosvenor, President, in the chair.

After the minutes of the last meeting had been read and confirmed, the Right Honourable the EARL SPENCER was elected a member.

The Treasurer read the annual report of the council to the society, from which it appeared that greater zeal for the welfare of the society had been manifested during the past session on the part not only of the officers, but of the members generally, as several donations had been made to the funds of the society by the friends to meteorological science. The society now numbers 134 members, of whom 65 are contributing members, 59 associates in foreign parts, and 10 honorary members.

The Secretary next read two short papers from J. H. Mandly, Esq., of the Royal Academy, Gosport: 1st, on a grand display of meteors, on the night of August 9th, 1842; 2nd, a representation of two solar halos, a large intersecting circle, five inverted arches, and five parabolas about the sun, July 12th, 1842.

The Treasurer, in making his annual address to the society, produced a complete epitome of meteorology, shewing the great amount of good arising to every student of natural phenomena. He called upon medical men especially to watch narrowly the diseases of the human frame in connection with the various changes of the weather, saying, "I would impress upon the attention of all medical gentlemen who may be either members of the society or correspondents, the great importance to science in general of introducing into their meteorological registers as full an account as possible of the existing diseases; such registers being among the most interesting and valuable documents."

The Treasurer produced a list of meteorological queries, and supposing a locality, gave the meteorological answers, with a view of obtaining simultaneous observations, and of ascertaining the effects of locality on the human family. With these helps, "we can safely take some effectual steps towards an acquaintance with atmospheric changes which directly or indirectly affect all animal and vegetable life, and more particularly with the order in which they succeed each other. Provided with this knowledge, we may often be able to anticipate them, and timely prepare to meet or diminish their injurious influence, or take the greatest advantage of opportunities which may be propitious to the increase of the substance, wealth, and happiness of the community."

The Treasurer then called the attention of members to united efforts, and continued—"It is indeed difficult to say what mighty problems might not be solved, and how many of the present unexplained and mysterious workings of nature might not be unravelled. Of all the works of the Creator, the most beautiful, the most wonderful, and the most useful, is the air atmosphere with which the surface of the earth is everywhere covered; the phenomena, which are so universal and so indispensable in the economy of nature, must well repay the labour of every one who may have the good fortune to study them; and that human being who can remain ignorant upon such a subject can make small claims indeed to rationality." The report concluded by calling upon the members to be strenuously united in their efforts to unravel the mysteries of nature in the atmosphere.

The officers for the ensuing session were then elected, viz.—
President—The Right Hon. Lord Robert Grosvenor, M.P.

Vice-Presidents—Dr. Lee, F.R.S., &c., and George Leach, Esq., F.Z.S.

Treasurer—J. G. Gutch, Esq., M.R.C.S.

Secretaries—W. W. White, Esq., M.B.S., and P. L. Simmonds, Esq., F.S.S.

Foreign Secretary—John Reynolds, Esq., I.B.S.

Other members of the council—The Right Hon. Lord Carington, Messrs. Casella, Denton, Leigh, Phillips, Platt, Parker, Renschlitz, and Major Stack, K.H.

The meeting then adjourned.

SCULPTURE AND ARCHITECTURE.

At the latter end of his (Flaxman's) career the royal favour promised him a wider field of exertion, and a nobler foundation for his well-earned fame; but the nation and the government, as bodies, were alike indifferent to his talents or the glory of encouraging them; and the people possess none of his works, except his monuments in the churches. Among these, the most remarkable are the monuments of Nelson, Howe, and Sir Joshua Reynolds, in St. Paul's; of Lord Mansfield and John Kemble, in Westminster Abbey. Had England possessed a Pericles, she might in her Flaxman have found a Phidias; but George III. had no idea of sculpture; and his successor, though well-inclined towards the arts, from his munificent and somewhat fastidious spirit, was miserably devoid of taste. In his reign much was done and spent; and had equal pains been taken to do well and lay out wisely, architecture and sculpture would have advanced indeed. To work for St. Paul's, in memory of the heroes of his country, was now the privilege of the English sculptor; but opportunity and inspiration were controlled by narrow views and limited means: few works possessing a character of true greatness are found within those walls. The real cause of this failure was, perhaps, the absence of all foresight and confidence on the part of those at whose disposal were the national monuments. Had such a man as Flaxman been engaged to form a grand plan which should be gradually carried out, for the adornment of St. Paul's, and the commemoration of the war and our victories, the pettiness and absurdities which degrade both might have been avoided. Had not the Capella Sistina been placed at the disposal of Michael Angelo, that boast of modern art would never have existed; but example is lost upon us. The absence of any edile power—the want, perhaps, of a minister of public works in England, prevents, in great measure, the development of any grand idea. What we resolve to do is done at once by individual means: and the steady pursuit—for long years, and under changing governments—of one established plan, either in architecture or the sister arts, is barely known. Lately, a better spirit has arisen in street architecture, which will doubtless have its effect on sculpture; but, to insure the accomplishment of any great work, the supremacy of one directing mind must never be disputed. Had Sir Christopher Wren been allowed to carry out his plan of improvements in the city,—and, still more, had he lived later with that power, every year adding its portion to the pre-arranged work, and every new erection happily subordinate to the general effect,—the many pleasing parts which have tended to one magnificent whole, which would now have been developing its beauty. So, in the sculptures of St. Paul's, the want of pre-arrangement and general design has reduced the monuments to a multitude of unconnected statues and incongruous ideas, instead of each illustrating the other, and all blending in one great and harmonious design. The reliefs, dedicated to the recital of certain parts of the history respectively; the groups assigned to their appropriate places, and connecting links established between statue and statue; a distinct portion reserved for the eminent in the arts of peace; and the naval separated from the military, of those whose glory was in deeds of war; a settled and consistent costume; established and expressive symbols; the studied incatenation of inscriptions; and the observance of that order, which, without forcing sameness or uniformity on the separate statues, or in any way binding down the spirit of the individual artist, would have secured an harmonious whole, and made each part powerfully to aid the general effect;—such were the precautions, the neglect of which has destroyed capabilities unrivalled in Europe. This waste of the means of greatness is unreasonably visited on the artist, but it is due to the indifference of government and the opposition of churchmen, who, in other countries the patrons of the arts, were here unfortunately opposed, on principle, to their progress. The erection of a national monument in architecture, with an express view to the disposal of sculpture, to contain statues, &c. of the heroes by sea and land who, during the last war, raised the name of England high among the nations, was contemplated at the right time, but the government preferred to spend as much money on

fireworks and Chinese pagodas as would by this time have gone far towards the expenses of such an erection. Had that monument been erected, the interior of St. Paul's might have been dedicated to more appropriate memories than those of battle. A Howard, a Johnson, a Reynolds, and the pious Heber, are all the monuments of this class. Jenner, Watt, Wilberforce (as embodying an idea); Newton, the educators, humanists, peacemakers, and benefactors of the country and mankind, should be remembered in marble, within the metropolitan church, at the expense of the nation.

The opportunity of establishing these national monuments was certainly at the close of the war, and Flaxman was well qualified to have designed them. His was a happy period for the foundation of a great work, and for the commencement of a school which ought to carry English sculpture to its desired place. The originality and vigour of his mind, which rose in proportion to the demands on them, only required scope and stimulus. Such a field would have fired with a noble enthusiasm, and have elevated his soul to the noblest heights. The immediate commerce with foreign countries by the most distinguished men of our own had created a taste for sculpture which began to be better understood. Banks had shewn that English genius was not uncultivable; Flaxman had proved himself equal to his contemporaries on the Continent—equal in hand and eye, and superior in power and sentiment. Canova then, and Thorwaldsen since, could alone compete with Flaxman; for, with some splendid exceptions, mediocrity is the mark of our time rather than of our country: a fact the more remarkable, as this may be considered the peculiar period of science, not only in research but in diffusion.

MARQUETTRY.

A CURIOUS species of work composed of different coloured pieces of hard fine wood, fastened, in thin layers, on a ground, and occasionally enriched with other matters, such as tortoise-shell, ivory, tin, or brass. There is a separate kind of marquetry made, instead of wood, of glasses of various colours; and another still, wherein nothing is used but precious stones and the richest marbles: but these are more properly denominated mosaic-work.

The art of inlaying is very ancient, and has been supposed to have passed from the east to the west, as one of the spoils brought by the Romans from Asia. Indeed it was at that time executed with great simplicity, nor did it reach even a tolerable degree of excellence till the fifteenth century, among the Italians.

Until John of Verona, who flourished at the same time with Raffaele, the finest works of this kind were only black and white, such as we call Morescoes; but that devotee, who possessed some genius for the fine arts, stained his wood with dyed or boiled oils, which penetrated them. He proceeded no further, however, than the representing of buildings and perspectives, which require no great variety of colours. They who succeeded him not only improved on the invention of dyeing the woods, by a secret, which they discovered, of burning them without consuming (which served particularly well for the shadowing), but they had likewise the advantage of several fine new woods of naturally bright colours, which were imported from the newly discovered continent of America. With these assistances, the art is now capable of imitating almost any thing.

The ground whereon the pieces are to be ranged and glued is ordinarily of oak, or fir well dried; and, to prevent warping, it is composed of several pieces glued together. The wood to be used, being reduced into leaves, of the thickness of a line, is either stained with some colour, or made black for shadow, which some effect, by putting it in sand, extremely heated over the fire, others, by steeping it in lime-water and sublimate. Thus coloured, the contours of the pier are formed according to the parts of the design they are to represent. This last is the most difficult part of marquetry, and that wherein most patience and attention are requisite.—*Elme's Dictionary of the Fine Arts.*

The Cambridge Camden Society have been empowered to provide designs for two new churches; one at Maresfield, Sussex, the other at Whitstable, Kent.

TO THE EDITOR OF THE BUILDER.

SIR,—I hasten to respond to the generous sympathy you have expressed in to-day's number of your journal in behalf of "seventeen carpenters, burnt out at Mr. Cumming's, Bond-street." Inclosed is 2s. 6d. I would that the times permitted a larger offering in so humane a cause. Wishing success to your spirited undertaking,

March 17, 1843.

I remain, yours,
PHENIX.

TO THE EDITOR OF THE BUILDER.

SIR,—In No. 6, March 18th, of your useful Journal, I noticed, under the head of "Destruction of Workmen's Tools by Fire," a humane appeal to the readers of *THE BUILDER*; I must confess my means are truly limited to a shilling per week, I therefore cannot do as I could wish, but if all the readers of your increasing work do according to their ability, I doubt not but the philanthropic object will be more than realized; I therefore inclose sixpence, and as you appeal for a penny, I am encouraged to remit the same, and may the greatest success crown your good endeavour.

At the same time, allow me to correct an error that I am sorry to say, through my negligence, occurred in my description of the altar-piece of Bealminster Church. I called it the decorated, but it is the perpendicular style of Gothic; and, at the time I wrote to you, I did not think that it would go to press, or I should have been more particular in my detail; therefore, in justice to your work, I must correct my mistake. Had I entered more into the full particulars of the style of buttresses, and the ornamental spandrels, ornamented with the Tudor rose, the portcullis, and the Ogee canopies, so characteristic of the perpendicular style, you would have detected my inattention in the short-sighted remarks by me, without my further notice of it. And, indeed, on the other hand, in justice to the architect, it requires an innovator would be painful to most of the profession. On some future occasion I should be most happy to consult *THE BUILDER* on many questions relative to the mixtures of the styles of Gothic architecture from its earliest dates, so as to get a little better informed on this compound of geometrical beauty, though so barbarously jumbled together in many instances, but especially in Wales; and to make matters ten times worse, they are determined that the very best judges shall not have an opportunity of telling what style or order their buildings belong to; they are so devoted to the lime-brush, that they frequently fill up the crevices of some of the most superb mouldings, and the most elaborate ornamental carving is not to be traced. I remember an instance at Llanbadarn Church, near Aberystwyth, that was most dreadfully mutilated and covered with white-wash. A gentleman from Oxford, noticed the porch, a splendid early English piece of workmanship, and, at his own expense, had it picked out. The date of the church is 1117, and it has a very massive tower for a country church. I will send you some particulars relative to this building, if worthy a place in *THE BUILDER*. With thanks for your improving work, Believe me yours, &c.

Bristol, March 22, 1843.

A MECHANIC.

[We shall be most happy to receive every information from our correspondent.—Ed.]

We have received and made up a purse this week of 11. 6s. 10d. in aid of the workmen employed by Mr. Cumming. We will give particulars in our next number.

THE NEW WOOD-PAVING.

We regret that our failure to get the necessary diagram completed in time for the present number compels our deferring a continuation of this subject until the next week.

The interest at present excited, and the conflicting opinions as to the plan, or system, that may best meet the public requirements, abundantly prove the necessity for a thorough investigation of the merits of the several patented inventions proposed, and we lend the assistance of our columns with this view. In doing so without present remark, we consider that we are affording to each a fair field, which may thenceforth be maintained, provided that ordeal shall have been passed which requires in Wood Pavement a combination of the essentials—economy, permanence, and safety.

COVENTRY STREET AND LONG ACRE IMPROVEMENTS.—There has been very considerable delay in carrying into effect this long contemplated and much needed junction. We are happy to learn that the work will now be very soon commenced, and then it is to be pushed forward with all practicable activity; but of this we are certain, that no unnecessary delay will be permitted.

THE BUILDER RECOMMENDED.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—Your polite letter I duly received. Your remarks upon me, in the article on Wooden Bridges, were more than I expected. Sometimes I think you were a little extravagant, but editors, like painters, will take liberties. I think you will have some reply to my questions, and I hope the public will be benefited by the answers.

I am preparing other articles for your *BUILDER*, and will forward them without delay, as I am fully satisfied that *THE BUILDER* will be read, not only by the Builder, but by the civil, mining, marine, military, and practical engineer; surveyors, working engineer, locomotive engineer, and steam-engine engineer; architects, and by owners and also occupiers of property.

It should also be read by the gentleman, the man of taste, in order to form correct views in the improvement and general management of estates, and the magnitude and splendour of the several erections, and the laying out of grounds adjoining, all which should harmonize as much as possible to produce nature's effect.

THE BUILDER should be read in every institution where the sciences are cultivated and enforced, for every work, the labour of man's hands, however diversified, may be said to be a building, although of different magnitudes. It should be read in the Institution of Civil Engineers, the Universities of London and Durham, the military and other colleges, the Cornish Mining School, the Scotch Naval and Military Academy at Edinburgh, &c.; although I am not recommending *THE BUILDER* because I think every man should be his own builder, yet I think that all who build should count the cost and expend their money with proper judgment, according to the manufacture, trade, traffic, and population of the place.

The rise and progress, and the wealth of a place, must at all times be regulated by the advantages of suitable and increasing erections.

In the improvement of towns, a uniformity in the buildings, the sewerage, and cleanliness, raise the character of its inhabitants, and give new scope for investment of capital. I have seen hundreds and thousands of buildings erected and streets formed, which possess no form and comeliness about them. *THE BUILDER* may be a school-master to the mason, the joiner, carpenter, plasterer, plumber, glazier, modeller, the draughtsman, and the finished workman: "a knowledge of the disease is half the cure."

It was a great remark of an excellent divine, when giving an illustration of Lot's wife, "I cannot you learn wisdom from folly;" and concluding his subject, "They build too low who build below the skies."

Leeds.

F.

TO THE EDITOR OF THE BUILDER.

SIR,—Your correspondent who has furnished you with the description of the New Military Church at Windsor, in No. 6, has used several expressions which, I think, are erroneous. The architecture is described as pure Gothic; words of doubtful significance, and not so descriptive as if the period of the style adopted had been named. For instance, if of the twelfth, thirteenth, or fourteenth century, or during such a king's reign.

The church is said to be in the form of a crucifix. The word *crucifix* is generally applied to a cross with the figure of our Saviour on it. *Cruciform* is the usual term applied to buildings (with transepts) in the form of a cross. I cannot understand the expression "having two large transepts for the accommodation of the military, and one at the west end for the children," unless I assume that a gallery is erected in each transept, and one at the west end.

The word *oaken* is, I believe, a corruption of oak. Anxious that your work should stand as high as possible in the estimation of the profession, for accuracy of description and propriety of expression, I have made these remarks on an article which must have escaped your notice.

I am, Sir,
A WELLWISHER.

[We perfectly agree in every remark of "A Wellwisher." The paragraph is an extract, and was inserted, as many must be, particularly until our own sources of information are sufficiently extended, without our scrutiny; and immediately it caught our eye, after publication, we were struck with the same objections as our correspondent.—Ed.]

When bass-mat is used, it may be rendered waterproof by passing it first through a solution of white soap, and next through one of alum; by which a neutral compound is formed insoluble in water.
—From the *Suburban Horticulturist*.

TO THE EDITOR OF THE BUILDER.

SIR,—I have a villa in the country, the exterior of which is composed, the projections of which are much given to vegetation, or what is usually termed, get green in the winter season. As I am about to have the outside coloured, can you or any of your correspondents inform me of any substance with which I can wash the affected parts, so as to prevent the same getting green for the future? Also, what is the best preparation for the colouring, as that at present in use by the plasterers is no sooner on than it is washed off by the rain, or brushed off by one's coat?

The favour of a reply in your next will oblige
M. L. B.

NEW HOUSES OF PARLIAMENT.—REPORT OF THE SELECT COMMITTEE.—That the Committee have met and considered the subject-matter to them referred, and have examined witnesses, and have come to the following resolution, viz.:—"That, considering the great inconvenience of the present House of Lords, and that such inconvenience will be greatly aggravated by the progress of the new buildings, before the commencement of the session of 1841, no delay should take place in the erection and preparing the new House of Lords beyond what is absolutely required for the safety of the work; that the architect be directed so to conduct his operations as to secure the occupation of the new House of Lords, with temporary fittings, at the commencement of the session of 1844; that in case the architect, in the progress of the work of the new House of Lords, shall find that more time will be required in consequence of any apprehension of injurious consequences to the building, he shall report the same to the Commissioners of Her Majesty's Woods and Forests, in order that such report may be communicated to this House in due time; that it does not appear to the committee that it is advisable that any alterations in the ventilation of the present House of Lords which would lead to additional expense should be adopted; and the committee have directed the minutes of evidence taken before them to be laid before your lordships."—March 13.

Architectural Competition.

Under this head we shall give notices of pending competitions, and shall feel obliged by our friends forwarding us the accounts of what may fall in their way of this character. We shall also be happy to give engravings of the selected designs; and think that, by such publicity, the present very defective system of decision may be amended. Publicity is sometimes a remedy when more direct measures have failed.

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we patter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification, of which they may choose to avail themselves.

REPAIRING THE PAINTED GLASS OF THE EAST WINDOW IN LEIGH CHURCH, ESSEX.—Rev. R. Eden, Leigh Rectory, Rochford.

FOR FINISHING A NUMBER OF HOUSES.—Z. Y., 122, Mount-street, Berkeley-square.

BRISTOL AND EXETER RAILWAY.—No. 1, 1 mile 58 chains; No. 2, 2 miles 4 chains; No. 3, 1 mile 36 chains.—Engineer's-office, Temple Meads, Bristol.

PAVING AND KEEPING IN REPAIR STREETS IN CAMBRIDGE.—Mr. Randall, March 28.

PAVING STREETS, ST. MARY'S, ISLINGTON.—Mr. Robert Oldershaw, Islington, March 22.

FOR ERECTING A FIRE-PROOF ROOM AT THE WORKHOUSE IN POLAND-STREET, OXFORD-STREET.—Plans, &c. to be seen as above between 10 and 5.—Proposals to be addressed to "Governors of the Poor," St. James's, Westminster, by April 12th.

FOR LAYING DOWN A QUANTITY OF CORNISH GRANITE CURB IN GREENWICH.—Tenders to be addressed to "Churchwardens and Overseers," on or before March 28th.

GOVERNMENT CONTRACT FOR MAHONGY AND PIG-IRON.—Address "Storekeeper-General of the Navy, Somerset-House."

GOVERNMENT CONTRACT FOR BALTIC TIMBER GOODS AND NORWAY SPARS.—Address "Storekeeper-General of the Navy, Somerset-House."

—April 18th.

ERECTION OF LARGE ADDITIONS TO COUNTY GAOL IN NORTHAMPTON.—Tenders to be left at the office of Clerk of the Peace by 4th of April.

RESTORATION OF WEST FRONT OF TRINITY CHURCH, COVENTRY.—April 12th.—R. C. Hussey, Architect, Birmingham.

FOR PAVING CARRIAGE-WAY IN WHITE-CHAPEL.—Mr. R. Kelsey, 73, Chiswell-street.—April 10.

FOR ERECTING NEW ASSIZE COURTS IN LIVERPOOL.—Address, "Town Hall, Liverpool."—April 17.

BUILDING SEWERS IN WEST SMITHFIELD.—Sewer's Office, Guildhall.—April 4.

THE BUILDER,

NO. VIII.

SATURDAY, APRIL 1, 1843.

A FEW weeks back we spoke of the building business as being reported to us to be very bad in Hereford; our agent there wrote us discouragingly as to the prospect of a sale for *THE BUILDER*, and we determined to take some steps to attempt to rouse matters into activity; we made a few inquiries preliminary to our bestirring ourselves, but have not been able to proceed to any particular step. Since then we have a report from Manchester, but it is very brief, assigning no cause, and guessing at none, but merely recording the fact that the sale of *THE BUILDER* is so low there as not to be worth while forwarding any more numbers! so far from Mr. Lynch; now we can readily understand, and in fact the cause is plainly stated as regards Hereford—but Manchester!—the second of London, that we should obtain no readier response there is to us an enigma, and we beg of some of our friends in that quarter to solve it for us.

Matters are not there as they used to be, if this is a fair sample of the condition of things. What has possessed the people?—we have little market-towns that outbid Manchester for our suffrages. We are not prepared, with this fact before our eyes, to disparage or accuse ourselves, but this we do think, that some intermediate agent between us and the Manchester Builders is still wanting; and if it continue long as it is, we may pay a visit to the spot, and look into it. Of Manchester we have, and have a right to have, great hopes, and great hope also that our exertions will not be without its good to her Builders; we cannot, however, dwell upon the matter this week, but we would thank any of our readers there to communicate to us, and to favour us with any suggestions it may seem good to them to make.

It may be in place here for us to advise our architectural brethren to prepare themselves in the study of hospital designs. We perceive by the papers that a meeting has been held, and large sums subscribed for the building and establishing a hospital for the Marylebone and Paddington districts. Now this kind of subject is one to give good exercise to the reflecting minds in the profession, and the great question of warmth and ventilation, with many material points of internal arrangement, will call for and amply repay attention. We mention it in time, so that if a competition should be instituted, the brief period which committees usually assign may be virtually lengthened.

FIRE INSURANCE.

PRACTICAL builders, more especially those concerned in the mighty speculations of the day, and who so firmly grasp the wand of Plutus as to cause whole districts to rise at their bidding, are parties highly interested in this species of insurance; architects and surveyors, also, are persons whose opinions have great weight with proprietors of house property in matters relating to insurance; and if to these we add contractors, bound to insure buildings in progress, and the number of masters on a small scale, whose aim and practice it has been to invest their all in third and fourth-rate houses, the aggregate constitutes a body from whom the offices derive a large share of support.

We claim this influential position in the scale of fire insurance for our class, and with it the privilege of discussing a subject of so

much importance whenever incidents occur to render it desirable or necessary.

It may be that the premium or per-centage required for insurances against loss by fire is imposed by way of average, derived from statistics especially applying to this branch of business, but which, having been confined to the archives of the offices, is for the present inaccessible to investigation; their best interests require, however, the publication of the governing data. The current, but short sighted views, that all claims under policies being satisfied, inquiry is therefore both needless and uncourteous, cannot be too quickly superseded by others of a more enlarged and satisfactory kind.

Most of the offices combine the two great divisions of insurance, *fire and life*; that is to say, the same society or company undertake risks of both kinds. No doubt transactions so very different in their nature are kept separate in the conducting of their business; it would be a culpable neglect of the public security to blend them for the purpose of answering claims, or to compensate defective premiums of one description by excessive ones of another; the practice of the offices leads us, however, to infer that the results as to fire insurance have not in all cases proved favourable; for while a well-established office has never been known to relinquish the insurance of lives, others have abandoned that against fire.

The loss by the ravages of this destructive element upon buildings and merchandize, within a short period, two-thirds of which may fairly be considered to have been reimbursed by the offices, has been of fearful amount, and suggests much matter for grave consideration. The reiterated alarms have passed away, but the liabilities to recurrence are scarcely diminished; and what period must elapse before the exchequers of the offices are replenished to a capability of sustaining similar demands upon them? If parallel of any kind exists between Fire and Life Insurance; if the premiums required for the former are deducted from an average of ordinary casualties, as are the latter from given decrements of life, we may consistently compare the extraordinary demands of the last two years on account of fires, to those which a fatal epidemic would create in the life department, and which would derange all calculation based upon a gradually accruing fund. We must, therefore, until better informed, retain our sceptical opinions as to the reality of accumulations, to any great extent, arising from the present rate of premiums for Fire Insurance; even the insignificant sums received in that shape for heavy risks, are burdened with the expenses of agencies, stationery, and a host of petty and vexatious claims which the public neither hear of, or suspect; to these must be added the expenses of the home establishment, and of the admirable and effective equipment superintendence and maintenance of the Fire Brigade of the Metropolis.

Thus far we feel entitled to proceed with our remarks; on the other hand, the Insurance Companies of London, whom no commercial or corporate bodies in Europe have equalled either in magnitude of operations, or in the promptitude and liberality with which all claims upon them have been satisfied, make no complaint on the score of losses; and we are led to hope that they are looking rather to the increased security that may be given to buildings, than to increased premiums, for protection that would seem imperative.

The more popular and palatable remedy of increased security in buildings may well originate in activity on the part of the insurance companies themselves, and they would find builders of all classes become parties to well-concerted plans of this nature; or, could a government commission be more usefully employed than in collecting evidence and proposing means to avert extensive fires? This would at once settle the question as to the resources of the building art bearing upon it, and decide the fitness of the time for calling them into action.

The great fire at Hamburg gave rise to much inquiry and discussion throughout the continent as to rebuilding, combined with the means of future prevention. We were present in that city shortly after the calamity occurred, and had opportunities of becoming acquainted with the various plans suggested; so much dreaded was a recurrence, that it was proposed

to raze remaining insecure buildings, and to restore them upon new modes of construction; and so strongly did this feeling prevail at the time, that Louis Philippe entertained a similar intention, to be carried into effect at Paris. But, without going into projects upon so large a scale, much may be done by an attentive consideration of the more palpable causes of the extensive damage sustained by what are called *great fires*; and, though unassisted by more than ordinary information, we may assume that these have for the most part originated on wharfs, in warehouses, or in manufactories where material of a combustible nature is wrought.

With respect to mercantile depôts for goods of a hazardous kind, whether for temporary purposes, as at wharfs, or as stores of the proprietor or holder, these should be arched and fire-proof: the public interests require this precaution, easy of accomplishment, and which should be strictly enforced. Many stacks of warehouses now occupied in this way could never have been intended to contain such hazardous deposits, but repeated transfers have brought them into these uses; none being aware of the danger incurred until it is manifested by an outbreak of fire. Manufactories of this description might be limited in altitude to two or three arched and terraced floors, in lieu of the towering buildings of the day, where an accident generally ends in a total loss. The cost of fire-proof buildings is doubtless a point weighing against the adaptation of them, but in all such cases large capitals are necessarily brought to bear, and remain constantly at risk, either by the proprietors or the insurance companies; and, abating public considerations, we very much question even the economy that is suffered to rule in such matters.

In conclusion, we will just glance at ordinary house property, of which whole masses of an insecure kind is insured; but whether so or not is immaterial in the larger sense, that includes the general safety, both of life and property. Cases do occur where all the skill and exertion of the well-organised force instituted for protection, fail in arresting the progress of a fire, until it is checked by some local impediment; why not, then, interpose more effective obstacles in the shape of blocks of fire-proof building at intervals judiciously chosen? The minor considerations such a measure involves would yield to the nobler incentives of its advocates; who, in addition, would have the gratification of seeing the greater part of the sums required for such purposes dispensed in the channels of labour.

There is a very recent example of practical judgment in building, with a view to limit the extent of damage by fire at the extensive workshops of Mr. Thomas Cubitt, the eminent builder, at Pimlico; this object is effected by interposing fireproof bays or compartments at intervals through the range; and the plan is, of course, applicable under modifications, to other descriptions of building.

SOMERSET HOUSE DRAWING AND MODELLING SCHOOL—THE POLYTECHNIC INSTITUTION CLASSES—THE BRITISH MUSEUM—NATIONAL GALLERY, &c.

THE facilities which these institutions give for instruction and study are so great, when united in one connected scheme, that we are surprised no one has laid down a plan to secure to the student their combined advantages; they only require to be dovetailed together, and filled in by a provision for the intervening hours, for giving a practical direction to the several courses of instruction that are pursued in each day, to render such a plan to young men, an invaluable means of acquiring with suitable economy, an enlarged measure of information; builders' sons and apprentices in the country, who are debarred these advantages, and wish to improve themselves; manufacturers, also pattern designers, and the like, might by six or twelve months' residence in London greatly benefit themselves, and we therefore invite respectable and qualified persons to turn their attention to making provision for assuring to parents the comfortable and proper supervision of their sons, as on the other hand we shall be happy to promote the views of those in the country who may desire to avail themselves of the advantages alluded to. We shall resume the subject next week.



Specimen of an Elizabethan Shield and Panel, by A. B.

ON SEEKING EMPLOYMENT.

WE had intended renewing this question this week in an article to accompany the subscribed engraving. Our object was to shew as we promised, how this or a similar vehicle of publicity was designed to serve the purpose of the intelligent suitor for employment. There are many grades of persons whose ability is to be evinced by some production of their pen or pencil, as in the instance we gave last week, and which, we are happy to say, has been attended with the desired success; but we must defer our observations till the next number. One general remark, however, we may venture to press in, and that is, to suggest to clerks of works, architectural draughtsmen, land-agents, factors, &c., that they should turn their thoughts to describing or illustrating, as the case may be, some subject bearing upon their occupations, and we will willingly give them every publicity, so that gentlemen being in need of their services, and looking out for some evidence of qualification, may, by being drawn to this journal, discover it in some of our essayists, whose professed object is thus avowed and supported.

ROMAN ANTIQUITIES.—The workmen employed by the city commissioners for improving the drainage in the neighbourhood of the abbey, have discovered in the orange grove, about eight feet below the surface, several interesting remains of Roman sepulture, especially a stone coffin of unusual form, but of so crumbling a material that it could not be removed entire. It was therefore covered up, with the skeleton it contained. Various fragments of pottery and ornamental glazed tiles were also found. A few models of tessellated pavement have also been discovered, formed of the blue and white lias, precisely like the more perfect floors of the baths discovered four years ago at Tiverton. The bones that have been found (except those of the human subject) have no particular interest, being those of the horse, the stag, and other domestic animals. The various remains are at present deposited for public inspection in Mr. Empson's museum, on the walks, nearly adjoining the locality in which the objects were discovered.—*Wiltshire Independent.*

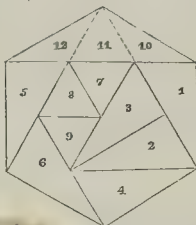
NEW OPENING BETWEEN THE LONDON DOCKS AND SPITALFIELDS CHURCH.—Lord Lincoln stated to a deputation which recently waited upon his lordship, that nearly the whole properties were purchased, and that a great portion of the street would be cleared early in the spring. The street is then to be continued in a direct line to the Old-street crossing of the City-road, passing close on the south terminus of the Eastern Counties Railway, by which improvement convenient communication between the east and west ends of the metropolis will be obtained.

GEOMETRICAL EXERCISES.

TO THE EDITOR OF THE BUILDER.

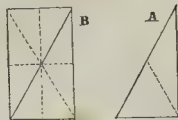
SIR,—I beg to offer the following solution of the problem submitted by "A Young Student." Trusting it will meet with your approbation, is the wish of your very obedient servant,
March 26th, 1843.

T. G.



B. To prove that 7 and 11, added together, are equal to any of the other six. Take, for instance, the lots 2 and 3, and by putting them together thus, and dividing as by these dotted lines, it will be very readily seen.

A. To prove that 9 and 10, or 8 and 12, added together, are likewise equal.



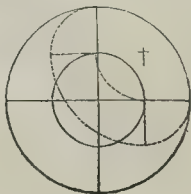
[We have received a solution also from a Plasterer.]

TO THE EDITOR OF THE BUILDER.

SIR,—I beg to submit the following solution of the proposition of "E. M.," in your last:—

By cutting the circle as shown by the main lines, and putting the large and two small pieces together, as shown by the dotted lines, you make one oval, with a hole in the centre; and you do the same by the other four pieces. Your well-wisher,
March 28, 1843.

A. H.



THE CHEMICAL COMBUSTION OF COAL, AND PREVENTION OF SMOKE.

(From a forthcoming Periodical called "London Nuisances," No. 1, The Smoke Nuisance, by Mr. A. BOOTH, Chemical Engineer.)

WITHOUT entering into the disputed point as to whether it is possible to burn smoke after such has been formed, it will be sufficient for our purpose to examine its constitution and the arrangement by which it may be diminished. Now the term 'smoke' indicates a very varied combination and mixture in which we obtain the following substances, of course more or less in quantity according to the state of combustion, the means by which it is effected, and the nature or quality of the fuel employed. These may be thus arranged:—

1. MECHANICAL IMPURITIES.

1st. Bituminous Matter.—Although this cannot be definitely characterized as a chemical compound, it is the vaporizable part of the bitumen or tar, which is one of the products of the destructive distillation of coal in the process for obtaining common street gas. These are mechanically suspended in the gaseous products given off by the coal, or through the furnace, and consist of numerous resinous and oily compounds giving the oily and adhesive properties to soot. When it is exposed at the instant of its formation to the requisite temperature and the proper quantity of air, the carbon burns with the hydrogen, and this substance is not formed.

2nd. Carbon.—This is charcoal in a minute state of division, which is left unburnt when either sufficient atmospheric air is not present, or the temperature is not sufficiently high for perfect combustion of the varieties of carbonized hydrogen and the vapour of coal-tar which are disengaged from heated coal, and form the worst portion of the smoke. In this case, the hydrogen inflames, whilst the carbon is left to be carried forward by the draught of the chimney, poured out at its mouth, and ultimately to fall to the ground with the former, as the nuisance so loudly and justly complained of.

The above two substances are defined generally as the blacks or smuts, and the result of his analysis of the same were given by Mr. Solly, jun., in a recent lecture at the Royal Institution. He found them nearly identical with house dust, which appears chiefly composed of the volatile and incombustible parts of the coal; the latter, however, existing in but minute proportions. The comparative analysis of the two, which is as follows, is interesting:

	Blacks.	House dust.
Combustible matter	371 ..	502
Salts of ammonia	426 ..	143
potash and soda ..	24 ..	20
Oxide of iron	50 ..	126
Silica	65 ..	144
Alumina	31 ..	31
Sulphate of lime	31 ..	26
Carbonate of magnesia ..	2 ..	6
	1000	1000

The above substances being held in mechanical suspension in the atmosphere, are those which give to smoke its dense, black, and opaque appearance, and which, by the force of gravity, deposit themselves from the atmosphere in which they have ascended, by being driven up by the draught of the chimney. It is these which deface our buildings, soil the skin and clothes, impede the circulation, both in animal and vegetable bodies, by depositing on the skin or cuticle, and interfering with their natural functional action. They form the soot in our chimneys, by depositing upon the points which they present, and which, were these made round and glazed, would be free from it. That this is the case may be shewn by interposing a layer of wire gauze a short distance above the fire through which the smoke filters, leaving the soot behind, whilst the chimney above is quite clean; the same is shewn in its effect upon the human constitution by the use of one of those ingenious instruments called the respirator. After this has been in use for some time over the mouth, if the particles of wire gauze composing the layers are washed, the water will be shewn to be quite soiled with black particles floating about in it, and which, without the interposition of this simple instrument, would have been taken into the system. We observe the same in the black mucus expectorated from the lungs, as is particularly shewn in a London fog, the black consisting of the soot which has been taken in by the breath. In a November fog, so peculiar to London, the unpleasant feelings which we experience are owing to the denseness of the vapour which is saturated with these sooty particles. The action of these mechanical impurities of the atmosphere upon the skin and lungs is more important than is generally considered. That they are the principal source of the injury which smoke inflicts upon vegetation is shewn, that if plants be well washed, and these removed, they will prosper and thrive vigorously, as might be particularly noticed in a garden in the interior of Somerset House a few years since. The skin of animals and cuticle of the surfaces of leaves, when in a natural action, are constantly performing functions which are essential to health, and perfect health cannot be enjoyed whilst these are interrupted. Whatever soils and fills up the pores of the skin is, therefore, injurious, and none can deny that the falling dirt and oily smut which adhere to the skin, in the same proportion or quantity which adheres to any piece of furniture or clothes exposed to the influence of a chimney vomiting forth its volumes of smoke, must have considerable and noxious effect. We have before alluded to the fact of the recession of vegetation from the precincts of our metropolis and large towns. That the great majority of trees and plants cannot live in a smoky atmosphere, and that those which do, never flourish or grow vigorous, in a great measure arises from the surface of the leaves becoming coated with a layer of soot and dirt, thus preventing the acts of respiration or circulation being effectually performed, as the leaves stand in the same relation to plants, and perform analogous functions in them, as the skin and lungs do in animals. Although animals by their motions are different from plants in possessing the power of removing the soot from their bodies, so that this fatal accumulation does not occur, there is no reason to doubt that the effect is equally injurious in proportion to the extent of its existence. This deposit on the wool of sheep is seen in the great contrast amongst the sheep in Smithfield-market, in the clear wool of those from the country as compared with those from the pastures in the neighbourhood of the metropolis, and equally so in the dark and blackened coats of those pasturing in Hyde-park and Kensington-gardens. The same is noticed in the Regent's-park, and by the degree of colour of the wool, the gardeners employed by the Royal Botanical Society recognise the number of days in which they have been pasturing there. The second injurious effect of carbon is on

the lungs, which present an immense extent of surface exposed to the atmosphere, so that any of its impurities will have the same effect upon this as the external surface, thus rendering respiration, an act most essential to life, more or less imperfect. In connection with these remarks it may be stated, that the late C. T. Thackran, of Leeds, in his work "On the Effects of the Principal Arts, Trades, and Professions on Health and Longevity," enumerates many employments, the gases and odours of which are extremely nauseous and offensive—as tanners, butchers, tallow-makers, &c., and numerous others—but states that scarcely one of these appears to shorten life. On the other hand, almost all the employments in which finely divided particles of solid bodies are inhaled, such as dry-grinders, stone-masons, chimney-sweepers, and others apparently more inoffensive, are ultimately and often rapidly destructive.

3rd. *Carburetted Hydrogen Gas.*—This, which is the common street gas, used for purposes of illumination, is obtained from the destructive distillation of coal, and is that product which produces the chief of the flame in our fires and furnaces. When it escapes unconsumed, it is on account of the incompleteness of the combustion, the requisite combinations not taking place with the oxygen of the atmosphere.

4th. *Carbonic Acid Gas.*—This is formed by the union of the carbon of the coal with the oxygen of the atmosphere. It will not burn, nor support combustion or animal life, but, on the contrary, destroys both. Its uses in nature are various, and united with lime, it forms carbonate of lime, varying in structure from chalk to the finest Carrara marble. Given off extensively by plants during the absence of light, it is re-absorbed by them in the daytime, and forms their aliment. It is spontaneously given off in the decomposition of various vegetable substances, and is found in cellars, or deep wells that have been for some time closed from the atmosphere, and it is therefore unsafe to enter such places, unless the quality of the air has been previously tested, which is done by introducing a lighted candle first. If carbonic acid gas exist in dangerous proportions, the candle will be extinguished, and life would have been destroyed if placed under these circumstances.

5th. *Carbonic Oxide Gas.*—This gas, which is also formed by the union of carbon with oxygen, is the result of imperfect combustion, as were sufficient of the latter to have been admitted into combination, it would have been converted into carbonic acid. It burns with a blue flame, by which its presence may be recognized in lamps and furnaces.

6th. *Nitrogen Gas.*—This is that portion of the air which is irrespirable, and will not support combustion. Along with hydrogen gas it forms ammonia.

7th. *Oxygen Gas.*—Some of this exists in smoke, and will always be found where complete combustion has not taken place.

8th. *Watery Vapour or Steam.*—This is produced chiefly by the union of the hydrogen of the coal with the oxygen of the air, and although of minor consequence, is the result of imperfect combustion.

9th. *Ammonia.*—This is a product of some importance, particularly as the result of imperfect combustion in rooms, or in a limited atmosphere. It is a compound of nitrogen and hydrogen gases, and is formed when the coal is consumed. It is also the result of imperfect combustion, as, if the hydrogen be burnt, ammonia cannot be formed, and we may presume that the nitrogen will make its escape up the chimney alone. Its presence, as the result of combustion, may be recognized in the white powder sublimated at the top of what are erroneously called gas consumers, this being carbonate of ammonia. M. D'Arcet recognized the presence of this gas in the atmosphere of London. It possesses a very powerful action on organic substances.

10th. *Sulphurous Acid Gas.*—That all coals contain sulphur of iron, or iron pyrites, which consists of sulphur in combination with iron, is well known. Some coals contain so much, that in its decomposition, when exposed to the atmosphere, and the influence of rain, it is apt to ignite spontaneously, from which cause ships and other places have been destroyed. In furnaces, a great proportion combines with iron and other unvolatile parts

of the coal; but a considerable quantity more escapes into the atmosphere in union with oxygen, forming sulphurous acid gas. It exerts a very powerful action upon organic substances, and is equally inimical to animal as to vegetable life. It probably exists largely in the atmosphere, and by its chemical action upon vegetables, proves one cause of their destruction. It also exercises a very powerful action upon the fabrics of works of art, by which the choicest productions of the limner are destroyed much sooner than they would be by the hand of time. It also acts powerfully on calcareous and stony substances, and is one cause of the more speedy destruction of statuary, &c. M. Darcet, the celebrated French chemist, confirmed the existence of this gas in the atmosphere, by walking through the streets of London, with prepared test papers for sulphurous acid and ammonia stuck in his hat, and from the rapidity with which they were discoloured, he came to the conclusion that the air was strongly impregnated with the former.

11th. *Sulphuretted Hydrogen Gas.*—This exists in very small proportions, and is formed from the union of the sulphur with part of the hydrogen of the coal. It is this gas which soils and blackens silver and plated articles when exposed to the atmosphere.

12th. *Cymogen.*—There is reason to believe the existence of this gas in smoke.

Although, from the natural tendency which gases have to become diffused, there will be but a very small proportion of these in any given quantity of atmospheric air, too small, indeed, to be recognized by any chemical tests, when it is considered what an immense quantity of this air passes through the lungs of each individual in the space of twenty-four hours, it becomes a matter of important inquiry. By well-conducted experiments, this averages from a million to a million and a half of cubic inches, and small as the quantity may be, it is sufficient to constitute the impurity of the atmosphere as a not unimportant element amongst the causes which deteriorate the health of the inhabitants of large towns. The gases above enumerated are more or less poisonous, and although existing in a quantity not sufficient to destroy animal life, their presence even in minute proportions is very injurious to the animal economy. Carbonic acid gas is speedily fatal, as is shewn in the numerous instances in which persons have injudiciously (or by adopting the fashionable French mode of poisoning) slept in close rooms where charcoal fires have been burning; but as the result of perfect combustion would be to produce this gas in greater quantities, and prevent the formation of various of the other gases referred to, so a very different effect would be produced. Nature has provided a means for its speedy decomposition, as every vegetable is at work, as well as other means are in constant operation, causing its disappearance. It is a natural product, but being injurious to animal life, nature has, with that beauty which is characteristic of all her operations, provided means for its removal, whilst carburetted hydrogen, sulphurous acid gas, and others not being natural products, by the operations of organization, no such means are provided. Were carbonic acid and nitrogen gases the only products of combustion distributed in the atmosphere, the vegetation in and near our towns would not be affected to its present extent, and we might enjoy the luxuries of the field or garden much more than we do now.

In proportion as we approach to perfect combustion, so do we get rid of more or less of these gaseous products, and the vapour becoming more attenuated, is comparatively harmless. The furnace invented by Mr. Juckes* appears to accomplish this important object more perfectly than any other process or arrangement which we have seen, and our observations lead to the following conclusions. The scoria ejected by it consists chiefly of aluminous, siliceous, and earthy matters, with sulphur in combination with iron (the proportions of which will always vary according to the quality or nature of the coal employed) with very little carbon, which in large proportions distinguishes *clinkers*, such excess of carbon being the result of imperfect combustion. The difference is very obvious, as is seen in the much greater specific gravity of

* A description of this appeared in No. 5 of THE BUILDER.

Estimate of the probable quantity of Sea Water required for the use of Public and Private Baths of London and the Environs; the Revenue arising from the same, and the Expense of Constructing the Works.

12 public baths, each bath 250 feet in length, 65 feet in breadth; mean depth, $4\frac{1}{2}$ feet, containing 73,125 cubic feet of water each; water to be changed 3 times in the week, requiring 219,375 cubic feet for each bath. 12 baths, requiring 2,632,500 cubic feet a week, the baths to be in use 22 weeks in the year, consuming 57,915,000 cubic feet of water annually.

8,000 noblemen's and gentlemen's houses and first-class lodging-houses, one bath to each house, the bath containing 15 cubic feet of water; each house requiring 52 baths in the year, consuming 6,240,000 cubic feet of water annually.

700 hotels, coffee-houses, and taverns, 1 bath to each house, the bath containing 15 cubic feet. Each house requiring 220 baths in the year, consuming 2,310,000 cubic feet of water annually.

500 schools, barracks, hospitals, asylums, work-houses, and gaols, one bath each, the bath containing 15 cubic feet, each requiring 300 baths in the year, consuming 2,250,000 cubic feet of water annually.

SUMMARY OF WATER.

	Cubic feet.
12 public baths.....	57,915,000
8,000 noblemen's and gentlemen's houses and lodging-houses....	6,240,000
700 coffee-houses and taverns.....	2,310,000
500 barracks, hospitals, asylums, workhouses, and gaols.....	2,250,000
	68,715,000

EXPENSE OF CONSTRUCTING THE WORKS.

Main pipe 20 inches diameter, 3 thick.
Length of main pipe, from Brighton to the Serpentine, 54 miles.

Number of pipes, 9 feet long each, 32,585.

	£.	s.	d.
Weight of pipes, 25,585 tons, at 8l. per ton	204,680	0	0
Carriage of pipes from the foundries in Warwickshire, and Yorkshire, to London and Brighton, at 20s. per ton	25,585	0	0
Carriage of ditto from London and Brighton to the works, at 10s. per ton	12,797	10	0
Laying, jointing, and securing pipes in the ground, at 4s. 6d. per yard	21,384	0	0
Works at the Sea Reservoirs, Steam and Hydraulic Engines	150,000	0	0
Contingencies, at 10 per cent.	41,444	10	0
	£455,891	0	0

REVENUE.

12 public baths, to be in use 22 weeks in the year.	
300,000 bathers, 22 baths each, at 2d. per head each bath	55,000 0 0
Noblemen's and Gentlemen's houses at a rate of 6l. annually	48,000 0 0
Hotels, coffee-houses, and taverns, at 6l. ditto	4,200 0 0
Schools, barracks, hospitals, asylums, workhouses, and gaols, at 8l. ditto	2,500 0 0
	£109,700 0 0

Project to Supply the Serpentine with a Stream of Sea Water, and form Basins of Sea Water in the Vicinity of the Metropolis.

For government to join the projected London and Brighton Railway Company in the expense of forming the line of railway, the water to be raised to a proper height into a reservoir at the sea to cause a current, to be conveyed in a stone culvert along the line of railway,—crossing the River Thames between Vauxhall-bridge and Battersea-bridge by an aqueduct.

The working industries orders of both sexes of the metropolis, probably amounting to one million, would have the benefit of sea bathing, so conducive to good health.

The higher orders of society would have the pleasure, and be gratified to see, the ailments of the poor much ameliorated, and the Gardens and Park ornamented with pieces of pure water.

The London and Southampton Railway may be available to the same purposes.

WILLIAM MOFFATT, Land Surveyor,
Knightsbridge, Sept. 8, 1835.

LOUIS PHILIPPE.—This great King has spent six or six millions of francs (200,000l. to 240,000l.) on Historical Pictures alone since his elevation to the throne of France. In England, it is calculated that three historical painters starve by their profession, while in France, three or four dozen make handsome incomes by it. We greatly fear that we shall never have an Historical School in England, unless Government renders some assistance.—*British Queen.*

OUR CORRESPONDENCE.

TO THE EDITOR OF THE BUILDER.

SIR,—Being one of the class whose labour is devoted to the erection of buildings which adorn civilization, I hail, and have perused THE BUILDER with unabated pleasure, as it has for its object the elevation of the mental, moral, and physical condition of the class to which I have the pleasure to belong. I have felt proud in my sphere of life, and now feel more so, with the pleasing emotions that THE BUILDER has excited within me, seeing that a brighter day opens upon us.

THE BUILDER will do much in the good work it has begun towards raising that part of the building line to which I belong, namely, brick-work, to a much more neat and permanent style, and more in accordance with the ennobling feeling of architecture.

It gives me great pleasure to see that you have already hinted at the subject of brick-work, and it cannot fail, I feel confident, to have done some good.

This branch of the building line cannot longer be neglected, but must occupy a position in architecture which the call demands. It is high time the bricklayer should step out of the denomination of a monotonous waller, and occupy a sphere where the greatest, noblest gift of heaven (the mind), will be used and applied to the work being done, and take into consideration the raw material with which he works, the plastic clay, seeing that any colour, shape, or density can be given to it. What, then, should prevent there being a brick-press in every brick-yard, to press all bricks for outside work, thus constituting neatness and strength? What can offend the admirer of brick-work more than to see the huge joints of mortar that are in many of our brick buildings.

If there be anything in the above that will suit THE BUILDER, or that may at all stir the question, you will much oblige, Yours, &c.

JAMES FLITCROFT.

Tytherly, Hants, March 24th.

We are glad to receive such evidence as this of the raising of the minds of our artizans; with God's help, it shall not be long before a signal change is observed in this respect.

TO THE EDITOR OF THE BUILDER.

SIR,—I have taken the earliest opportunity of answering your correspondent "M. L. B."

In the first instance let it be well washed and scraped; if it has never been painted, in my opinion, one good coat of paint would be of great service, provided you would not mind the expense. As to the colouring:—let the lime be fresh, if you can get it; mix it with hot water, fat and linseed oil made hot and mixed together, and used while it is hot, frequently stirring it. Some plasterers use bullocks' blood instead of fat and oil; perhaps you had better try a small piece first. The fore front of the house, No. 2, Old Bond Street, which is compo, was done with this colouring this time two years.

Yours, &c.
A JOURNEYMAN PAINTER,
OUT OF EMPLOYMENT.

TO THE EDITOR OF THE BUILDER.

SIR,—In the account you gave last week of the new bridge over the River Wear, I find a mistake of some consequence, which I hope you will correct in your next. You say, "the bridge is entirely constructed of stone from the Pensher quarries." Now, there were three different sorts of stone used in its construction, one a harder kind of free-stone than the Pensher quarries, and was brought from the neighbourhood of Newcastle; the other was brought from Mr. Gibb's own quarry at Aberdeen, and was, of course, granite. The outside course or ring of the centre arch, from the springing, is of this granite. It was thought by the engineer that the stone in that neighbourhood would not resist the great pressure of the centre arch.

I am, Sir,
ONE WHO WAS EMPLOYED AT IT.

TO THE EDITOR OF THE BUILDER.

SIR,—As I have a great interest in the destruction of buildings, being agent to several large timber-merchants, and have a still greater interest in the destruction of human life and of libraries, being at once clerk to a coroner, a performer of funerals, and private bookseller, I was much delighted to hear, at the Institution of Civil Engineers, Mr. Hogg's paper upon the roofs at Buckingham-palace, made as stated, fire-proof, by the use of tar; but upon which I look with an eye of delight, as tending to an opposite effect.

I am, Sir, with profound respect, your humble servant,
HEART-BURN FIREBRAND.

TO THE EDITOR OF THE BUILDER.

SIR,—Permit me, thro' the medium of ure beamental noose papper, or ray thr jorenall, toe aske sum or won of your numrous korrespondents to settel a pint of horthograpy connectikut withe bildin, a subiect wareson I hope I ma bee perumitted to sai eye am rayther partikular—namely (vizz.) how I ort to spelle the naim of those horiziontal pieces of timber in Ruves call'd genallis "Purlins," but buy sum piple "purlings," bye ubthers "purlains," and agen by a nother sort of peple "Purloins," as tho' wee carpinters were really as grate theaves wen we have to doo with hidin wood under a rooffe, as uncharritable peple doo now and thin sa we har. Also I shud like to no, how these partiklar timburs acquir'd sich a naim.

I ame, sur,
Your most obbediunt humbll sarvant,
JOB SHAVINS,
Beech street,
25th Marts, 1843. Journey man Carpintur.

FREE-MASONS OF THE CHURCH.

An adjourned meeting of the Fifth Chapter was held on Tuesday evening, the 28th March, when the consideration of the proposed laws was resumed, and the following points were settled, viz. that every contributing-fellow be expected to make to the college a present of some book, work of art, or article suitable for the library or museum of the Institution; and every architectural associate shall make and present to the college such drawings as the officers thereof shall require. One-seventh part of the ordinary revenues of the institution was directed to be devoted to the formation of a charitable fund, the produce of which shall not be distributed till the principal amounts to 1,000l. Every member of the college to be entitled to receive gratis a copy of all the printed papers, transactions and works, of the college. All members of the college to abstain from personal altercations, and from public strictures upon each other's works and conduct; but to impart fraternally to each other the best knowledge and science.

Every paragraph of the transactions, and every article of correspondence, to be numbered and accurately indexed for exact reference, so as to facilitate to every member the acquirement of professional and technical knowledge. All bye-laws to be annually added to the general laws, if such be deemed expedient.

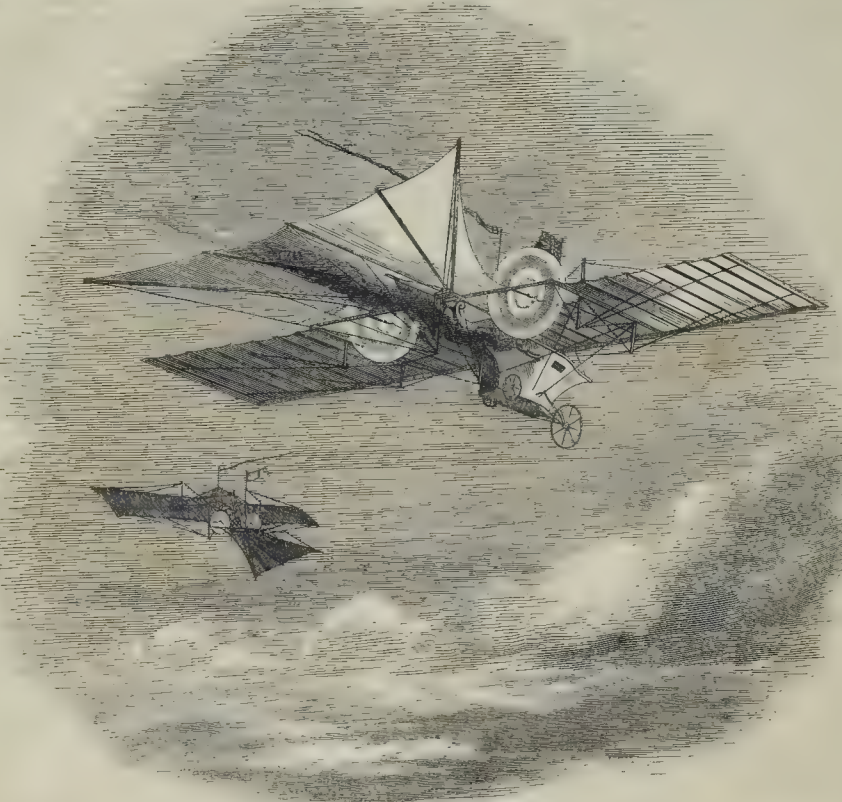
Upon the college possessing 400 contributing members, measures to be taken for obtaining a charter of incorporation.

The Rev. Owen Marden, B.C.L., Vicar of Chipping, was appointed a Chaplain.
Zachary P. Pocock, Esq., was appointed Correspondent for Van Diemen's Land.
Alfred Bartholomew, Esq., F.S.A., was appointed Professor of Carpentry.
Joseph Hanson, Esq., Architect, Foley-place, and John Clements Goyett, Esq., of Lincoln's-inn-fields, were elected Honorary Fellows.

Several gifts were made to the College, among which were two casts from the corporation seal of the city of Rochester, presented by C. Spence, Esq. The sixth Chapter was appointed to be held at 8 o'clock on Tuesday evening next.

ISLINGTON CHURCH STEEPLE.—This steeple possesses considerable beauty both of outline and construction. All the upper spiral work is formed with a singular airiness, shewing light freely through it in all directions and in every view. This is managed by the peculiar manner in which the hollow spiral cone is emblanted upon a double peristylum, presenting only single columns in front, but coupled columns in flank; these are firmly braced together by rustic cinctures, which make the columns at a distance seem to be vermicular, and still lighter than they would have appeared if placed singly. By this artifice, a great accession of breadth is obtained to the soffit of the circular architrave which supports all the conical superstructure. The peculiar manner in which the transition from the peristylum to the spiral cone is managed, is worthy of remark, as is also the way in which the balustrading surrounding the square tower is made of an octagonal plan, so as to retire behind the vases which crown the angles of the tower. These several artifices render the work novel, while they procure lightness of effect, and beauty of outline.

The new church in the Groves received the top stone of the spire some days ago: the scaffolding is now being removed, and the edifice expected to be consecrated in about six weeks.



Near and distant Views of the Aerial Machine.

THE AERIAL STEAM CARRIAGE.

We now come to the last new wonder of the day, and have made great exertions and some curtailments to have the power of laying it before our readers. We thought it would be out of place, or rather a great omission, if the early description of such a piece of machinery did not find its way into *THE BUILDER*. The description of the patentees is so copious, that we may be spared any thing in addition, and we must reserve our remarks for a deliberate conning of the subject. Matters look serious certainly in this business at last. We understand a company is formed or forming, and that an application is before Parliament in reference to it. It is hard to say what is and what is not practical now-a-days—nay, indeed, it was always so; but certain it is that this proposition will excite the attention and the ingenuity of thousands and tens of thousands, and every new hitch in such matters generally tells for an advance. We shall not be surprised to see a successful result speedily growing out of this movement.

The Machine represented by the accompanying Wood Engraving attempts, with the strongest probability of success, the accomplishment of an object which has been long and often desired, but has hitherto baffled the skill of man. Contrivances intended to give him the power of flight have been by no means rare; their frequency, however, only shewed how highly coveted was the faculty of rapid and unobstructed transit enjoyed by the denizens of the air, while their unvarying failure shewed how insufficient for its attainment were the arts and knowledge of past times.

Nor does the value of aerial locomotion appear to have been overrated. Accustomed as we are to the physical difficulties and immense expenditure of labour incurred in moving over, among, and across the materi-als and obstruc-

tions which compose the earth's wide and varied surface, we scarcely ever think of them; but quiet reflection soon brings us to the conclusion that they are really these difficulties and toils which hold the different parts of the human family in mutual estrangement, and perpetuate their mutual distrust.

To individual men, too, this art has ever been a matter of desire. "O that I had wings like a dove," the pathetic wish of the afflicted Psalmist, has not less been the longing of toiling travellers of all ages, when they have looked up at the swift and unwearied progress of the birds above them. Nor can it be doubted that in matters of far greater moment than the mere avoidance of bodily fatigue, every man would soon feel and recognize the influence of the unchecked and extended intercourse which would follow immediately on the first successful effort. Enlarged commercial and philanthropic activity; followed by closer friendship and more intimate sympathy, would soon bring new degrees of security and enjoyment to every home.

These views are so obvious, that the mere announcement of Mr. Henson's invention, some months ago, excited extraordinary interest, which has continued to increase; a period of reserve, as to the precise nature of the invention, was necessary for legal reasons: that period having expired at midnight last, we hasten to forward the accompanying engraving, and to complete the necessary information as to the principles of this extraordinary contrivance. To the spectator, the most striking part of the machine is the immense web which, in the most important respects, fulfils the office of wings. It consists of framework of great strength and extraordinary lightness, covered with silk or linen; its dimensions are not less than one hundred and fifty feet by thirty. It has neither joints nor the peculiar motion of wings; but is perfectly stiff from end to end. One of its long sides goes fore-

most, and is a little raised: to the middle of the other is jointed the tail, of fifty feet in length, beneath which is a rudder: a small vertical web, placed across the wings at their middle point, serves to check lateral oscillation. The several parts, like the main frame, are constructed with an especial view to the combination of the necessary strength with extreme lightness; the contrivance employed for this purpose is that of upright posts, or standards, to the tops and bottoms of which various points in the horizontal frame are connected by metallic braces. These parts are all shaped so as to pass through the air with the least possible resistance.

The car, and a very light and powerful steam-engine, described hereafter, are suspended from the middle of the wings, and are close to its under surface; the steam-engine actuates two sets of vanes, of twenty feet diameter, and six vanes each placed at the hinder edge of the wings, and as near to each other as the joint of the tail will permit.

The weight of the machine, when loaded and prepared for flight, is estimated at 3,000lbs. the area of the wings amounts to 4,500 square feet. The load is therefore two-thirds of a pound to each square foot, which is less than that of many birds.

This invention, however, differs most widely from all its predecessors in its mode of starting; a device by which the difficulties that have hitherto been found insuperable are avoided, and success brought almost to certainty of a likelihood, amounting almost to certainty. The carriage sets out from the top of an inclined plane, in descending which it acquires velocity so great that the resistance of the air admitted to its under face by the elevation of its front edge, suffices to sustain it. By this resistance, while its upward operation prevents the descent of the vehicle, opposes though in a much smaller degree, its forward progress; and this opposition, if not count-

acted, would soon so diminish the velocity of flight as to bring it below the degree at which the upward resistance of the air would sustain the carriage; it is therefore the office of the steam-engine, and its vanes, or propellers, to counteract that opposition, and continually maintain, at its original amount, the velocity of flight.

The difficulty which this contrivance avoids is the following. No source of power at present known will sustain in the air the materials and apparatus necessary to the production and application of the power; none is light enough in proportion to its effect. It is to this fact that all previous failures are to be attributed: but it is an axiom of mechanical science, which is well established by the coincidence of its consequences with the results of experience, wherever they can be compared, that a body once in motion will continue to move for ever, if opposing forces be taken away or balanced. Mr. Henson, therefore, sets his machine in motion by its descent down the inclined plane, and keeps it in motion by balancing the resistance with the action of his steam-engine. Now as the resistance to flight, which alone the steam-engine has to counteract, is but a fraction of the upward resistance by which the vehicle is sustained, it follows that the machinery to be carried, amounts, *in weight*, to but a small part of that required by all former inventions of the kind. To put the same in another view: the power by which the machine proceeds and is sustained, is ever that which it acquired by its descent down the inclined plane, and the decay of that power is prevented by the action of the steam-engine, just as the pendulum of a clock continues to vibrate by virtue of the power which originally drew it out of the perpendicular, while the gradual destruction of that power is prevented by the gentle pressure of the weight on it through the wheels. The weight, much too slow to set the clock a-going, is fully able to keep it so.

With remarkable similarity to this procedure, it may often be observed that a large bird will start from an eminence by first making a descent: when he has not this advantage his first few strokes are much more violent than the rest, that he may be sustained while he acquires the requisite velocity: afterwards the beats of the wings are slow and easy, and are sometimes intermitted altogether. Whoever watches the flight of various kinds of large birds, will observe many illustrations of the same principle.

Closely analogous, therefore, as parts of

Mr. Henson's invention are to the arrangements of nature, and strictly as they comply with the requisitions of established science, there seems, so far, little room to doubt his success. There remains, however, one question to which an answer is not so easily given, viz. will the steam-engine be sufficient to counteract the forward resistance?

The novelty of the steam-engine lies chiefly, if not entirely, in its boiler and condenser. The former consists of nearly fifty hollow truncated cones, averaging about three feet in length, and of four inches and a half in their greatest width: their blunted points, of about one inch in diameter, are downwards, and the whole are arranged above and about the fire; they present about fifty square feet to the action of radiating, and about as much more to that of communicative heat. The steam is worked in two cylinders, in which it is cut off at one-fourth of the stroke. Computing the power of the boiler to generate steam, by data derived from the effects of those of railroad engines, we conclude that the engine will be found of nearly twenty-horse power.

But the resistance which this power is destined to overcome, is not to be ascertained with correctness by any data which science or published experiments supply. The theory of the resistance of fluids to oblique surfaces, at small angles, is the most obscure part of the great system of mechanical philosophy; there is no traceable agreement between its results and the data derived from experiments, and the few experiments which have been made were undertaken with other views, and supply no facts which are applicable to the present question. Mr. Henson has, therefore, done wisely in deriving his data from the best observations he could make on the proceedings of nature, and from these there is reason to conclude that the power of his steam-engine will be found sufficient. It is, however, satisfactory to know that, if his engine should need reinforcement, there are inventions, some of which are not yet published, by which its power may be much more than doubled without materially adding to its weight.

The condenser is composed of a number of small tubes, into which the steam is admitted, and which are exposed to the current of air produced by the rapid flight of the machine. The plan has been found perfectly efficient; and it dispenses with the necessity for carrying water, either to supply the place of that which is discharged as steam when it has performed its work, as in high-pressure engines, or to

condense it that it may be returned to the boiler. The effect of these improvements in the boiler and condenser, combined with extreme simplicity and lightness in the other parts of the engine, is such that, though the engine is of the power of twenty horses, it is worked with twenty gallons of water; and its entire weight, with its boiler filled, is not more than 600 lbs.

The velocity and length of flight depend upon the same considerations as affect the sufficiency of the engine; they must, therefore, abide the test of experiment. There is good reason, however, to conclude, from the nature of the case, that high speeds and long flights will necessarily follow the attainment even of the lowest success.

The annals of mechanical invention prove that, whenever a step has been gained by which an important art has been brought prominently before the public mind, the thoughts of many and able men have been immediately turned to it. In this most extraordinary matter it is impossible that the same concentration of attention and research should not take place: we may, therefore, safely anticipate that, ere long, men will have added a new element to their dominion; and, having explored the recesses of the earth, and become familiar with the bottom of the sea, they will at length waft themselves through the unobstructed tracts of air, and make their roads upon the winds.

DESCRIPTION.

A, the main frame, or wings, composed of the longitudinal pieces, *a, a, a, a, a, &c.*, and the bow-like individual frames across them.

B, B, B, B, &c., upright posts, or standards, to the upper and lower ends of which metallic braces, shewn by the single lines, are attached, supporting various points in the frame.

C, C, a longitudinal piece, which forms the outer boundary of the space required for the vanes, or propellers.

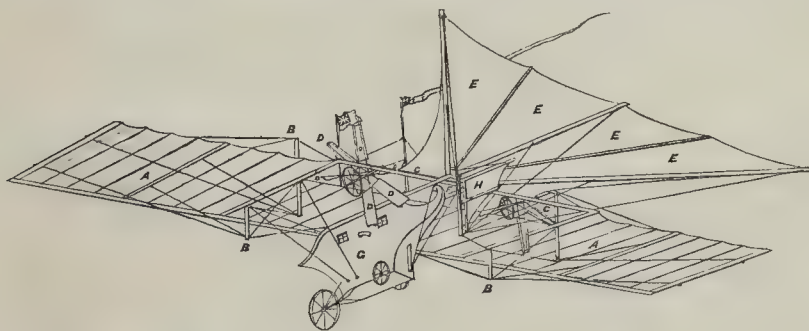
D, D, D, &c., the vanes, or propellers, mounted on shafts, as shewn in the figure, and drawn by steam-engines by means of bands.

E, E, &c., the tail, turning on a joint at F.

G, the car, containing the steam-engine, cargo, conductors, and passengers, in suitable compartments.

H, the rudder.

The covering of the wings and tail is of silk or linen: that of the wings is divided into three lengths for each end, joining each other at the double frames shewn: this division facilitates the rapid reefing and spreading of the covering, which is effected by the cords running parallel with the longitudinal pieces, *a, a, a, &c.*, of the wings. The tail and rudder are, in like manner, governed by cords proceeding from the car.



BIELEFELD'S PAPIER MACHE WORKS.

THE continuation of "our walk" through the above establishment, and the illustrations we have at hand concerning it, must give way to the novelty which this week's paper records; but we seize this occasion to say a word in reference to an observation in last week's paper, in which we might be misunderstood as speaking lightly of the interests of the Plasterers; this, however, is out of the farthest reach of our thoughts. Ten or twelve thousand men are not to have their interests trifled with; and it is because we do not think the branch of manufacture under notice is one to compete disadvantageously with them, that we expressed ourselves as we did on the former occasion; but we shall be able to shew more of the grounds of our opinion on resuming the article.

LITERARY AND SCIENTIFIC INSTITUTION, HUNTINGDON.

WE have been favoured with an inspection of the lithographic print of this edifice. The drawing is very efficient, and is by Mr. Rudge, artist, of Bedford, who has very happily combined the street view with a prominent perspective of the Institution. We can sincerely offer our praise to the architects, Messrs. Pocock and Glover, of Huntingdon, for the merit of their design. It is in the best spirit of the classic style, naturalized, if we may so speak, and adapted to its site and locality. There is a breadth and picturesque sobriety of character about it that reminds us of Inigo Jones's manner, although the whole thing is small; but we take its success, under such a condition, to be one of its greatest merits. A statue of Minerva crowns the centre of the

cornice, and so long as we are in the humour to take Greek and Roman personifications of Wisdom and the other Virtues, so long a plea of propriety may be urged in favour of such use of her godship as the present. But something might be said, and some early day will be said, to settle these things upon a more rational basis. We throw out this point for the consideration of the clever designer of this structure. A vigour of thought is marked upon his production, which, grappling with questions such as we have started, will lead him to conclusions worthy of being followed. The style of the lithography is very pleasing, and is from the pen of Mr. Madely, of Wellington-street, Strand. We shall endeavour to sustain our judgment by bringing a view of the building before our readers; and we think we may venture to make a promise of the engraving for the forthcoming week.

The Present State of Ecclesiastical Architecture in England. By A. WELBY PUGIN, Architect.—London: Charles Dolman.

[SECOND NOTICE.]

As we said in our previous reference to this book, we should endeavour to proceed "reverently and deliberately" with the subject-matter; and as in our last number we prepared our readers for the consideration of a particular question, namely, that of the comparison of Mr. Pugin's and Mr. Scoles' designs for the new Catholic church at Islington, so now we redeem our pledge, and enter upon our task in the spirit which it appears to us to call for—one of an anxious and sincere concern for truth and justice.

We have said in another place, "Away with, as dross, all the ability of the engineer, architect, master-builder, or workman, if the man be not endowed with *moral excellence*. What are beautiful designs, imposing structures, mechanical skill, or ingenious artifice in workmanship, without a mind and heart in harmony with the superior inspirations which virtue alone bestows?" And again, in advocating the cause of brotherly charity in our 6th Number, "Art, science, intelligence, power—each in their place; but last, *BROTHERLY CHARITY* must have precedence, and be esteemed and advocated before all."

The first we extract from our Sermon in our 1st Number, and we are mindful of that spirit of anxiety which animated the great preacher of the Gentiles, *that having preached the truth to others, we may not become ourselves a cast-away*. We do not take up this matter to vindicate Mr. Scoles merely; we do not take it up alone to vindicate the art from any supposed outrage or indignity that has been cast upon it; we do not set ourselves up as avengers of moral excellence; we may have a view to all, though all and each require none of our vindication; but we perform, or seek to perform, the task of vindicating Mr. Pugin from himself, and, to use again our own words, "to put the good which Mr. Pugin's exertions are calculated to bring about upon a sound and worthy basis."

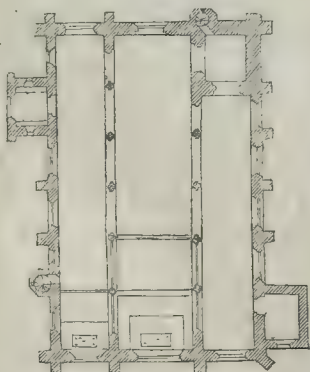
Alas! how true it is, that man has constant need to cry out—not alone, "save me from my enemies"—not alone either "save me from my friends," but more than all, *SAVE ME FROM MYSELF*. Viewed in its right light, and tested by the ordeal of time, and corrected judgment (which comes of it), this question will receive its due solution; but mischief to individuals, to art, and to moral propriety, obtain ground in the interval. Now we are bold enough to say to Mr. Pugin. Overthrow all the pleadings and all the rules that occupy the first section of this your book; let us build churches due east or due west—porches north or porches south—conventicle or cathedral; lay out the churchyard or the cemetery; overthrow all the formalities of rules and precedents; let the church be the hideous barn; nay, give us the catacombs again as of the first Christian worshippers. Style, ornament, grace (we mean grace of form and decoration)—away with all—run us not on the false scent after



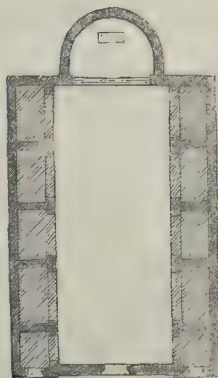
Islington New Catholic Church, as built by Mr. Scoles, from the same point of sight as Mr. Pugin's.

these exterior marks—these accidents of religion; give us the interior and motive excellence—the spirit, not the skeleton—the living soul, and not the dry bones—the mind, not the material. Catholic! Catholic indeed. Is Catholicism in high pitched roofs, in the shingle or tile of its covering, in the arch or the architrave, the column or the buttress, the dome or the spire, in wood, stone, marble, cement, glass, or iron? NO! We boldly and unhesitatingly answer No! It may stamp its impress upon them, it may make them the vehicle of its beauties, and in one age reveal her charms in one or a series,—in another, in another; but she is ever living, ever young, ever powerful, not dependent upon the things to which she has given birth, not deriving her

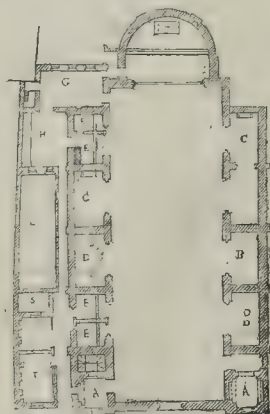
essence from these. Ever pregnant and fruitful, she has others of the family of beautiful forms, styles, and adaptations, in store for us. Catholic! How we lose the essence in the image! Catholic! Oh give us her spirit, and we shall not want her forms; these will come, and come without bidding—the graceful creations of GRACE. Churches will marshal themselves into order, and, like magnets, find their polar direction. Unity, simplicity, grandeur, have no biddings of their own. We join issue with you in admiring the beautiful development of this principle in the past, but we would wake you from that reverie of sensualism which loses itself in lines, and neglects the lineaments. Has your hand traced, measured, and pencilled the forms before it was



Ground-plan of Old St. Marie's, Islington, as proposed to be rebuilt by Mr. Pugin.



Mr. Pugin's Block-plan of Mr. Scoles's Church.



Actual plan of the New Church, Islington, as built by Mr. Scoles.

joined to its fellow, and elevated with your eyes to the creative spirit? Have the flowers secured your admiration—their hues and brilliancies entranced you? And have you forgotten they are but the prisms upon which rays of light are playing from a source superior to them and to you?—Have your knees been bent and your body prostrate over ruins and fragments, tracing the curious pavement—the overthrown relic—the monumental brass, before they were bent and prostrate to Him

whose worship led the magic of man's handiwork?—Have you seen the light only in reflections—crawled aground when you should have walked erect? If so, we wonder not that the leaven of these impurities still clings to, or lies within you. But we exhort you to cast it off; and, as a first step, we do this justice for you,—we pay into the treasury of BROTHERLY CHARITY compensation money to your account.

Does it become us, members and brothers

wants of the congregation, formerly existed at Islington, and was demolished only a few years since, to make room for the pewed and galleried assembly room which is at present used for the parochial Protestant service.

"In the annexed plate we have given a view of this church as it would have appeared if erected on the site of the present building; in which case it would have stood in correct canonical position, due east and west, the high altar and side chapels facing the New River, while the tower, at the extremity of the north aisle, would have imparted the true character of a parochial church to the building, without encroaching on lateral space. By the plan, which is also given in the plate, it will be perceived that the high altar could be perfectly seen from all parts of the old church; which, strangely enough, was the reason advanced for departing from ancient arrangements, and confining the congregation to the mere nave of the present design, and blocking up the space which should have been occupied by the aisles with cross walls.

"We are unwilling to attribute all the defects of this building to the architect, who has on former occasions shewn himself capable of doing very much better; and who would be a valuable ally in the good cause, if he would seek to do what is positively right and correct (what Mr. Pugin thinks to be positively right and correct) rather than what may please for the moment; and we fear he has been induced to arrange this building on the same principle that artists occasionally paint family portraits, out of all harmony and proportion,—so much paint so much money. Yet surely this is quite unworthy of an ecclesiastical architect; these are not times for compromise; the English Catholics are no longer an obscure body, but stand as a light and a beacon to others who are on all sides seeking the truth; they are at the present time in a fearful state of responsibility, and said it is indeed, that by the erection of this, or similar departures from true Catholic architecture, they should afford a temporary triumph to the infidels. The church at Islington is built on the *all-front-principle* of Dissenters, and is by no means equal to the Puritan edition of York Minster at the Scotch Kirk, Regent-square, though it likewise apes two diminutive towers at the west end of a church which is neither collegiate, conventual, nor cathedral. The united cost of these would have erected a good massive parochial tower at the western end. Indeed this building is in all respects so painful a subject, that it would not have been introduced at all, if the exposure of error did not contribute greatly to the advancement of truth; and in the present case it seems absolutely necessary to demonstrate the fallacy of the principle which instigated its extraordinary arrangement, and to set forth the great superiority which aisled churches possess in every respect over large rooms, which some persons in these days advocate strongly as the best form of religious structures."

Now, when we add to all this, that Mr. Pugin's proposal to place the old St. Marie's revived upon this site, would have been next to impracticable, that the tower would have been almost invisible, and the Church itself overtopped by the four-storied dwelling-houses that came up to it on each side; that, in fact, a mere eastern façade or "all front" was all, or nearly all, that was to be had, and that the rural quality which the whole thing bears in its delineation, and which is its principal charm, is a fiction of promise, as any one will readily conceive, who thinks of such a church hemmed in, in a London street row; that Mr. Pugin has himself made nearly as great a departure from the cardinal, or as he would have it the canonical point, in the disposition of his church at Derby, in placing it north and south; that at Birmingham he has also adopted the "all front style," although one side of his structure was open to him to make a display, if he had chosen; that two towers of a very superficial definition usurp the place, or rather the cost, of a *good massive parochial tower*—though we suppose he will plead the cathedral for its openings; that this very church of his recommendation for Islington has no chance (a point he so much sticksles for), but a part boxed out from the nave—that a semicircular apsis, but of inferior relative proportions to the church, has been applied by himself at Reading; that the Norman style has been aped there also, with not a few of "experiments," and no small amount of sham and deception there and elsewhere; that, in fine, the whole catalogue of defects and enormities against which Mr. Pugin is pleased to rail, has been most industriously sinned against in his own practice, and many other that are not in the catalogue,—when all this is considered, we ask if it is not an abuse that deserves this reprehension, an evil for which



The Old Church of St. Marie's, Islington, restored.

of an art which has a divinity in it, to indulge in ill-mannered, ill-tempered, splenetic, and vindictive purposes, towards one another, to shut ourselves up in the jealousies and misanthropies of self-love; to chafe and struggle for dominion, and to bear down upon all, but those who yield a ready submission to our dicta, or sing the soft echo to our vociferations. Assuredly not. Our vocation is clear and well defined, our fraternizings are for the brotherhood, our obediences for the sovereignty of virtue and of art.

And now, we tell our readers that this new church of Islington, which Mr. Scoles has built, and which Mr. Pugin insists he ought not to have built, and which he has done no little damage to by his strictures, depriving it of the contribution of many whose purses yield more to dictation in such matters than to reason or to judgment; this church of Mr. Scoles is withal a fine and noble church. We do not say it is in the style or manner which we would have chosen, but what of that? Mr. Scoles is not a man to be schooled by us, or a better man. His talent as an architect, his title to be considered a man of cultivated taste, is established. Look at his church at St. John's Wood; look at the church he built for Lord Calthorpe at Edgbaston, near Birmingham; look at his magnificent work at Stonyhurst, Lancashire; and the many others that we could mention; look at all these and let it be answered whether he is a man to be thus baited, to be thus overruled in his choice. We have examined his church at Islington, and we say again it is a noble church. The idiomatic character of the style he has chosen is well preserved; there is true Norman breeding in it—portly, majestic, solemn. Those who look at pictures, mere pictures, must be instructed that there are features which a comparison of pictures alone fails to bring out. The miniature tabernacle, drawn to a large scale upon paper, may appear as formidable as the cathedral of which it is a mere model, when reduced, as it must necessarily be, to a scale of some five-hundredth of its real magnitude; and the thing of mere prettiness may, to the unthinking and superficial observer, have more

charm and attraction than that which excites a totally different and a loftier class of sensations, and can only excite them by a contemplation of the object itself, or by a style of delineation and description that is worthy of it. Why, St. Peter's at Rome might, by an unfair handling of the artist, be thrown into inferiority by the companion draught of a picturesque "summer-house;" and this, we are sorry to say, is the case in a great degree in Mr. Pugin's treatment of the church in question—false perspective and a false point of sight, and, as to his own suggested design, a false representation of Mr. Scoles' plan, are among the unworthy arts to which an overweening vanity and an imperious spirit, or something worse, have unhappily led Mr. Pugin; and if we add to these the unmeasured—the cruel—the opprobrious and unjust outflowings of his pen, we think we have said enough to make Mr. Pugin feel that we are entitled to his thanks for relieving the cause he espouses, and the art he professes, from the stigmas which, seen or unseen, have been felt in their consequences, and would continue to be felt, so long as this, or the better vindication to which it may give rise, wanted expression and utterance.

To justify the severe censures which, contrary to our nature, we are compelled to make, we give Mr. Pugin's own words:—

"NEW CATHOLIC CHURCH AT ISLINGTON.

"This church, so far from exhibiting the adoption of true Catholic principles, which we have had so much pleasure in describing at Masbro', is certainly the most original combination of modern deformity that has been erected for some time past for the sacred purpose of a Catholic church.

"It has been a fine opportunity thrown away; and the only consolation we can derive from its erection, is the hope that its palpable defects, by serving as an additional evidence of the absolute necessity of adhering to ancient Catholic examples in the churches we erect, may induce those in ecclesiastical authority to adopt this system in all cases, and to refuse their sanction to any modern experiments in ecclesiastical architecture.

"What renders the present case the more deplorable is the fact that an ancient Catholic parochial church, dedicated in honour of the Blessed Virgin, and in all respects suited to the present site and

any check would be salutary, and a duty we owe to our readers on the republication of Mr. Pugin's slanders,—for what else can we call them?—a duty, we say, on our parts, to put out for his bane this our antidote.

We have printed the two elevations together, to admit of a more ready comparison, and we have given Mr. Pugin's version of Mr. Scoles's plan, and the actual plan, by which it will be seen how much they differ; and it should be borne in mind that Mr. Scoles's church is no paltry, diminutive affair, while the total cost will not, we believe, exceed 6,000*l.* Entering at the large doors in the street facade, we have before us an uninterrupted sweep of 137*ft.* 6*in.*; the height to the ridge is about 70 feet, and the clear width between the main walls 40 feet; indeed, it is a noble temple-hall, if we may so speak. The range of windows in the Clerestory is in correct-keeping with the whole structure, bold, high-raised, uniform, and very impressive; the side chapels opening into the great nave by the characteristic Norman archways have an imposing effect. The chancel is very bold and striking, and with its lights high raised as those of the Clerestory, has all the dignity which befits it; indeed, we were fully prepared for all that greeted us. We knew that Mr. Scoles could not commit any egregious architectural blunder; and we trust, after what we have said, that Mr. Pugin will himself endorse the payment we have made to his credit, and confess, which is the noblest act of the ingenious mind, that he had deserved and provoked these our well-meant objections. Indeed, we cannot afford to have art, in this her struggling-time, impeded and clogged in her course by the rubbish of men's passions and perversities, and above all, of those who minister at her temple, or profess to be her devotees.

REFERENCE TO PLAN.

- A A Porches.
- B B Catechists.
- C C Chapels
- D Baptistry
- E E Confessionals
- G Sacristy
- H Vestry
- I Yard
- T Clergy's House, Dining-room.

Miscellaneous.

RAILWAYS.—We called the attention of our readers a few weeks since to the projected Leeds and Harrogate, and the Leeds, Bradford, and Halifax Railways, and the North Midland extension from the Hunslet Lane Station to the proposed new Station near the Wellington Inn, Wellington-street, Leeds, in which we shewed the great saving in distance from the southern and western to the north-eastern parts of England. Since our former remarks, Mr. Fowler has had communications with several gentlemen in Holmfirth, Huddersfield, and the neighbourhood, relative to the formation of a single line of branch railway from Bradford, to join the Manchester and Sheffield Railway at Cather, about three miles west of Penistone, by way of Ripley's Dreyhouse, Bierley Hall, Oakenshaw, near Low Moor, Cleckheaton, Mill Bridge, Heckmondwike, Mirfield, Cooper Bridge, Huddersfield, Lockwood, Armistage Bridge, Honley, Brookholes, New Mill, Holmfirth, Jackson Bridge, and Woodroyd Mill. This route would open out a cheap and more expeditious line of easy communication through a large manufacturing clothing district. Mr. Fowler has suggested to the promoters of these several lines, that all the trains should communicate with each by line by corresponding gradients, and that the Hunslet Lane Station, Leeds, should be the principal depot for the offices, warehouses, and locomotive engines, thereby effecting a great saving to the shareholders in the outlay of capital. Another suggestion is, that the proposed railway should be completed upon as economical a plan as possible, that the station offices should be made as plain as possible, at a moderate cost—that the bridges crossing rivers, canals, watercourses, and the viaducts, should be built of wood, well timbered, and capable of standing about a century; and also suggests that the directors and shareholders should have quarterly, instead of yearly meetings, whereby thousands of pounds would be saved in what are now generally admitted, extravagant and splendid stations, and unnecessary works. By the formation of the aforementioned proposed lines, which may be completed at 30 per cent. saving in the price of labour and materials, Leeds, Bradford, and Halifax, would again possess the loss of traffic by passengers and goods which now pass daily by other railway communications.—*Correspondent.*

NEW MOTIVE POWER.—Dr. Boisragon delivered a lecture on the 16th ult., on "the new motive power," of which we find a report in the *Cheltenham Free Press*. Mr. B. dwelt, at the outset, on the heavy expense of steam-power—the single article of coke costing the Great Western Railway Company 1,000*l.* per week. Railway and steam-navigation companies, he said, were paralyzed by the burden of the "motive power" which they employed. He had therefore great pleasure in introducing before a Cheltenham audience, as one of the patentees of the invention of Isham Baggis, Esq., the carbonic-acid-gas power—one of the grandest inventions ever brought before the public. Dr. Boisragon added—it is not only a power produced from fuel like coal which can be consumed, but it is a fuel that when set in motion will return, and will be used over and over again so long as the law of chemical affinity remains. It will be free from smoke—not liable to the discharge coils which caused the accident on the Versailles Railway—and devoid of that offensive smell given out at the stations. If there is any escape in this it won't worry. Short trips by steam are now very unpleasant, but ere long we shall see by its fire, boils by its steam, nor suffocates by its smoke—a grand vessel worked on the principle of the Archimedes screw, "walking the water like a thing of life," without any visible power to set it in motion. The new power may call back into use a great amount of property now rendered useless, viz. turnpike-roads. Many attempts have been made to propel carriages on common turnpike-roads, but, though doing work to some extent, the projectors have failed; nor is this to be wondered at, when we consider the expense. This invention will give cheap and rapid travelling on common roads, and over countries which no railway can cross. There is another consideration, and that is relative to the consumption of coal. Those conversant with geology declare that the coal-fields of England are still available to supply coals for one thousand two hundred years. This may be very true, but in many places the stationary engines consume thousands of tons of coals. The price of production must increase in proportion to the depth. The mere circumstance of saving the consumption of coal, and of preventing the price of coal being raised, must be a considerable subject of calculation.

GALVANIZED IRON.—About five years since a patent was taken out in this country, by a M. Sorel, for the purpose of galvanizing iron, by a process of coating it with zinc, in a similar manner to tinning; but for some cause, we believe a dispute among certain capitalists, this patent has been allowed to remain in abeyance, during which period it has been in considerable use in France, and is, at the present time, we understand, extensively employed by the French government. It is now taken up in this country by some spirited individuals, who have established large works in London for zincing iron to any extent. The process may be applied to both cast and wrought iron in any form. "The effect of zinc in protecting iron from oxidation," says Professor Graham, "has been known to chemists for some time. When these two metals are in contact, an electric or galvanic relation is established between them, by which the iron ceases to be susceptible of corrosion by dilute acids, saline solution, or atmospheric humidity. It was found in experiments lately conducted at Dublin and Liverpool, that small pieces of zinc attached to each link of a chain-cable were adequate to defend it from corrosion in sea water. The protection was observed to be complete even in the upper portion (and of the iron chains by which buoys are moored) and from being alternately exposed to sea water and air, is particularly liable to oxidation," so long as the zinc remains in contact with the iron links. The protecting influence of the zinc could be more certainly secured than in the articles prepared by the patent process, the iron surface being uniformly coated over by that metal. In trials to which I have had an opportunity of subjecting them, the iron escaped untouched in acid liquids, so long as a particle of the zinc covering remained undissolved. The same protection is afforded to iron in the open atmosphere by zinc, with a loss of its own substance, which is inappreciably minute. The zinc covering has the advantage over tinning, that, although it may be worn off, and the iron below it partially exposed, the iron is still secured from oxidation by the galvanic action, while the smallest quantity of zinc remains upon it; whereas tin, in common tin plate, affords no protection of this kind, and not being absolutely impervious to air and moisture, the iron under it soon begins to rust in a damp atmosphere. The simplicity and perfect efficacy of the means employed to defend iron from the wasting influence of air and humidity in this process of zinc tinning, certainly entitle it to be ranked as one of the most valuable economical discoveries of the present age."—*The Civil Engineer and Architect's Journal.*

The *Hull Packet* is pleased to speak of us in the following complimentary manner, for which we beg of the editor to accept our best thanks—

"THE BUILDER.—A great sensation has been produced among the architectural and mechanical classes by the publication of this work—a periodical devoted exclusively to their interests, and embracing an extensive variety of matter, equally valuable to the experienced engineer, the scientific architect, and the humble artisan, who would follow in their steps towards prosperity."

APPELLES AND PROTOGENES.—The pencil of Appelles, the first of Grecian painters, was famous for drawing fine lines, and from this circumstance arose the proverb "No day without a line." Being highly delighted with a picture of Jalyus, painted by Protopogenes of Rhodes, he sailed thither to pay him a visit. Protopogenes was gone from home, but an old woman was left watching a large piece of canvass, which was fitted in a frame for painting. She told Appelles that Protopogenes was gone out, and asked him his name, that she might inform her master who had so quietly for him. "Tell him," says Appelles, "he was inquired for by this person," at the same time taking up a pencil, and drawing on the canvass a line of great delicacy. When Protopogenes returned, the old woman acquainted him with what had happened. The artist upon contemplating the fine stroke of the line, immediately proclaimed that Appelles must have been there, for so finished a work could be produced by no other person. Protopogenes, however, drew himself a finer line of another colour; and as he was going away, ordered the old woman to show that line to Appelles if he came again, and to say, "This is the person for whom you were inquiring." When Appelles returned and saw the line, he resolved not to be overcome, and in a colour different from either of the former, he drew some lines so exquisitely delicate, that it was impossible for finer strokes to be made. Having done so, he departed. Protopogenes now confessed the superiority of Appelles, flew to the harbour in search of him, and resolved to leave the canvass as it was, with the lines on it, for the astonishment of future artists. It was in after years taken to Rome, and was then seen by Pliny, who speaks of it as having the appearance of a large black surface, the extreme delicacy of the lines rendering them invisible except on a close inspection. They were drawn with different colours, the one upon, or rather within, the other.

SMEATON, THE ENGINEER.—The famous Smeaton, who was patronized by the Duke of Bridgerton, and employed by him in the erection of the canal from Runcorn to Manchester, was distinguished in his day by a practice that was held to be as daring as it was novel, but which in these times would be regarded with little or no astonishment. In constructing the aqueduct which crosses the canal over the river Mersey he had to contend with the adverse opinions of rival and envious engineers, and it is stated that one of those who had sneered with incredulity at Smeaton's proposition, was induced to visit the work on its accomplishment and convince himself, by inspection, of its soundness and sufficiency. His scepticism was subdued, and a tribute of voluntary approbation was elicited from him in these words:—"Well!" he exclaimed, "I have often heard of castles in the air, but I never saw one of them built before."

The *Leeds Intelligencer*, of Saturday, says, "we do not envy the heart of the man who can read without deep emotion the following extract from a communication from Mrs. Southey (formerly so well known as Caroline Bowles) to Mrs. Sigourney, an American authoress, in answer to a letter, in which the latter lady desired to be remembered to the laureate:—"You desire to be remembered to him who sang of 'Thalaba, the wild and wondrous tale.' Alas! my friend, the dull, cold ear of death is not more insensible than his, my dearest husband's, to all communications from the world without. Scarcely can I keep hold of the last poor comfort of believing that he still knows me. The almost complete unconsciousness has not been of more than six months' standing, though more than two years have elapsed since he has written even his name. After the death of his first wife, 'Edith,' of his first love, who was for several years insane, his health was terribly shaken. Yet for the greater part of a year that he spent with me in Hampshire, my former home, it seemed perfectly re-established, and he used to say 'It had surely pleased God that the last years of his life should be happy.' But the Almighty's will was otherwise. The little cloud soon appeared which was in no long time to overshadow all. In the blackness of its shadow we still live, and shall pass from under it only to the portals of the grave. The last three years have done on me the work of twenty. The one sole business of my life is that, which I verily believe keeps the life in me—the guardianship of my dear, helpless, unconscious husband."

THE BUILDER,

NO. IX.

SATURDAY, APRIL 8, 1843.

ROYAL INSTITUTE OF BRITISH ARCHITECTS.

A SPECIAL meeting of this Institute was held on Monday at one o'clock, to present the medals awarded during the session, when his Royal Highness Prince Albert, patron, took the chair. The Prince, who arrived two minutes before his time, was attended by Lord Liverpool and Colonel Bowater. Mr. Donaldson, foreign secretary, read letters from Herr J. C. de Lassaulx, Signor Canina, Signor Abertoli, and Mr. De Bret, accompanying some very handsome donation-books. Mr. Fowler, honorary secretary, having read Bacon's description of a princely palace, Mr. Arthur Johnson was presented to the Prince as the author of the best design founded on that description, and received the Soane medallion. In like manner, his Royal Highness presented to Mr. Edward Chamberlain the medal of the Institute; and to Mr. J. W. Papworth the medal of merit for essays on synchronism in connection with architecture. Mr. Baily announced the subject for essays and drawings for which the council proposed to offer medals next year (which we will give in our next), and then read a communication from Mr. Charles Parker on the methods employed in constructing foundations in Venice, the soil of which city is of a nature to require the greatest care, and yet where failure is seldom if ever seen. Thanks having been voted to the author of the paper, Mr. Barry addressed the Prince in the name of the Institute, and assured his Royal Highness that the remembrance of the day, and of the kind manner in which his Royal Highness had fulfilled its duties, would long remain in the memory of the members. The Prince replied—"Gentlemen, it gives me pleasure to have this opportunity of meeting you." The Prince examined the collection of casts and models belonging to the Institute, and seemed fully to enter into all the matters which came before him.—*Times*.

So far for the ordinary way of disposing of such matters; but we must enter upon a more appropriate and fitting manner of recording what pertains to the chief council or court of the chief art of a refined and cultivated people.

What can present a more lively exponent of the position which architecture has hitherto held in the estimation not only of the general public and the press, which mirrors them, but of its professors themselves, when a very moderate paragraph, like the one we have extracted, serves to dispose of the annual general meeting of the INSTITUTE OF BRITISH ARCHITECTS? Why, it is disposed of with as little ceremony and less parade than a coroner's inquest; that which ought to have its Hansard, and a volume, exists in a fugitive notice of a few daily and weekly newspapers; that which ought to have its privileged and solemn jurisdiction and records, its missives and its archives, its court and council, its special reportings, and to command a grave and deep interest from the outer world, it being a world within, commands an annual board assembly somewhat equal to the weekly gathering of an insurance direction, or that of a parish vestry, or a board of guardians; has a tolerably decent suite of rooms, if we were talking of an auctioneer or a manufacturer's show-rooms; a modest annual report or circular, and a closet-shelf full of its proceedings! it catches a condescending notice from the gentlemen reporters, who depute some raw recruit of their staff to break his hand in at this little job, while they pursue the more important routine of police offices, sessions, parish sittings, and the like, and the great public eye is satisfied with one twinkling of recognition, to note that there is such a thing in existence as an obscure body of men, lately, very lately, strong enough to organize themselves into a "society," or to attempt it, and to meet once a month or so, in corresponding obscurity, in a moderately re-

spectable quarter of London; but beyond all this, nobody cares or seems to care for, or to estimate as of much consequence, any thing of them, their sayings or doings. Such is the present condition, or a type of the condition, of what pertains to this master art in this master nation of this enlightened and advanced era, this boasted nineteenth century!

Is this, or is it not a reproach, and upon whom is the reproach to fall? Has the public demanded more than this; and if not, what is to be said of it? Has the profession deserved more, and if not, what is to be said of it? Is there any thing for either to plume itself upon? We opine not; and now let us ask, what is the remedy?

The best remedy is to carry out with all possible expedition that which this day and occasion promises a good commencement of. Let the Institute descend from its visionary and ascend its real eminence—let them imitate the example of the Prince Consort, who, in the language of courtly compliment, may be said to have condescended, but who, in truth, has honoured himself in meeting them; let the Institute secure to itself the honour of breaking down, as the Prince has done, all the false barriers of conventional distinction. He sees enough in the art to cause him to fraternize with its honoured professors. He would be ashamed to stand, or to affect to stand, above its humblest member. He evinces his reverence for the art by coming unreservedly among the men who designate themselves its professors, not caring to know whether all, and how, many have shewn themselves its practitioners. He brings with him no standard of exclusion—no gauge of admeasurement—his heart and hand are open to the common subjects of the sovereign (artistic and politic) of our common fealty. Let his example, we say, operate with the Institute over which he this day presided, and let them in time look to and fraternize with, it may be the humbly pretending, but after all the equal brotherhood—gradations and rank are accidental, they are not the accessories of art—the architect, like the poet, may be and most frequently is the child of humblest worldly rank, but of lordly inspirations. The architect earns his own fame; it is not conferred on him by rule, and vote, and ballot. Open wide your doors, and make the passport honour, fidelity, trust. In this will be your own security, in this alone consistency.

Why, there are hundreds of men at this time in England, and no disparagement to your worthy body, who are as well entitled to any honorary or actual privilege of the Institute as the best amongst you, builders and workmen; and sooner or later this opinion, now hazarded, or rather deliberately recorded, will be confirmed. Your charter will be found too narrow—too sectarian—yourselves must merge into the Catholic, or rather be absorbed in the working of a Catholic principle.

It is not in the language or the spirit of reproach that we have thus commented on the interesting subject before us. We have too much respect, too much of that feeling which we so admire in your princely president, to suffer our minds to be warped by personal considerations, exterior or interior. The Institute has our special reverence, our sincere affection and respect, and we are jealous of any thing that militates or appears to militate against its dignity, purity, and efficiency.

Abating all considerations arising out of the past, we cannot refrain from a special word in our own way, as to the proceedings of this day's meeting. We know it will be interest-

ing to our readers to be more familiarly introduced to the Institute, than through the medium of these frigid and formal newspaper reports; but we dare not lift the veil too abruptly or too freely. Suffice it to say, that the Prince deputed himself like a perfect gentleman, and evidently felt himself in place. There were some almost profuse presents of foreign works, in addition to those already mentioned, from the Duke of Serradifalco, and the Chevalier de Canina. The papers read were extremely interesting, especially that quaint one of the illustrious Bacon, because it referred to some beautiful drawings by Mr. Johnson, who had taken the great philosopher as his patron, and designed a palace to his instructions; right well did this young gentleman deserve the greetings of the Prince, the distinction of the Institute, and the applause of the meeting. Mr. Chamberlain and Mr. Papworth, Jun., were in their order introduced to "the chair," and met with similar greeting and applause. The latter gentleman wore several medals of the Institute on his breast with becoming and modest pride; and we could not help sharing with his father, who was an early worker, if not a principal in the founding of the Institute, in the feeling of fond satisfaction which evidently pervaded his breast at the well-merited gleanings of the junior from his parental sowings.

The following are some of the members who were present in addition to the names already mentioned:—

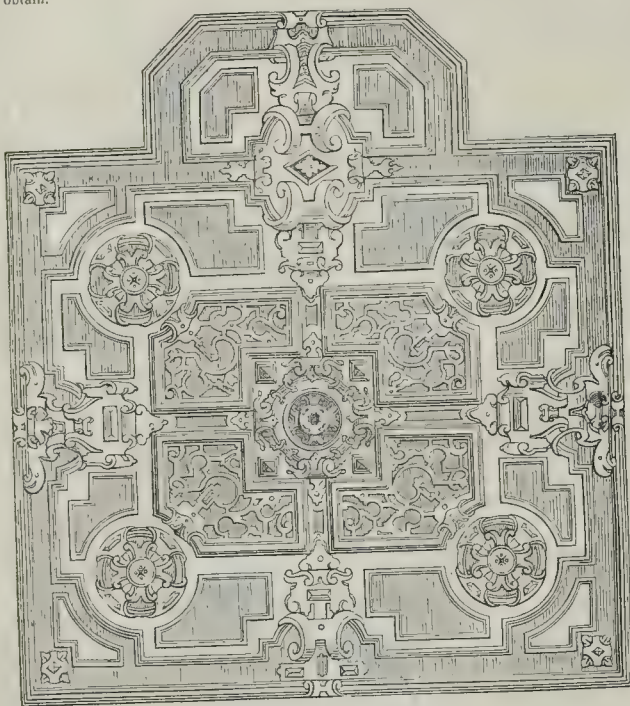
P. Hardwick, V.P., E. Blore, J. Angell, Thomas Bellamy, H. E. Kendall, J. Crane, Professor Hosking, J. J. Scoles, G. Mair, J. H. Good, W. Grellier, G. Smith, J. B. Papworth, George Moore, W. Pocock, G. Godwin, Arthur Mee, W. Hurst, J. Shaw, Joseph Kay, Samuel Ware, G. B. Greenough, the Rev. R. Burgess, Honorary members.

THE demand that is being made upon us from many quarters, to commence our promised series of illustrations of practical building art, is one which, although replied to in the detail of our correspondence, calls for an additional notice in this place, because we know it is much talked of out of doors. We are not going to be very naughty or pig-headed (to use a homely phrase), but we must tell our readers, that we will not stir in this matter till we see it prudent to do so. We have to calculate upon sustaining the task when we once begin. We have to consider the general interest of the paper, and of our readers; and having all the circumstances before us, we think we are exercising a sound judgment between all parties by deferring, as we are doing, to enter upon the part of our duty in question.

Here we are at the ninth number, after a short existence of so many weeks; and many of our friends are becoming impatient, like children, for the curtain to be drawn up, that they may see the whole show. We really cannot gratify them; and if we did, we suspect, it would be something of the show-like character—one or two brilliant peeps and an end of it. There are many reasons besides why we should be deliberate and circumspect. Our calculations are being very nicely verified as to what the paper is to become; but many builders and others who would now be its readers are not aware of its existence; and reverting to the similitude of the show and the curtain, we say, would you have the play begin before the audience are seated? At present we have nearly attained the sale of 3,000 copies! but our starting point is nearer 5,000. Although we expect that we shall surprise and

gratify our friends before it attains to that point, by quite enough of the class of matter for which they are now so impatiently calling; and which, we may add, we are most impatient to commence with: we are pleased to see such a confirmation of our views as to the character of the class we address. We gave them full credit for every thirst and longing after knowledge; but we also laid it down that that knowledge would pour in as to a reservoir from a thousand tributary streams, more requiring us to construct the receptacle, secure and guard its banks, and regulate the overflow, than to care largely for the supply of the fountains. It is as we judged, and having struck the rock, there is gushing out innumerable streams of healthful water. In plain language, we are beginning to be inundated with the best, the most practical, and, withal, most kind and bounteous contributions; and as each week advances, it will be more our duty and care to select than to be anxious to obtain.

But we do not, nevertheless, abandon any part of our resolution and purpose, as already expressed. We are anxious to accomplish our work in the best manner for the common good, for those engaged in it, and we hope we may add, a little of our own comfort. We have had no little anxiety, as all may imagine, to attain to the position we have already attained to; prejudice and distrust to conquer, difficulty to overcome, and new machinery so construct and set in motion; and having so far gone on, we trust tolerably to the satisfaction of our friends, quite as much so, we warrant, as to our own, we have to beg of them to put their shoulders to the wheel, to land us on to the hard, substantial road, and then let them reproach us if we do not proceed at a pace and in a style to give them no cause of complaint. We cannot close these remarks without tendering to our kind subscribers our very grateful thanks for their generous support of us hitherto.



ELIZABETHAN CEILING.

Our young friend, "A. B." disports in his fancy again this week, and gives us his idea of a ceiling in his favourite mode. His original drawing shews colour and gilding, which unfortunately we are not able to give, and so half the effect is lost; but the tasteful artist will easily supply the deficiency. We are glad to give insertion to these studies, if only for the sake of drawing attention to the revival of a style of ornament adapted to our own times and wants; and our way of proceeding is, we trust, a practical one; leading step by step in the ruder vernacular language of art, to purer styles of diction and composition.

INSTITUTION OF CIVIL ENGINEERS.—TUESDAY, MARCH 28.—The only paper read was Mr. D. Muschat's "Report of Experiments made to ascertain the relative Strength of the Cast and Wrought Iron, made by the Hot and by the Cold-blast Processes at the Milton Iron Works." The tabulated results shew that, though the heated air blasts may, in some districts, have deteriorated the strength of the iron, yet, with such ores as those of Yorkshire and Derbyshire, they may be used even with advantage to the quality of the metal. From Mr. Fairbairn's table it appears that the strongest quality of iron, quoted by him, broke with 561 lbs. of pressure;—that from the Milton hot blast yielded to 610 lbs. The experiments on malleable iron

were not considered by the meeting so conclusive, because the blows employed for breakage were of manual labour, and hence their power could not be accurately estimated. Some specimens of hot-blast iron from the Butterley works were exhibited. From the discussion which ensued it seemed the general opinion that hot air, in smelting, might be used, on some occasions, with advantage; but that, unfortunately, from the facility it afforded of working up refuse ores and sulphurous coal, it had been abused. The ballot for members will take place at the meeting of April 4th, when the following papers will be read:—"On the Supply of Water to Glasgow," by D. Mackinnon, M. Ins. C.E.; "On the Supply of Water to the Island of Malta," by W. L. Arrowsmith, As. Ins. C.E.

DESTRUCTION OF WORKMEN'S TOOLS BY FIRE.

SUBSCRIPTIONS received and paid over to Mr. Cummins's workmen, who had their tools destroyed by fire, as referred to in No. 6.

The Editor of "THE BUILDER"	£	s.	d.
Pupox	1	0	0
A Mechanic	0	2	6
J. B.	0	0	3
W. D.	0	0	1
A Carpenter	0	2	6
Poor Plasterer	0	1	0
	£1	6	10

TO THE EDITOR OF THE BUILDER.

St. Pancras, April 3rd, 1843.

SIR,—As you appeal to brotherly charity in behalf of the workmen whose misfortune it was to lose their tools by fire in Mr. Cummins's shop, and express so much sympathy for them, I hope you will with the same feeling state, for the information of the many (too many, I'm sorry to say, remaining isolated and in similar situations), that societies abound in the Metropolis in which are to be found men whose purses, though small, are open to the last shilling, to pay their mite to relieve any brother in such unfortunate circumstances as those in whose behalf you appeal; but these men are, perhaps, persuaded not to combine with such societies, by those who are ignorant of their principles, or by one that's independent of our humble but freely-given charity—one clad in an icy mantle, that he will not throw off to diffuse one particle of a warm or generous feeling to his fellow man,—let such remain isolated;—but men! you who call yourselves men, who so often are rendered penniless by such losses, combine with us; let not one prejudiced individual turn you against us; I say against us, but rather your own interest; do not run away with such ideas, as too many do, that societies are generally a combination of the lowest of our order; far different is it; and there exists in them a philanthropic feeling that is daily extending, and where public appeals are always prevented. Again, let me entreat you to combine with us, and thus secure yourselves from the necessity of appealing to the generous sympathy of the public.

By inserting the above, if not intruding too much on your columns, I think you will be rendering the Joiners a service, and oblige your humble servant,

ACANTHUS.

We know not to what societies Acanthus alludes, but insert his letter (with a little liberty of our pen); we would recommend him, however, and those who act with him, to concede to their brother workmen some little at this crisis in their sufferings,—and not to wrap a mantle around themselves as chilling, for all the purposes of practical benevolence, as the one of ice which he depicts. We think something more should be done, not for our feeble and unworthy advocacy, but for the credit of the trade; better the penny than the counsel when men are in need. We have all heard the tale of the priest's blessing; but it was meant to apply to cases of this description. We had one plain, hard-handed, and honest workman called, who said "He was very poor, but if all would give a penny like himself, it would be better than nothing." Let us beg of a few more to do a little better than nothing. We are glad of Acanthus's letter, to give us occasion to say these few words.

EXHALL CHURCH, NEAR COVENTRY.

TO THE EDITOR OF THE BUILDER.

SIR,—In your sixth number, I am sorry to see an account of the above church, which has lately been enlarged from my designs; sorry because, had I been aware of your intention to give it a place in the pages of your excellent periodical, I should have been happy to have given you a correct account of it. One error in particular I must beg of you to correct in your next number. You say that a part of the expense was raised by *rate*. Now such was not the case: the amount (£1,350*l.*) was raised by subscription, and principally by the clergyman and parishioners. I trust you will mention this circumstance, for should your account meet the eye of any one immediately connected with the undertaking, it would cause some pain, as one and all have from the commencement resolved to carry out their views without a compulsory payment.

I am, Sir, your obedient servant,
CHARLES HANSOM, Architect.
Coventry, March 22, 1843.

CHINESE ARCHITECTURE.

TO THE EDITOR OF THE BUILDER.

A.Z. would respectfully suggest for the consideration of the Editor of THE BUILDER the insertion of the following extract on Chinese dwellings in that instructive publication, thinking it might prove new and interesting to some of its numerous readers. It is as follows:—

"It is somewhat singular that the dwellings of the Chinese bear a resemblance, in the plan and arrangements, to the remains of Roman habitations discovered at Pompeii. They consist usually of a ground-floor,* divided into several apartments within the 'dead wall' that fronts the street, and lighted only by windows looking into the internal court-yard. The principal room next the entrance serves to receive visitors as well as for eating, and within are the more private apartments, the doorways of which are screened by pendant curtains of embroidered velvet, silk, or cotton. All houses of consequence are entered by a triple gateway, consisting of one large door in the centre, with a smaller one on each side. Just within the gates is the covered court in which the sedan chairs are placed. Some of the courts are surrounded with verandahs, balconies, and colonnades, displaying hundreds of pillars. On the grounds attached to the mansions of the wealthy are artificial ponds or lakes, in which are cultivated their favourite lotus, or water-lily. In the centre of the sheet of water, is a temporary building, of elegant design and workmanship, supported on piers, and occupied occasionally as a place of refreshment, and these are frequently made use of for the exhibition of private theatrical performances for the entertainment of the guests.—From the Catalogue of the Chinese Collection, by W. B. Langdon, Curator.

TO THE EDITOR OF THE BUILDER.

SIR,—One of your correspondents requests (in a very peculiar letter) to know the orthography of the word "purlin." I find it so spelt in an extract, made from the fourth book of Vitruvius, and printed in a work published 1734. Speaking of dentils, he says, "That the Greeks never put dentils under modillions, because modillions represent purlins, whereas dentils represent the ends of rafters, which can never be placed underneath purlins."

OFFICIATOR.

TO THE EDITOR OF THE BUILDER.

30th March, 1843.

SIR,—I would recommend you to give the public (many persons of whom are ignorant) instructions how wood houses, that are made of boards and framework, like the station-houses on the London and Dover Railway, are made and finished, and what the different kinds cost in erecting per yard or per square. They are much admired by many persons who are unacquainted with their construction. You will confer a favour by giving a description of all kinds of suitable furniture for various sorts of houses, both in town and country. There wants a great improvement in erecting country houses and handsome cottages, giving a description of the best manner of laying out gardens and pleasure grounds, pointing out the best works and best authors on landscape gardening, &c. &c., with the best kind of trees, evergreens, shrubs, and flowers, &c. All these things are within the range and business of THE BUILDER, who must be considered an architect. The title should be "The Architect and Builder."

A CONSTANT READER.

P.S.—Illustrations of nice large and small cottages, with appropriate furniture, given in drawings. The allotment system of gardening, with houses for the labouring classes, &c.

Stating every thing useful which can be constructed of stone or wood, or both. Improvements in roads, and streets, and thoroughfares, with every kind of material, as used both in England and in foreign countries.

You are entitled to write upon all kinds of machinery inclosed within a building. Yes, you may describe the flying machine—it has been made within a building. Your resources (from all parts of the world) are unbounded; do not be sparing of your illustrations, but let them be done neatly, and by respectable parties. You will then soon gain credit and popularity.

[Every one of the matters suggested or desired by our correspondent have been before us and resolved on for the proper season. At present we have, and for the time past had, so much preliminary matter in hand, and the making of arrangements, that we have merely exhibited ourselves in a sort of ante-shadow. Let us hope that the forthcoming reality will satisfy all our friends.—Ed.]

TO THE EDITOR OF THE BUILDER.

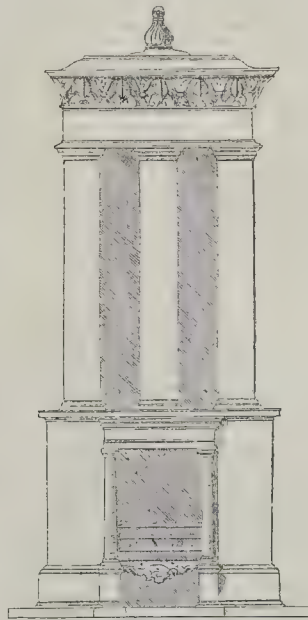
SIR,—Being required by my contract to attach electric conductors to the turrets of an edifice now on the verge of completion, I am glad to avail myself of your truly useful journal as the most likely means of obtaining the following information, viz.—What is the most approved material for lightning conductors as applied to buildings, and the best method of constructing or combining the same? The most effectual means of disposing and fixing? And, lastly, what system (for I understand there are several) is relatively the cheapest? By favouring this with an insertion in your next, you will very particularly oblige, Sir, &c. &c.

PHIDAS.

BERNHARDT'S STOVE.

THIS stove we venture to class among the best and most philosophically constructed of the present day. It combines the advantages of an open fire, a house-warmer, and a ventilator; the cost of fuel is very small. It is applicable to almost any situation either placed in the recess of an old fire-place, in a niche, or against a wall. It is moveable, so that in summer-time an apartment can be relieved of its presence and gain the space it occupies. It can be so constructed as to serve the purpose of warming other apartments on the same level or above the room it is placed in. A series of them may be used in one house, and only requiring one chimney flue, some seven inches square or circular, for the whole series, and no elevation of chimney shaft is requisite more than just above the parapet of the house. It may be made extremely ornamental, with more of propriety of design than the present drawing exhibits (as columns and pilasters have not much to do with fire-grates or stoves). It is easily kept clean, and is a complete cure for a smokey chimney.

On the same principle a cooking stove has been in part perfected, to roast, bake, broil, boil, steam, supply a bath, and warm an entrance hall, as well as forming within itself also a plate warmer; and the principle is also applied to warming and ventilating large rooms and whole series of rooms by a species of Hypocaust arrangement in the basement story.



ENGINEER AND SUPERINTENDENT OF GAS WORKS.

WE have received the excellent testimonials of Mr. C., and shall bear them in mind; there is in the Times of Monday or Tuesday last an advertisement for a superintendent and manager; we know not whether it would suit Mr. C. to apply for it, but we beg to direct his attention to it.

YORKSHIRE ARCHITECTURAL SOCIETY. RESTORATION OF THE CHAPEL ON WAKEFIELD BRIDGE.

A MEETING of the above Society was held on Thursday, the 16th of March, in the room of the Society for Promoting Christian Knowledge, St. Leonard's-place in this city; the Hon. and Rev. P. Y. Saville in the chair. There was a numerous attendance of members from different parts of the county.

The Rev. George Ayliffe Poole, of Leeds (hon. secretary), read the report of the sub-committee appointed to inquire into the best means to be adopted for the restoration of the chapel on Wakefield Bridge.

The Rev. T. Egerton, of Dunnington, moved that the report be received and adopted, and presented to the Rev. S. Sharp.

The Rev. T. Myers, of York, seconded the motion, which was agreed to unanimously.

The Rev. S. Sharp, vicar of Wakefield, said he had had such confidence in the ability of the sub-committee, in forming an accurate judgment upon the merits of the plans submitted to them: He had witnessed the indefatigable exertions they had used in arriving at a correct opinion respecting them, and he adopted, with the greatest pleasure and readiness possible, the plan they had recommended.

The Chairman.—The persons who sent in the successful plan are Messrs. J. S. Scott and W. B. Moffatt, 20, Spring-gardens, London.

The Rev. S. Sharp.—May I ask the amount of the estimate of Messrs. Scott and Moffatt?

The Rev. G. A. Poole.—It is contemplated to restore the whole on the same principle as it originally existed, with the exception of detached figures and stained glass for 2,500*l*.

The Rev. J. Sharp.—This sum sounds very large, and I hope the society will allow me the services of a committee to assist in collecting subscriptions. I trust, also, that the society will appoint some of the members of their body to see that these plans are estimated and carried into effect in a proper manner. It may be satisfactory to the society to know that I am not asking them to restore this chapel, when there is the slightest possibility that it might be taken away from the church. I think it necessary to show to this society, and through them the public, that they are going on safe grounds. I lay before you an actual conveyance of the chapel and the ground upon which it stands, from the trustees to whom it did belong, to her Majesty's commissioners for providing additional churches, and I trust that it will never again be separated from the church. With regard to subscriptions, I think it fair to state, that as soon as it was known that there was a probability of the chapel being restored, several individuals sent me subscriptions. One lady sent me ten guineas, another sent me five; I have also received other sums. I move that a committee be appointed to assist in raising subscriptions, and that it shall consist of the following gentlemen, with power to add to the number:—The Hon. and Rev. H. D. Erskine, of Kirby Underdale; the Hon. Payan Dawnay, of Benningbro' Hall; the Hon. and Rev. P. Y. Saville; C. H. Elsley, Esq., of York; the Rev. John Bell, of Oulton; the Rev. Stephen Creyke, of Wigginton; and Edwin Smith, Esq., of Acomb.

The motion was seconded and carried unanimously.

The Rev. Stephen Creyke gave notice, that at the next meeting he should propose that 30*l*. be devoted from the funds of the society towards the restoration of the chapel.

The Rev. T. Egerton said, with regard to the extent of the sum proposed to be contributed from the funds of the society, they would have been glad if this sum had been larger, but they had taken every opportunity of explaining that it was impossible the society could do much, when the subscription of its members was only ten shillings per annum. Their object was not to raise funds, but rather to encourage others to contribute who had it in their power to do so.

The Rev. T. Myers, the Rev. S. Sharp, the Chairman, and other gentlemen, made similar observations, and expressed their confidence that the gentlemen of the county, and indeed of other counties also,—for the society was more a national than a provincial one,—would

* When the Emperor, Keen-lung, saw a perspective view of a street in Paris or London, he observed that the territory must be very small whose inhabitants were obliged to pile their houses to the clouds.

In a poem on London by a Chinese visitor it is stated—

"The houses are so lofty, that they may pluck the stars."

come forward and assist it in its laudable objects.

The Rev. G. A. Poole said, the next general meeting of the society would be an important one, and he thought it would be as well to have it at Ripon. He proposed that the Lord Bishop of Ripon should be communicated with, and asked whether he would be at home to preside at a meeting of the society on the Thursday in the Easter week.

The proposition was unanimously agreed to.

Thanks were then voted to the Chairman, which that gentleman briefly acknowledged, and the meeting separated.

The plans for the restoration of the chapel were exhibited in the room, and excited considerable attention.

FRENCH ARCHITECTURE.

THE modern school of French architecture is, in our opinion, decidedly a strong one; reposing on sound principles formed according to a good method, and favourably placed for developing its power by practice. It is true that the principal patrons of architecture in France are the government and the municipalities; but they patronize liberally, and the works they cause to be executed are on a large scale. They take care, too, to foster the rising architectural genius of the country, and by means of the Royal School of Fine Arts, and the Academy at Rome, they have formed an efficient body of able men. This is not the place to enter into a dissertation on the principles of architecture, nor to compare the relative merits of the French and other schools; the subject is far too extensive; it is sufficient to observe, that the French go much more upon the sensible plan of suiting their building and styles to the exigencies of locality or purpose, than of sacrificing everything—comfort, utility, and even effect itself—to the abstract rules of any given order of architecture. As yet, though they have done much in effecting the restoration of mediæval buildings, they have erected very few new ones in any of the pointed styles; they have built much in that of the Renaissance, the most pliable, and one of the most generally effective of all, and the capital has gained greatly by its introduction. The taste of the nation is not yet completely won over to mediæval architecture, but it is fortunately no longer obstinately wedded to that of the classic orders; and in adopting the middle style of the days of Francis I., a field is opened both for fancy and for innovation, which is highly agreeable to French feelings. This style, too, has all the merit of being a strictly national one, well suited to the climate and to the genius of the people.

The oldest of the architects now practising is Fontaine, who was architect to Napoleon, and to both the predecessors of the present king. He has had so much influence in modifying, or restoring many monuments of importance, and in particular in superintending the late alterations at Versailles and Fontainebleau, that his name will always assume a distinguished place among French architects.

M. Huyot, who built the *Arc de Triomphe* de l'Etoile, and was President of the Academy of Fine Arts, has been lately cut off after a short illness, otherwise he would have been the first architect of his day, and would have carried the school to a great height. M. Duban, architect of the Ecole Royal des Beaux Arts—that beautiful building; M. Lebas, of the Palace on the Quai d'Orsay; and M. Lassus, restorer of St. Germain l'Auxerrois, are all of great eminence in their profession. M. H. Labrousse and Viollet Leduc are two architects who, from their long residence in Italy, and their travels in various parts of Europe, are amongst the most able of their contemporaries. Nor should we omit M. Albert Lenoir, who is a profound authority in matters of mediæval architecture, and Professor in that branch at the Bibliothèque du Roi.

There are several of the architectural pupils at Rome, who promise great things, and among them, one in particular, M. Cleryet, has long been known for his admirable drawings and his extensive archaeological researches among the ruins of the Papal capital. To the architects of France we must add the large body of builders and masons who have been instructed by their superiors in the profession, and have become almost architects themselves.

France is very rich in intelligent men of this kind, and the numerous public works executed in all parts of the country testify that sound architectural knowledge and practical skill and taste are widely disseminated among the people. —*Blackwood.*

It is strange that in all this enumeration of names, that Mons. Hittorff's—one so prominent to all parties conversant with French architecture—should have been omitted.

CEMETERIES.

Two papers are now lying very appropriately before us, treating this important question in different points of consideration, but treating it almost to a completeness. The first is entitled, "Interment and Disinterment," by Mr. G. A. Walker, surgeon. The second is the April number of the *Gardener's Magazine*, by Mr. Loudon, in which is continued from a previous number an article on the formation, laying out, &c. of cemeteries. These two works, read in conjunction, will supply the mind with premise and conclusion, and we propose to dwell on them for a short time, as part of our province in discussing and dealing with the question upon which we have entered, as to the healthful regulations in which our class, the builders, must take a lead.

It would supply a most interesting chapter, and we have several times had our hand to the pen to indite our opinion upon the "inconsistency of the human character" even in ordinary affairs of business. There are millions of men who pride themselves upon their punctual, timely, and discreet performance of public and private duty, and think themselves very patterns of consistency, who, on being examined, will be found to be grossly negligent on the most important affairs, and martinet in trifles—"they strain at gnats, and swallow camels."

This great city of London is filled with grave-headed men and sage counsellors, who take their stand and make their round in the circles of business, many of them active in questions of parochial, civic, and even national government. Law administrators and law makers, busy in all the plans of a prescribed routine, moved and moving to and fro in irresistible phalanx for all the purposes of their appointments, instincts, and impulses—gravely reasoning, judging, and deciding, to all appearance and yet if we could take our stand, or if any one of them could take his stand removed from the influences that ordinarily affect him, the comment would be a horse-laugh at the mockeries of poor human kind, and a shrinking within oneself with shame and abasement, for every act of self-sufficiency that our stupid pride had ever permitted us for one day, for one hour, for a moment, to assume.

Aye, mockeries—the most grotesque and ridiculous—mockeries so solemn, and yet so farcical—mockeries at best and at worst, in all our great presumings. This London, this centre of civilization, this condensation of wisdom and intelligence, this huge wedge and conglomerate of pride, buries—no, it does not bury—but stores and piles up 50,000 of its dead, to putrify, to rot, to give out exhalations, to darken the air with vapours, laugh! it is loathsome to think of it; but it is strictly true, 50,000 desecrated corpses are every year stacked in some 150 limited pits of churchyards, burial-grounds they are called, and we talk of decent and Christian burial. Oh, give us and ours the grave of the suicide, with all its awful indignities,—lay us at the cross-roads, deep, and with the stake driven through our bodies; give us but the quiet and privileged earth to sleep in; save us from the compost of these heaped up putridities, and we will pardon you; but never, to think of your merciless entombments in the fashion and refinements of a London church-yard.

We wish the vapours that rise from these 150 places could have a tinge given them hideous to view as they are loathsome to sense. Talk of putting down your smoke nuisances, and fouling the complexions of fair ladies with smuts and the oils distilled from the laboratory of your fire-places—what are these to the lodgements which your church-yard atmosphere favours us with? its saturation of the clothes, its insinuation into the human system, breathed in at the lungs, swallowed and eaten? Would that these vapours could be coloured and rendered visible like the

black smoke of the furnace chimney, then would an abatement of the filthy nuisance speedily ensue—but this cannot be. What glasses, then, are the purblind eye to look through? What reasonings may we throw in the face of this dunce and dolt stupidity? Good public, in what quarter are you vulnerable? Oh! that there were but one assailable point in the mailed coat with which the public sense enshrouds itself; it would not then be necessary to urge these things upon its attention. Such letters as those of Mr. Walker's would not have had to have been written—such disclosures as the evidence given before the parliamentary committee would not have been to be extracted.

But it is done, and glad should we be to transfer to our pages very largely from Mr. Walker's writings on the subject. Any thing we can say is feeble compared with the facts he adduces, and the superior knowledge he brings to bear upon the subject: the whole London, and most of the provincial press, have borne evidence to the opinion of his merit and ability; and we can only point to the work itself, and beg that an eye be thrown over its pages; this will be sufficient, for the crowded matter-of-fact is so placed, and so prominent in startling figures and appalling incidents, as to defy the turning away without an attentive reading, and if read, a conclusion being come to, to raise the voice loudly and instantly against the system it denounces, and in favour of that to which Mr. Loudon's attention is directed.

In this last respect, Mr. Loudon's work will be found particularly instructive to practical men, to those who have the laying out, building, and planting of cemeteries; it embraces most of that which may be said upon the subject, as is generally the case with whatever Mr. Loudon addresses himself to. The situation, soil, and extent, inclosure, laying-out, planting, and drainage; as to the chapels, lodges, yards, and sheds; as to monuments and tablets; the vaults, graves, and catacombs; the implements used in cemeteries and the like, all are touched upon most minutely and practically.

THE WEDGE.

"In our last paper," says the *Glasgow Practical Engineer*, "we described the nature and advantage of the inclined plane, considered as an immovable surface upon which a moveable resistance is to be raised. By exchanging the circumstances; that is, by supposing the resistance to be incapable of motion laterally, but free to move vertically, and supposing also that the weight is raised by the forward motion of the inclined plane, we arrive at the idea of the wedge."

"The wedge is frequently used, among other purposes, for carrying the steps of upright shafts in machinery, and more particularly for raising the steps, as the shafts wear them,—the power for this purpose being communicated to the vertical face."

"The wedge has more usually the form of two equally inclined planes, united at the bases, and it is moved in the direction of this common base, which is, indeed, the centre of the wedge. As the object of the single inclined wedge is more expressly the raising of weights or obstacles, the object of the double-inclined wedge is to separate obstacles."

"Again, when a wedge is employed to split timber, or any other body of that kind, the direction in which the motion of the parts separated would take place must be ascertained, and the relation between the power applied and the pressure produced can then be determined."

"The resistance to the motion of the wedge depends not only upon the angle at its vertex or point, but also on the depth to which it is driven; and further, it depends upon the quantity by which the particles of the mass are displaced; for, being elastic, these particles will tend to come together with a force proportional to their displacement. These are reasons why a wedge is driven with difficulty, when it is driven deep."

"However, when wedges are driven into pieces of wood, with the view of splitting them asunder, it is observed that the wood splits up at a considerable distance before the point of the wedge, where the separation

has advanced to. It follows, that the action of the wedge is brought to bear upon the cohesion of the body of the wood, through the distance of each plan of separation which act as arms of levers in further concentrating the action of the power applied. Indeed, after the wedge has once gone over-head into the wood, its advantage is not dependent upon the taper it possesses, but upon the length of the split which precedes it. Now this will obviously be in proportion to the breadth of the top of the wedge. At the same time, it is to be remarked that, with an increased breadth of wedge, an increased force is necessary to drive the wedge, in the first place, thoroughly into the piece of wood.

"The applications of the wedge are very numerous. Nails, awls, needles, axes, saws, &c. all act on the principle of the wedge. This power is also frequently employed in machinery for binding together separate parts of it, as in the familiar example of the butt and strap. As illustrative of the unlimited power of the wedge, it may be stated, that ships lying in dock are easily lifted up by means of wedges driven under their keels. An engineer who had built a lofty and heavy chimney for a furnace, found that, after some time, owing to the dampness of the foundation, it was beginning to incline. He succeeded in restoring it to its uprightness by driving wedges under one side.

"The saw is composed of a series of wedges; and the finest cutting instrument that we have may be regarded as a saw, of which the teeth are very minute, and perhaps less regular. As an illustration of this, the lancet may be pressed against the skin without penetrating, but the instant it is drawn along it starts into the flesh.

"The enormous power of the wedge arises principally from its being driven by impact. The resistance on its sides, on the contrary, is of the nature of pressure. Now, a pressure, however great, necessarily yields at the moment of impact to an impinging force, however small. The momentary separation of the mass thus produced is rendered permanent by the produced motion of the wedge.

"The above statements, therefore, of the advantage of the wedge as a power, are applicable only on the supposition of its being acted upon by simple pressure. The wedge is the only mechanical element that is driven by impact, and its effect, when under the influence of percussive force, is a subject that requires distinct investigation, and which shall be afterwards taken into consideration."

ARTESIAN WELL AT BRIGHTON.—Since our last notice of the Artesian well at the chain-pier, the workmen have succeeded in getting about eight feet below the solid bed of grey-stone, a rock peculiar to Brighton, which some time before had resisted their further progress, and fresh water, or water only slightly brackish, has been found. Above this bed of rock the chalk was separated about every three feet by thin strata of flint; but beneath it eight feet of solid chalk have been passed without meeting any other substance. This bed of rock is supposed to be the same as was pierced at a depth of seventy feet, in sinking some wells on the Marine Parade, opposite the pier, and below which abundance of water was found; and if this supposition be correct, the chance of procuring a supply of water in the well at the pier-head is much increased. The depth now attained at the Artesian well is ninety-eight feet, and the depth to the bottom of the bed of rock about ninety; if, then, we add to this latter number thirty feet, the height of the pier-head from the surface of the ground, and another fifty feet, the height of the Marine Parade above the pier-head, as from the level of the parade, of 170 feet; and since in the wells alluded to the rock was met with at a depth of seventy feet, an outward inclination of the chalk strata of 100 feet in about a quarter of a mile is shewn to exist, a circumstance which, on the principle that water always finds its level, appears to be favourable to the project of a jet. We understand that the boring is still in progress, and it is to be hoped that now water has been met with, the directors, even if the undertaking should not be immediately successful, will continue to prosecute the work.—*Brighton Gazette.*

LENGTH OF BRIDGES.—The longest bridge in Spain is the Alcantara, stone, 1,920 feet; in France, the wooden bridge of Avignon, 1,710 feet; in Ireland, at Belfast, wood, 2,500 feet; in England, at Berwick, stone, 1,164 feet; Blackfriars, 995; Waterloo, 1,242; Westminster, 1,223; London, 930 feet; in Wales, Menai-bridge, 1,060 feet.

FOR PRESERVING PAPERS, CANVASS, &c., FROM DAMP, MILDEW, WORMS, &c.

We have this day inspected some paper prepared by a simple process and thereby rendered impervious to wet and damp. The specimen laid before us was a sheet of blotting-paper, one-half prepared, and the other unprepared, and the prepared part was found to hold water on its surface without the least sign of absorption, or being in any way affected by it. If all that is said of the process by which this is accomplished and of the results it promises, be correct, a very important discovery is made, and one worthy the attention of the whole community. There is hardly a single case into which paper enters as an element or agent (and what is there that it does not so enter into?) that is not likely to be materially affected by this discovery. For papering rooms that are either constantly damp or liable to be affected by damp at certain seasons, it is peculiarly adapted; and it is a question whether valuable papers ought to be applied in any instance without the precaution of being thus prepared. It does not affect colours, or the gold papers, unless it be favourably, by fastening the former, and giving increased brilliancy to the latter. Even the paste with which the paper is attached to walls, may be charged with the preparation; but certainly the under paper, or ground for paper-hangings, may be prepared by it, and thus a double security be afforded.

We know of many instances wherein to have been able to secure paper thus protected would have been deemed of great consequence, and innumerable others will present themselves to our readers. There are certain counties in England so affected by humidity, and almost all sea-side localities, and certain materials used in building, such as lime-stone, porous bricks, bad mortar, sea-sand, &c., that render it next to impossible to use and retain papers on the walls of rooms, but this discovery promises a remedy. It is not, however, from damp alone that mischief and damage arise to paper-hangings, but insects commit their ravages so as to prevent its introduction in many instances; we may, for example, allude to the East Indies, where the white ant has hitherto had an impunity that no ingenuity could combat. It is related to us, that cases have been known of valuable books being destroyed in one night, when left out and exposed to the predations of this destructive insect. And this brings us to another feature of the importance of this invention.

We all know how much has been suffered from damp, and mildew, and worms, even in our own libraries, and among public and private records and documents. Paper, however, prepared by this process, would seem to be secured against such casualties—if this be so, it is impossible to over-estimate its importance. One experiment is spoken of, wherein a quantity of wheat flour was inclosed in a sheet of paper thus prepared, and exposed on a lead flat all night in a drizzling rain, but, strange to say, so repellent was the paper of the wet and moisture, that the flour was uninjured and unaffected. This will call attention to the question of preparing packing papers, for we all know how much injury frequently arises to goods from the wetting of the enclosing papers.

It does not impair, but adds to the strength and tenacity of the fabric of the paper, and, as we observed before, gives force and permanency to colours. We should apprehend that it will serve to expedite the papering of new buildings, and render unnecessary the usual long delay of this operation, from the uncertainty as to the walls being sufficiently dry. Altogether, we anticipate great benefit from the application and extended knowledge of this discovery; and what adds to our confidence in this respect, is the cheap and simple nature of the process. We are very glad to have an opportunity of imparting a knowledge of the discovery to our readers.

FRENCH STATUARY.—The commission appointed to report on the Monument to Napoleon in the Hôtel des Invalides, have recommended that—"The canopy with gilt columns over the principal altar should be removed. That the equestrian statue should be placed on the Esplanade, and not, as the architect wished, in the Cour Royal. That the Emperor shall be clothed in his usual, and not in Roman, costume, as the artist wished."

METROPOLITAN IMPROVEMENTS AND LONDON NUISANCES.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—In connection with the remarks made by Mr. London in No. 4 of your excellent journal, on the great importance of public convenience, to the want of which but few of your readers can testify, allow me to suggest the importance of having these made a necessary to the condition for the license of a tavern. Such, in their nature, being public-houses, would be materially an addition to the convenience of the public. Provision should be made both that these and urinals should be kept perfectly clean and in good order, the want of which is seen in many of those few places where permission is given by the licensed victualler to use his convenience. In order to accommodate the feelings of modesty, or prevent its outrage where females are employed behind the bar, a reference might be made by means of a direction hand. I have no doubt a mere suggestion of this by the licensing magistrates would induce many of the most respectable licensed victuallers to adopt the same in the different districts of the metropolis.

I would also allude to the now what I may term very general suppression of urinals in the streets of London, to the great inconvenience, and I may say, to the injury of the health of passengers. In many districts, and those in which the greatest traffic prevails, none are to be found. In the city, particularly near the bank, those which formerly existed have recently been nearly all removed, though they could not surely be so offensive to the senses as that defacement of buildings (notwithstanding the caution of commit no nuisance) which sudden and stern necessity compels, and where there is no obstruction to the sight. If, through your medium, the attention of the different surveyors of highways were called to the subject, it might be the cause of more being erected in places not exposed to the public gaze.

I remain, dear Sir, your most obedient servant,
April 4th, 1843. A. BOOTH.

A GOOD EXAMPLE.

A supply of rails being necessary for the execution of the works on the railroad between Orleans and Vézou, the minister of public works ordered that the competition should take place between a certain number of metal factories, which offered convenient proposals, and should be decided by public adjudication. The establishments fixed upon were the following:—Anzin, Denain, Decazville, Fourchambault, Hayange et Moyeuve, Gournier, Lorette, Terre-Noire, Creusot, Saint Julien, Abainville, Raisnes, Trith, Saint Leger. The proposals were received on the 4th of April, in presence of a commission composed of the minister, the president, the under secretary of the public works, a member of the general council of mines, and the president of the company of railroads. On the day above indicated, at noon, the plans were opened in presence of the competitors or their representatives. The proposals admitted conformed to the model which has been given to all the competitors, as no infringement on the conditions were allowed.

[We have pleasure in referring to the above to shew how scrupulously alive our neighbours are to the appearance of fair play in adjudicating on contracts. Some of our institutions, vestries, &c. would do well to take a hint from the French; we have, however, known the plan adopted in this country, and the results proved it, in our opinion, to be preferable to the one too commonly practised.—Ed.]

RAILWAYS.—The Board of Trade's annual report on railways has just appeared with a long appendix containing "statistical returns of railways and the several reports of General Palsy on various subjects." The sum of the report of the officers of the Board of Trade is, that there has been a great increase in the safety of the railways. For instance, during the last 5 months of 1840 there were 23 accidents, from which there were 22 deaths, and upwards of 131 cases of personal injury, while during the whole of 1841 there were 29 accidents, occasioning 24 deaths and 71 cases of injury, and in 1842 only 10 accidents with 5 deaths, and 14 cases of personal injury, and this has been out of above 18,000,000 carried; and of those killed only 1 has occurred to passengers "riding in a train, and observing the common degree of caution." It appears that the total number of passengers carried on 80 railways for one year ending 1st July, 1842, is 18,453,504, i.e. 2,926,980 first class, 7,611,966 second-class, 5,332,501 third-class, and 2,582,057 of a class not distinguished. The report touches upon several important matters, and is pretty sharp upon the North Midland Directors relative to the late accident at Barnsley.

RAILWAYS IN FRANCE.

THE anniversary of the birth of his Majesty the King of the French, on Monday, the 1st of May, next, will be celebrated by the opening of two of the projected railways in France—one from Paris to Rouen, a distance of 85 miles, on the north; the other from Paris to Orleans, 73 miles, on the south; which are both in that state of forwardness that there is no question that they will be opened, as intended, in May.

The railways completed, or in course of construction, before the session of 1842, were undertaken with more or less assistance from the state.

The Paris and Orleans Railway Company obtained a liberal advance, on loan, from the government, in aid of their subscribed capital, together with a guarantee of a minimum interest or dividend of four per cent. to the shareholders. The shares are held principally, if not wholly, in France.

The Paris and Rouen Railway Company, authorized by royal ordinance of the 15th of July, 1840, obtained a loan of 14,000,000 of francs (rather more than one-fourth of the Company's capital), repayable by annual instalments, with interest at three per cent. per annum, in thirty years, the first repayment not to commence until three years after the completion of the railway. The capital and directors of this Company are French and English in about equal proportions.

A Company is formed, and authorized by royal ordinance, for the further extension of the line to Havre. Government grants a loan of 4,000,000 francs towards the cost of the junction, so as to make the line continuous through Rouen.

The railway from Paris to Rouen will proceed along the present St. Germain's line for the first five miles, where it will diverge into the new line. From the point where it branches off from the St. Germain's line to Poissy, about twelve miles, the railway is completed, including two large bridges across the Seine, and the rails are laid down throughout. From Poissy to Nantes, twenty-five miles, the line of road is nearly completed, and the permanent rails are being laid down. The embankment at Mantes is the only portion in this locality not finished, but it will be so by the end of March. Five miles from Mantes, at Rolleboise, there is a tunnel a mile and three-quarters in length; it is a work of considerable magnitude, and much difficulty was experienced in forming it, as it was necessary to blast and cut through a large portion of hard limestone rock. This tunnel, which is chiefly arched with brickwork, was completed in little more than a year and a half, and both lines of permanent rails laid through it. Between Rolleboise and Vernon, a further distance of eight miles, the railway runs nearly parallel with the main road, and is quite completed, with the exception of putting down the rails, which are now in active progress. At Vernon, the station-house is already built, and the cuttings and embankments finished. From Vernon to Le Roule, about ten miles, all the works, except a small embankment at Le Goulet, are finished, and the rails being laid down. There is a tunnel at Le Roule of a mile in length, which is arched throughout; it has been completed and the rails laid down several months. From this tunnel to Le Manoir, ten miles, all the cuttings and embankments are completed, and the ballasting and placing the rails are in active progress. There is a bridge across the Seine at Le Manoir, which is in a state of great forwardness, and the arched ribs are now being placed. From Le Manoir to Tourville, about four miles, the line is finished, and the rails nearly all laid down. There is a tunnel at Tourville, about 600 yards in length, which is quite completed, so also is the embankment to the river at Oissel, where another bridge across the Seine is being constructed. From this point to Rouen, a distance of six miles, the works are formed, and nearly the whole of the permanent rails laid down. The station at Rouen, and the numerous necessary offices, workshops, warehouses, and other buildings are being erected, and are in so forward a state as to leave no doubt that they will be sufficiently finished for all practical purposes, by the 1st of May. The important works upon this line are the three tunnels, which are fully com-

pleted, and the four bridges across the Seine, two of which are entirely finished, and the other two are so far advanced as to leave no doubt that they will be quite ready by the 1st of May. All the rest of the line not perfected, remains only for the supply of the permanent rails. The line itself is nearly a level one throughout; there are very few gradients, and they, with one exception, do not exceed 1 in 330; the only place where the gradient is greater, is in the approach to the Mantes station, where it is 1 in 200.

The principal stations on the line from Paris to Rouen, will be Maisons, ten miles from Paris; Poissy, seventeen; Meulan, twenty-nine; Mantes, forty-two; Bonnières, forty-one; Vernon, fifty-five; Le Roule, sixty-five; St. Pierre (for Louviers, seventy-two; Port de l'Arde, seventy-seven; Rouen, eighty-five.

Several of the stations are already completed, and the others nearly so.

The rails have been chiefly manufactured in France, and are of the strongest form, weighing 72 lbs. to the yard. The engines for this line are being made at Rouen; twenty-five of them will be ready for the opening, and twenty-five others are in the course of progress to be delivered a few months after. They are all upon six wheels.

The formation of the line will have occupied little more than two years, and it will be (what is seldom the case) completed within the estimated cost, notwithstanding the proprietors have been paid interest for the money advanced at the rate of four per cent. per annum. The estimated cost was 2,000,000*l.* sterling, 1,500,000*l.* of which was subscribed by the shareholders, and the remaining 500,000*l.* was advanced by the French government at the rate of three per cent. per annum.

The time occupied in travelling between

London and Paris will be considerably reduced upon the opening of the railway from Paris to Rouen, and still more so when the line now in progress is completed from Rouen to Havre. At present the communication from Paris to London is made by the mail in about thirty-six hours; upon the opening of the Rouen Railway, it can readily be accomplished by way of Havre and Portsmouth in twenty hours, and by way of Dieppe and Brighton in even less time.

PARISIAN IMPROVEMENTS.

The following is an exact list of the works which the Administration of the City of Paris are about to have completed this year:—

The Hôtel de Ville.
The Prison of the Nouvelle Force, in the Rue Fraverisienne Saint Antoine.
The Church of Saint Vincent de Paule.
The Fountains of Molière.
The Fountains of Saint Sulpice.
The Fountains of Saint Victor, and
The Fountains of the Archbishop's Palace.
The Canalization and Barring of the Branch of the Seine passing through the Cité.
The Rues Rambuteau and de Constantine.
The Quai d'Austerlitz.
The Decoration of the Barrière du Trône.
The Improvements of the Ponts Marie and Tournelles, and the completion of the Quai of the Ile Louviers.

(We hope the Corporation of the City of London will shew itself equally anxious to beautify the city and to promote the health and comforts of the immense population of this vast metropolis—which could not be better accomplished than by the removal of Smithfield and Leadenhall Markets, and the pulling down of Battersea and Putney Bridges.)—EDITHA British Queen.



ST. MARY'S REDCLIFFE, BRISTOL.

In No. 3 of this Journal, at page 36, we gave an abstract of the particulars concerning the restoration of this splendid church, and also at that time expressed a desire that the opportunity would occur to us for gratifying our readers by wood-cut illustrations. We now submit the exterior and interior views, as proposed to be restored. In our next number we shall give some account of the ancient church, as extracted from an acceptable re-publication, by Mr. Taylor, of "Britton's Historical and Architectural Essay," to which work we must refer our readers for much valuable and interesting matter, as well as for the singularly beautiful drawings of different parts of this superb structure.



Literature.

A Plea for National Holy days. By Lord JOHN MANNERS, M.P. London: Painter, Strand.

We have before us a pamphlet under this title, by Lord John Manners. We will not deny that we have heard its merits and motives variously characterized; there is, however, little in us of the pliability that yields, and sometimes almost miraculously, to the opinions of others. Were we starting this question, so many considerations vitally affecting the industrious classes are involved, that we should find difficulty in excluding from our remarks the more stringent causes which are operating upon labour; as it is, we decide on treating the subject upon the terms in which it is put; we are grateful for this distinguished advocacy, and will accept the good in any shape, acknowledging, at the same time, the indisputable well-meaning by which Lord Manners is actuated.

After an introductory paragraph, noticing the frequent complaint of degeneracy of character in the English people "from that of ore, famous over all Europe for manly sports and sturdy good humour, to habits of discontent and moroseness," advantage is taken of the announcement of the late successes in China and India by salvos of artillery, ringing of bells, and the fiat for a national holy day, to introduce the subject, which is done boldly, and in the style British sailors would all "broadsides on." His Lordship says:—

"This, of itself, is very cheering to all who love the good old ways of our forefathers, and may still right justify my little essay; but how will that holy day be observed? What means for duly and happily celebrating it are at hand for the great masses of the people? In cathedral cities, for instance, will the poor and the needy, and the friends, through into those glorious buildings which the city of our ancestors raised for them, to bear their part in thanking the Lord of Hosts for his late mercies, and then on the common outside of the walls, or in the square within, join in lawful recreations, such as 'dancing, either men or women, wherry for men, leaping, vaulting, or any other harmless recreations?'*—where the lusty ap-

prentice shall not fear to outleap his master's son, nor the pauper's child of want to contend with the guardian's brother, while the alms of the faithful that were collected at the offertory in the morning are making the widows' and the orphans' hearts sing with joy? Or in the rural village, again, will the old parish church send out of its time-honoured portals the old men and women, the lads and lasses, to the merry green, where youth shall disport itself, and old age, well pleased, shall look on? Alas! no. Utilitarian selfishness has well-nigh banished all such unproductive amusements from the land: has it not also banished contentment, and good humour, and loyalty, from thousands of English cottage homes?

"But it will be said that I am strangely perverting fact. I shall be told that there never was a period when amusements were so diversified or so refined: whole treatises have been written during the last ten years of every imaginable sport; every county in England possesses its pack of fox-hounds or its harriers; shooting may be said to have reached the pitch of perfection—more game is probably slaughtered now-a-days on a first of September, with all imaginable ease, than was used to be killed with difficulty in a whole year under good Queen Bess; and our breed of race-horses is the admiration of the world. This is all very true; but, with a partial exception in favour of the latter, I must contend that these sports are the sports of the higher, and not of the lower orders; and that, conducive as I believe them to be to the formation of a manly, robust character among those who enjoy them, their very excellence, so far from constituting an objection to a revival of humbler sports for the humbler classes, is the strongest argument in its favour.

"Many people, however, would at once admit, as a general principle, the advantage of holy days and public diversions for the people, and praise the political far-sightedness of Greece, Rome, and Constantinople, whose lawgivers and emperors seem to have regarded the amusement of the people as much as those of modern England too often seem to do their own: it is only when they are requested to put their general principle into particular practice that they discover insuperable objections—some from a regard to the pecuniary interest of the people—some from a respect to the sober reserve of the national character. As these, undoubtedly, are the two objections which can with most force be urged, I will apply myself to them, in the hope of removing or diminishing their cogency.

"And here I will not refrain from adding my

humble protest against the national idolatry paid to wealth, to those which have of late so seasonably appeared from divines and philanthropists. The country is flooded with money; capitalists have not known how to employ their capital; Spanish loans, American projections, railroads here, emigration there, mines in Mexico, opium in China; no matter what or where—this among private men: then in parliament, hundreds of thousands of pounds for printing blue-covered books, which one man in every hundred thousand looks at; a million for depriving the Basques of their liberty; untold millions for slaughtering the Afghans and the Chinese, because the former would not submit to our insolent dictation, and the latter to our invasion of their fiscal code: besides vast sums for sending out two ships with bottled air to the Niger; warning and lighting the House of Commons, &c. Surely any one, previously ignorant of the history of our times, reading this short list, would exclaim, 'How magnificent a nation! What sums must it not have spent in raising cathedrals and churches, colleges and hospitals! How stately must be its halls for the public amusement! How plentiful and unobtrusive its public walks! How frequent and how joyous the holy days of its people!'

"Methinks he would learn with astonishment, that, in the country where countless temples of wealth and speculation are daily rising, hundreds and thousands of temples raised to God are lying in crumbling ruins; that the collective wisdom of that nation has straightly and sternly refused spiritual food for six millions of souls; that against right and prayers, and highest eloquence, it pared down to the meanest utility the funds wherewith 'holy men of old' had endowed existing cathedrals; that prisons and houses of correction are the only buildings it raises for the people; and that it would regard the man who should venture to propose a grant of public money for the temporal recreation or eternal welfare of its poor as a madman or a bigot.

"So long, perhaps, as such strange inconsistencies degrade our private mercantile adventures and our public legislative enactments—so long as the spirit and conduct of the age is at once so profuse and so niggard—so generous, yet so sparing—so democratic, and yet so careless of the poor—so long it may be deemed a sufficient reply to any proposals for shortening the hours of factory labour, or reviving holy days and sports among the people, to say, 'We are too poor; time is money, and we cannot afford it.'

The gist of his Lordship's PLEA may be gathered from the above quotation, every word of which is entitled to attention. Holy days, days of rest, and of the suspension of labour; invitations and opportunities, devotional and recreative, are of the very highest antiquity. Holy days, though originating in the mythological systems of Greece and Rome, were wisely engrafted upon that of the Christian Church, but by her reformed from frantic orgies, to purposes morally and politically useful.

The object of the church, verified in the practice of her rulers and administrators, both in the early and after ages, appears to have been the protection of the labouring classes from undue exactions, of whatever kind. The holy days of the calendar were a prominent means to that end, for while they tended to impress the obligation of religious observances, periodical exemption from the severities of the task-masters was secured.

Now we are not quite certain that the direction given to capital at this day, is not exercising a pressure equally galling with that which existed in arbitrary times; true it is that labour is not compulsory, and that the person of the artisan is inviolable, but the concentrations effected with a view to the undertaking of great works, creates and maintains a pressure which exacts from handicraft labour the utmost exertion physical power can sustain.

We would not be mistaken in our estimate of this unfavourable condition of the workman, or of the causes tending to produce it; there is a great struggle going on,—the competitive struggle of master against master—in which the workman is involved; the quantity of labour to be obtained at a given price being the main subject, in the first instance of calculation, and subsequently of management. In the case of material, capital "holds its own;" the inanimate products of the forest and the quarry bear a current value; the building capitalist has here to contend with an antagonist of equal or superior power, whom he wisely conciliates. Labour, the sentient auxiliary, alone is taxed to the straining and shrinking of its sinews and sinews in the contest.

Such is the state of things in high places of trading enterprise, and which, in a great de-

* "Book of Sports." Vide Appendix No. I.

gree, influences humbler aspirants; aware of it, in what shape are we to entertain a hope of the restitution of holy days? In addition, mechanical invention, superseding human labour in channels heretofore deemed secure from its innovations, seems to mock at assignable limits to its progress; and dearth of employment as a consequence of these combined features of the times, is urged upon us every hour. Limiting our remarks to the subject-matter before us, to the church alone we are to look for the moral power to induce great reformations, to overthrow the mammon-worship with which she herself is tainted, and to restore the benevolences of heart and hand which are the true links of union between rich and poor; but of her condition to effect these we have gloomy doubts, thus well expressed in the text.

"How often do we hear the Church of England called, sometimes fondly, sometimes arrogantly, 'the poor man's church;' but, alas! how sadly have secular influences, the carelessness of the state, the worship paid to wealth, diminished, of late years, the practical justice of her claim to that glorious title. She, indeed, hath appointed divers services for thirty-six days in the year, but in how many of them are the poor permitted to join? Or do people really believe that these are the luxuries of religion intended for the rich and idle alone? When 'the curate,' after the Nicene creed, 'declares unto the people what holy days and fastings are in the week following to be observed,' is he speaking but to the wealthy among them? No one, I believe, would answer these questions in the affirmative; and yet modern practice would justify such an answer."

Eschewing religious and political controversy, we will merely observe that church history affords ample data for illustration and stricture upon the particular question here mooted; still we are far from indifferent lookers on. Lord Manners argues, and consistently so, for the restoration of holy days, but in direct opposition to our political economists, who urge the principle of fixing a rate of wages that would deny repose. All systems of centralization have this tendency, and in proportion to their vigour bear inimically upon labour; but they have, at the same time, the direct effect of widening the distance between the different grades of society, and induce the lurking insecurity of which, now and then, evidences appear.

Let the church, if she be able and prepared to do so, counteract these evils; let her counsels and warnings be heard through her representatives, upon whom the state has conferred extraordinary means and opportunities to work for good. We would accept at her hands the boon of holy days, as growing out of new and more charitable views, new measures, and a successful combating of the favourite theory of the divisibility of labour, substituting for it the more Christian practice of a rational divisibility of rest.

Guide to Hayling Island.—Spencer, 314, High Holborn.

THIS is one of the most interesting little works of its class that has fallen in our way for a long time. We felt it to be a reproach to our country to see its guide-books so far inferior to many such productions on the continent; but we cannot complain in this instance, for we have a work not only interesting to the tourist, but worth a place on the library table. The illustrations, thirty-seven in number, and a map, give it a charm and a value beyond any mere reference book. The editor, with much good taste, has introduced drawings of the old churches of the Island, with architectural details, although we think some of the remarks that accompany them rather apocryphal. The modern buildings also and other objects of interest are introduced, and illustrations of a few celebrated objects of the neighbouring places, in Chichester Cathedral, a vignette of the superb old cross of Chichester, a view of a noble relic, the lofty turret and remains of Warlington Castle, and the Castle at Porchester.

We have likewise a singular and interesting plan of the ground-work of a Roman villa, whose remains were discovered at Bignor, and a vignette of equally curious import, shewing a "stone sarcophagus, with glass and other vases, found in 1817, at Avisford Hill, seven miles from Chichester."

The natural history of the island of Hayling is, like the rest of the tract, given with almost a scientific minuteness, having a technical catalogue, and drawings of fishes, birds, shells, and plants peculiar to the spot. It is indeed, as we said, more than a mere guide-book; it might be termed a "hand-book," and classed with those of the day which enter into matter of particular and useful instruction. Altogether, it is very creditable as an editorial and graphical production, and may serve as a model for a useful republication of similar works for places of more professed importance than Hayling Island.

The Gardener's Gazette. Price 6d.

We are glad to recognize a spirited change in the management of this once popular and esteemed journal, which, for a time, appeared to be in the sear and yellow leaf. It has now, however, roused from its lethargy, and stands at the head of our useful practical scientific literature. The architect and the builder are alike interested in gardening from its connection with landscape effect, and we have recognized several very excellent articles upon the subject in glancing through its pages. We cordially and sincerely recommend the work to our readers who have or love a garden.

ARCHITECTURAL AND HISTORICAL NOTES UPON SOME OF THE PUBLIC AND PRIVATE BUILDINGS OF MILAN.

BY SIG. FERDINANDO CASSINIA.

SANTA MARIA DELLA GRAZIE.—Upon the site of this church there were formerly the residences of Gasparo Vimercati, a personage well known in the annals of Milan, from the part which he took in favour of Francesco Sforza, by whom he was created Count of Valenza. Near these residences there existed a small church, or rather a chapel, in which an image of the Virgin was revered, called *delle grazie*. In this chapel Gasparo placed a picture in which all the members of his family were represented.

In 1463 Gasparo gave the ample space occupied by his houses to the order of preachers, that a temple to the Virgin might be erected. The first stone was laid in 1464. To the construction of this edifice many benevolent persons contributed, and among others the Duke of Milan, but more than all Vimercati, with his usual generosity, and to him is entirely due the erection of the adjoining convent. He was very rich, and died without male descendants, appointing, in his codicil of 1468, the Duke Galeazzo Maria Sforza his testamentary executor. At the time of his death the new temple of Santa Maria delle Grazie, and the adjoining convent, were not completed. It has been stated by some writers that this church had originally the form of a Greek cross, and that Ludovico il Moro, who was anxious to finish it, changed the plan into that of the Latin cross, in the year 1492. But the opinion that the Greek cross was the original design has met with much opposition. It has been reported that Bramante was employed in this work, but it is much more probable that the cupola, which is one of the most beautiful in existence, was constructed by Leonardo da Vinci. The principal front remains in its ancient state, with the exception of the side-gates, which are of modern construction, and have been introduced either because there were none when the church was originally built, or because they had fallen to decay.

The Dominicans occupied this church till the 7th of March, 1797, the time of their suppression, after which the convent was used as a barracks, the church remaining open and becoming subsidiary to the parish of St. Vittore. These friars possessed, near Viganova la Sforzesca, the well-known large space of ground, given to them by Lodovico il Moro, but since their suppression it has passed to the exchequer. In this convent was the Supper of the Apostles, by Leonardo da Vinci, a painting in fresco of great celebrity; but of which, in the present day, scarcely a trace is to be discovered.

PALAZZO ARCHINTO.—In a large garden, near the street, called *della Passione*, in the month of September, 1833, the most noble the Count Giuseppe Archinto caused to be laid the foundations of a palace, which should serve him as a private residence in Milan, and which was erected, in the course of four successive

years, from the designs and under the direction of Sig. Gaetano Besia, professor of architecture, and councillor in ordinary of the academy of fine arts in Milan.

This building is spread round three spacious court yards, of which the central one is the principal, the two inferior forming the wings. The entrance to these courts from the public street is by means of four gates, three of which are in front of the great road towards the north, and the fourth is introduced in communication with the lateral road towards the east.

The ground-floor of the central building, towards the east, comprehends the rooms of the administration, and kitchen; towards the south there is a suite of rooms of recreation looking into the garden; towards the west there are the principal stables and the buildings necessarily connected with them, and towards the north the rooms of the porters, the vestibules, the atrium, and the great staircase.

At the sides of the principal court there are two porticos communicating with the rooms already mentioned and the smaller yards, as well as with the different staircases which lead to the upper apartments and mezzanines. These mezzanines are formed only on the two sides of the palace, towards the smaller courts and around them, without appearing in either of the external fronts, the noble elevation of which they would in some degree injure.

The building at the end of one of the smaller yards, towards the garden, was built for a museum of ancient sculpture, and the other for a conservatory. The principal floor is divided into four noble suits of rooms, preceded by an antichamber for the servants, and by other chambers for servants of a higher class. The large rooms which surround the area of the central yard lead to the saloon of reception, which, in its elevation, is equal to the height of two floors.

At each corner of the palace the apartments already named upon upon a balcony or terrace, and that at the south leads to a terrace garden formed on the wings of the building, and serving as a conservatory. On the second floor there are secondary apartments for the family and strangers; also rooms for female servants and wardrobes, and various apartments employed as libraries.—*From the Architect, Engineer, and Surveyor.*

CHURCH OF ST. JAMES, CLERKENWELL.—This church, built by Mr. Carr, was, it appears, nine or ten years ago surveyed by Mr. Bartholomew, the architect, when the timbers of the great roof of it were found in fine preservation, though the slate covering over them required to be renewed. The Dissenters of all denominations then united to refuse a church-rate for the purpose, but out of very shame they several years afterwards raised by voluntary subscription for a proper repair, and which money they squandered away in surface-work and vulgar tinsel, but neglecting every substantial of the fabric; they even added to the Doric altar-piece some paper-hanger's frippery mouldings, and further, gilt the vestry looking-glass frame, which had been better left of the native colour of the wood. Now mark the event: the trustees of the church are at present re-slating the building, but not till the timber frame-work, which was in such fine preservation, has become most seriously affected through the neglect with wet and dry rot. The sapient refusers of the church-rate and are both land lords and tenants of the fabric, and are also patrons of the living. The same wise men of Gotham were for nine years refused and neglected to paint the external work of their church of St. John though bound by their leases to do so every fourth year, at least, to their own residences.—*Correspondent.*

THE NEW CHURCH AT HARTSHILL, in the parish of Mancetter, Warwickshire, is about to be built from the design of Mr. Thomas Larkins Walker, late of London. We hear that some complaints have been made or objections taken on account of an alleged departure from ancient ornaments in the character of the design; but we cannot give currency to any detrimental rumours, that which may originate in disappointment, pique, or a spirit of extreme intermeddling.

ERECTOR OF A NEW CHURCH AND CHANCEL IN LAMBETH.—A new church is about to be built in York-street, near the Marsh-gate, Lambeth, a chapel of ease is intended for Kennington, which the Prince of Wales, as lord of the manor, given a donation of 1000l.

WOOD PAVEMENTS.

Again we are compelled to postpone our notice of the wood pavement we had prepared ourselves for, owing to some delay in reference to the foreign patents; and although we had intended, and in fact promised, another paper in case of this disappointment, we have to plead our excuse in the prospect there was, until too late for other arrangements, of having the particular one referred to. While on this subject, we may mention that we have had a very ingenious description of block brought to our notice that combines the double lock, that is to say, the blocks wedge upwards and downwards. It combines also the inclined direction of fibre, and the great economy of cutting up from the round tree which polygonal blocks possess. It also embraces dovelling; in short, it appears to unite the favourite properties of each of the best plans of wood pavements.

We conclude this week's notice of the subject by a letter just received, in which an evil is pointed out that only requires to be mentioned to suggest its own remedy. It is clearly obvious that the process of watering is unnecessary on wooden pavements, except for the purposes of cleaning. The state of the wooden pavement in Regent-street, after the sweeping of the patent machine, proves that to keep it clean and dry is the desideratum. Granite or Macadamized roads are one thing, and the wooden pavement, in all its characteristics, except that it is a road—different; therefore a different treatment is required. Presently people will come to see that the causeway and the carriage-way may be treated alike; keep them clean and dry, and comfort and economy, *absolute economy*, will be the result:—

"SIR,—Can you inform me through the medium of your valuable journal, the reason of the wooden pavement being watered in dry weather?"

"I am in the habit of riding over a great portion of it daily, and find it exceedingly dangerous and unsafe, so much so, that nine times out of ten I am compelled to dismount and lead my horse, which causes me considerable delay. I cannot see myself, that there is the slightest use for water, as one of its chief characteristics is, that no dust is produced by it. No one can be more in favour of the wood than myself, as long as it is kept dry, but by making it wet and slippery, it becomes one of the most dangerous roads for equestrians that there can be.

"Your obedient servant,
"RATIO."

WOOD PAVEMENT.

TO THE EDITOR OF THE BUILDER.

SIR,—As licensee and representative of Mr. Stead, the original introducer of the invention of Wood Pavements, I have invariably abstained from controversial correspondence in the public prints on the subject, upon the principle, that in the position in which Mr. Stead stands at present, with his legal patent right, it would be neither wise nor politic in me to do so; and also, from a want of confidence in myself to enter the lists with such weapons as the attempted usurpers who aspire to deprive Mr. Stead of his right in equity and law to this invaluable invention, have been accustomed to wield. In No. 6, however, of THE BUILDER, my attention is drawn to a letter from Mr. J. Lee Stevens (late of the Metropolitan Wood Paving Company), which, with the sanction of the patentee, I will briefly notice, in reference to certain queries contained therein: at the same time, be so kind as to understand that it is not my intention to follow this correspondence further, or to take up the gauntlet to every one of (I believe) forty assumed patentees, who may choose to throw it down, as, in all probability, this will be my first and last essay; nor would I now have taken up my pen to notice Mr. Lee Stevens's remarks, were I not inclined to believe, from what has lately come to my knowledge, that the slanders and perversions of facts which from time to time have emanated from the Metropolitan Company (to underrate the exertions of the original patentee to their own aggrandizement), attributed to that gentleman by the person whom the trustees of the company "have considered advantageous should take upon himself the duties performed by Mr. Lee Stevens," were not his productions, and such having seldom been practised by any public body having the least pretension to fair dealing. However, it is not my purpose now to enlarge on this subject, nor will I enter into any long detail (as I might do) of the means resorted to by the self-assumed Count de Lisle, and his then agent and associate in Lisle Street, to obtain his information from the legitimate patentee, to get up his pirated scheme—of the trumped-up story

that the Metropolitan Company were ordered to replace Stead's hexagon blocks in the Old Bailey with theirs—of the *totally unfounded* report—as confirmed by the Board of Surveyors—of the inhabitants of Manchester being eager for the introduction of the Metropolitan Company's paving, *that of Mr. Stead, which alone had hitherto been used there, having entirely failed*. I merely notice such, as shewing ground for my belief that Mr. Stevens may be free from the slander cast upon him by his successor in office. Before replying to Mr. Stevens's queries, let me first observe to him, that my conviction (from information to which few can have access) is, that in so far as the principle of "Wood-block paving of similar sizes and dimensions" is concerned, not one of the numerous specimen patents based on specific shape or form, which have been applied for and obtained, can evade the category on that point, and there is not one of them which any mechanic of the commonest capacity could not have devised, and ten times the number; but, however, as the question of the extent of legal right of the original patentee will soon now be decided by the highest judicial court delegated by the legislature for the purpose, I agree with Mr. Stevens, that it would be lost time and quite out of place to make your valuable journal a vehicle for the discussion of this point, beyond noticing (what Mr. Stevens to his credit candidly admits he has at all times done, in lecturing and writing on the subject of wood paving), "that the public owe a debt of endless gratitude to Mr. Stead for his surprising zeal and perseverance in introducing it;" therefore, in my estimation, certainly none can be better entitled to the benefit arising from it.

Now, Sir, in reply to Mr. Stevens's first position, it does not require any man of scientific knowledge to decide the fact which common sense must dictate, that wood laid down with the fibres diverging from the vertical position, subjected to the wear and tear of the wheels of carriages passing over the surface, must of necessity lie in a position to be severed or separated sooner from one another than when vertical, and every stage it diverges from vertical that must increase from the abrasion, that the traffic from the wheels must cause. Science, nay, common sense and nature itself are at one on this subject; moreover, experience from practice has demonstrated abundantly the fact, that the fibre vertical must give the greatest resistance to abrasion, and horizontal the least.

2nd. I maintain that the general solidity of wood pavements is arrived at by the adoption of the hexagon form more than any other plan that can be suggested; upon the principle that the strength of cohesive force is increased according to the number of points of contact by which the blocks unite. In this the hexagon (Mr. Stevens must admit) certainly has the advantage over other tried angular forms, without being obliged to resort to the necessity of dovelling, which could be used as well with the hexagons, but are not at all requisite (as you justly remark in No. 5 of THE BUILDER), the pavement shortly becoming a solid and immovable mass, from the circumstance of the sand with which it is covered, finding its way and forming a firm concretion betwixt the joints, and with their expansion, wedging and binding the blocks thoroughly.

In reply to Mr. Stevens's third position as to the simplicity of laying down and raising the hexagon block, I have simply to ask, can he, or any of the respective patentees named by him, lay either of their paving properly down with the assistance only of mere boys or inexperienced paviers? because, I say, hexagons can be managed by such hands as well as by the most experienced. It would be superfluous, for many reasons, to go into any lengthened argument to prove the superiority of one shape of block over another; such questions are not to be determined by abstract or scientific means, but by experience, and it is questionable whether or not we yet possess sufficient practical knowledge of wood paving to be able to say absolutely that a particular shape is the best possible for a particular situation. Many persons believe that one shape of block is universally the best, and there appears to be at least some plausibility in this opinion, as those of your readers who have seen the last number of that rising and highly talented periodical, the *Artisan*, will acknowledge; the question is discussed at such length in that publication that it leaves me nothing to remark upon relative to that subject. I must observe, however, that although no one description of block may be the best universally, the experience of the past appears to indicate that the hexagon is the best at least in *general* and for paving highways, &c., and as such I must now recommend it to the public, although, in deference to its opinion, any selection that may be made of the many specimens that are and may be exhibited, I am prepared to contract for. In those countries where wood paving of every description has been longer in use, and where, of course, there must be an accumulation of experience respecting it, all diver-

sities of form have gradually settled down into the hexagon, which certainly appears to me to shew, that taking into account all the circumstances of cost, durability, and efficiency, the hexagon block has been proved to be the best. Nevertheless, I am glad to see every variety of form obtaining a trial, as out of such experience much useful information must result; the introducer of every variety will of course proclaim the shape *he assumes* to be the best; but experience will in due time solve that question, and all hypothetical reasonings are, in the meantime, only calculated to mislead, and, in the long run, weigh nothing against the result of actual practice. The question has hitherto been most unfairly discussed, and the means resorted to by the Metropolitan Company to bring their *assumed* patent before the public, has been any thing but creditable to them. Will Mr. Stevens, in his turn, oblige me by replying to a few questions, which he can do from his late connection with that company?

1st.—What means were resorted to with certain members of the Committee of St. Marylebone to obtain their report in favour of the Metropolitan Company's tender?

2nd.—Has Mr. Stevens any reason for believing to the contrary, that from an informality in the tender of the original patentee, that it was rejected from this cause alone, and he of course precluded from repairing the Old Bailey of the damage caused by the swelling of the blocks, from the wood being unseasoned, and placed on *no* substratum?

3rd.—Was Mr. Stevens not aware that the sinking in the centre of Hunter-street originated solely by the settling of the new ground of the deep trenches dug by the water and gas companies, on becoming consolidated, as certified by four respectable parish surveyors?

What has become of the Metropolitan Company's Act of Parliament for incorporation, arranged to be obtained this session, and held out as another clap-net for the public?

Was the object of the Metropolitan Company obtaining an injunction from the Lord Chancellor against Saunders for the paving in front of King's College, Strand, another manoeuvre? If not, why have they not proceeded to trial, as they were bound to do? Was it from the result of the trial "Macnamara v. Hulst and others (*viz.* Metropolitan Company), 2nd Dec. last, in which Lord Abinger ruled that Macnamara had the prior right to the shape assumed by the Metropolitan Company, who thereupon, to avoid the verdict being against them, availed of the proof that McCarthy, a patentee of 1818, had had the prior right to that shape which both of them had claimed?

In closing these hurried remarks, I may mention that Mr. Stead's predictions as to the Metropolitan Company's pavement are now being rapidly realized; Leadenhall-street, Holborn, Regent-street, and St. Paul's Church-yard, even with the constant repairs resorted to, are evidently breaking up, and even their pet specimen in Whitehall, so carefully nursed, must share the same fate unless it is continually watched. Contrast the hexagons: there is the Strand to speak for itself, perfect, and fully 30 per cent. cheaper than any other plan, and subjected to ten times the traffic of Whitehall, and which has never been in one instance repaired. What more in the name of wonder is required? The public will judge and decide for itself, it is always just; and these stubborn and incontrovertible facts are before it.—I am Sir, your obedient servant.

ALEX. B. BLACKIE.

General Wood Paving Company's Office,
250, Strand, Temple Bar,
London, 4th April, 1843.

Since writing the preceding, letters have appeared in the *Times* of this day, from Messrs. Pilbrow and Prosser, on behalf of the Metropolitan Wood Paving Company, which will expose to the public one of the numerous instances of the farcical system that has been carried on by these would-be patentees to the invention of wood paving. The strip of deal between the rows of hexagon blocks dovelled together, was suggested by Mr. Stead for Durham-street, Adelphi, and Holborn-hill, *three years before the date of Mr. Perring's patent*. So much for the originality of the bright inventive genius of such persons. The accusation as regards that patent comes with a bad grace from the Metropolitan Company, as their pretended inventor and his clique were much less scrupulous in the means they resorted to to obtain information for his patent than any charge, however gross, that they can bring against Messrs. Stevens and Perring.

It was stated the other day by Sir Isambard Brunel, that but seven lives had been lost in making the tunnel under the Thames, while near forty men were killed in the building of the New London Bridge.

A subscription is getting up for the purpose of erecting a monument over the grave of the celebrated John Bunyan in Bunhill-fields' burying-ground.

GOTHIC ARCHING.

A GREAT deal has been written relative to the strength of different kinds of arches, but it seems that from the fall of pointed architecture, till very lately, sight has been lost of the principle, that that which is *practically* the strongest and most convenient, is *practically* the best.

These properties are possessed in an eminent degree by Gothic arches; for they will subsist firmly, of a construction much lighter, and containing much less quantity of materials than any other kind; the most ignorant may learn this, without acquiring scientific knowledge: all other arches require to be complete, or they will almost entirely fall; but aspiring pointed arches, containing no materials which are really hanging in a state of jeopardy from downward pressure, have less tendency than any other kind of arches, to thrust out their abutments and derange their haunches; for having no horizontal crowns to fall down, they are destitute of that outward wedging property, which causes the ruin of other arches, and that of the piers beneath them.

The stones composing the lofty ancient pointed arch, even without cement, would scarcely slide from their places; hence we see, that although violent destruction has come to an infinite number of the finest buildings, in the pointed style in numerous instances, the whole sides of their arches remain perfect even up to their very points, notwithstanding their other halves have been destroyed, and three centuries of rain, snow, frost, and storm, have preyed upon them, while almost half the number of our modern arches, though possessing all their parts, are a complication of fracture, and need but some slight accident to remove a small portion from each of them, to cause them to fall to utter ruin.

A high praise of the strength of Gothic arches is it, that all the handsomest and most successful great modern domes are nearly, if not quite, in the form of Gothic arches, merely with their points surmounted by spires or lanterns; in fact, they are a series of Gothic semi-arches, rising from a circle or other figure, and meeting together at their heads; the best domes of Europe and of Asia are all of this form: and it is very singular that in a subterranean artificial grotto at the foot of a hill called Xochicalco, in Mexico, is to be found a small cupola of the form here shewn, about six feet in diameter, and rather more in height, composed of circular courses of masonry wrought and fitted together with much exactness, and with a circular vent or tube nine inches diameter extending upwards from the apex of it.*

This singular cupola is supposed to be the work of the ancient Mexicans.

Nothing could better illustrate the superior stability for their purpose, of the ancient high pointed arches, than the fact of the lower arches of succeeding times requiring much more abutment, as may be seen in the immense buttresses which confine the roof of King's College Chapel at Cambridge. Perhaps some of the strongest pointed arches are to be found in Wykeham's work in the nave of Winchester Cathedral, which was erected when the more beautiful and venerable two-centred arch began to corrupt into the low four-centred arch: in this example the summit of the arch is yet steep, and the eye does not at first notice the loss of beauty resulting from the change; but in the arches

of St. George's Chapel at Windsor, the upper parts of which are very steep and nearly straight, while the lower parts of them are small and considerably curved, a degree of ugliness is produced, which is rarely to be found in any members of pointed architecture.

Some of those who write upon the equilibrium of arches, assert that over each abutment of a semi-circular arch a load of infinite altitude is required, in order to counter-balance the key-stone and other parts of the arch, which, from their downward pressure, are in jeopardy, and tend to thrust away the abutments intended to confine them; but as such an altitude would be neither convenient nor possible, and as great weight added to the abutments would make them sink into the earth, and thus ruin the arch, some have imagined that to omit the lower parts of the arch and to make it only a segment of a circle, with no part of the arch deeper than from b to c , is z portion of it which it is

neither convenient, nor even possible, to load sufficiently to resist the outward wedging property of the upper voussoirs. But however this subject may be involved in obscurity, and however little may from the want of actual experiments be known relative to it, yet it is certain that a very considerable portion of the whole weight of a circular segmental arch is thrusting away the abutments, whereas in a high pointed arch the materials are in no such jeopardy, with a direct downward pressure, so that the Gothic architects, in omitting all the dangerous parts of an arch, shewed a kindlier and more refined acquaintance with practical science, than those who have written the most ingenious and abstruse theories upon the equilibrium of arches, and who, instead of seeking to reduce the quantity of materials in jeopardy, have only sought to burthen, at an enormous expense of solid masonry, the extrados and piers of the arch in a manner which in cases of doubtful foundations might grind the whole work into the earth.

Notwithstanding the simple and obvious superiority of the pointed arch for many purposes of architecture, the doubts upon this subject which have been entertained by some of the most eminent men are singular. D'Agincourt, in the 1st vol. of his "Histoire de l'Art," &c. (page 32,) gives upon this subject the following curious assemblage of opinions:—

"Les Mathématiciens et les Auteurs de traités d'architecture ne sont pas tout de la même opinion, sur la force comperée de l'arc en plein-cintre et de l'arc en ogive, et par conséquent sur celle des deux genres de voûtes qui en résultent; mais le plus grand nombre d'entre eux penchent en faveur de l'arc en ogive."

"L. B. Alberti, il est vrai après avoir décrit l'arc en tiers-point, ajoute qu'il regarde l'arc circulaire comme le plus fort, rectum arcum omnium esse firmissimum cum re ipsa censent, tum et ratione argumentoque monstrant." Lib. iii. cap. 13.

"Brunelleschi, au contraire, dans le discours que Vasari lui fait tenir lorsqu'il rendit compte de ses opérations pour la construction de la voûte de S. Maria del Fiore, explique comment, pour la rendre plus forte, il a préféré lui donner le sesto di quarto acuto."

"Cesariano, dans une note de son commentaire sur le chapitre ii. du livre Ier. de Vitruve, observe que l'arc aigu est capable de soutenir un grand poids, dans sa partie supérieure et perpendiculairement, mais que latéralement il offre moins de résistance que l'arc en plein-cintre."

"François Sonovino, fils du célèbre architecte de ce nom, dans une lettre qui est la 6^e du tome V. des Lettres Pittoriche, rapporte ainsi les motifs qui engagèrent à faire usage de l'arc en ogive, dans la construction des voûtes du palais de la commune, à Venise: Perchè fra le forme de' volti è molto più forte l'acuta che la



Winchester Cathedral.

mezza sferica, essendochè l'acuta, per essere parte di triangolo, è difficile che per l'angolo nel quale le due linee si uniscono, e serrano insieme, possa cedere o spezzarsi."

"Blondel, dans son Cours d'Architecture, pense que l'arc en ogive a moins de poussée. Belidor aulivre II. de la Science des Ingénieurs, donne une méthode pour calculer la poussée que les arcs circulaires et aigus exercent vers le point de l'impost."

"Le P. Frisi, dans une petite dissertation imprimée à Livourne en 1766, sous le titre de Saggio sopra l'architettura gotica, fait une distinction conforme à celle de Cesariano. Milizia, Principi d'architettura civile, tom. i. cap. 17 dit formellement: Gli archi Gotici sono i più forti; et tom. iii. cap. 5. La struttura delle volte Gotiche è la più vantaggiosa; ha minore spesa di qualunque altra specie di volta."

"M. Rondelet est du même sentiment. 'Les voûtes surhaussées, c'est-à-dire dont la hauteur du centre est plus grande que la moitié du diamètre, ont l'avantage de pousser moins que celles qui sont en plein-cintre.' tom. ii. p. 130. 'Du Traité classique dont il a enrichi l'art de bâtir. Je l'ai vu, à Rome, en préparer les matériaux et en recueillir les preuves, au milieu de tout ce que l'art ancien offre de plus parfait.'"

"M. Francesconi, Professeur de Géométrie au Collège de St. Marc, dans une des notes de sa dissertation sur un lettre attribuée à Castiglione ou à Raphaël, n'approuve pas que l'auteur de cette lettre trouve plus de force à l'arc circulaire qu'à l'arc en tiers-point."

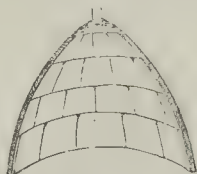
Mr. Ware, in discoursing upon the same subject, notices that Gautier says, "that pointed arches were used in bridges, churches, and other buildings, 'par la faire moins de poussée.'" Sir Christopher Wren makes a similar observation, adding, "that these arches require less centring and thinner stones."

While a daily supply of fresh information continues to prove more and more, that the economy and scientific construction of pointed architecture, were, if possible, more eminent than its beauty of form and detail, it is singular that the minds of men at the present day seem to prefer the use of the declined Gothic of the sixteenth century, and even though they may sometimes disdain to use the festered and corrupt details of that period, they persist in using the inelegant and unsafe flat window-heads then in use, under a pretence that arched windows are unfit for domestic edifices, which do indeed require at once the greatest strength and the most judicious economy which the employment of a moderate sum of money can procure. In violation of this principle, we behold the flat window-heads of the new St. Katharine's Hospital, London, broken, and in some cases where they have been vertically joined over muntins, we find the muntins themselves cleft vertically beneath the joints, by the subsidence of the superincumbent divided stones. While these small new works crumble beneath their own weight, the great eastern windows of the Cathedrals of York and Gloucester have stood for centuries, though containing each between two and three thousand superficial feet.

How very nearly the builders of the edifices of Pointed Architecture removed all lateral thrusting power from their arches, is still further proved by the frequent absence of Flying-buttresses, as mentioned by Jean Rondelet, in his "Traité Théorique et Pratique de l'Art de Bâtir," (sixth edition, vol. iv. p. 293.)

"Cette multitude d'arcs-boutans, dont la plupart des églises Gothiques sont garnies à l'extérieur, sont souvent superflus, ainsi que le prouvent, indépendamment de la théorie, plusieurs édifices de ce genre, où l'on a évité d'en mettre, quoique leurs voûtes soient beaucoup plus élevées que la plupart des grandes nefs au-dessus des bas-côtés des églises ordinaires, telles que la Sainte-Chapelle à Paris, et la petite église de Cluni, près la Sorbonne, que nous avons déjà citées, et plusieurs autres qui n'en sont pas moins solides."

And again, the same author observes, "La courbe de cintre la plus favorable pour les voûtes d'arête est celle des arcs Gothiques, parce que la partie qui pousse la plus se trouve supprimée. On trouve que l'effort de leur poussée n'est que les trois septièmes de celui des voûtes en plein-cintre de même diamètre, épaisseur, hauteur de pied-droit et forme d'ex-



Mexican Dome.

* "En un ángulo del salón mas interior, se halla fabricada en el espesor de la bóveda un cupula de figura cónica de dos Varas de diametro y algo mas de eje; en su cénitro hay un tubo de un cuarta de diametro, que servia de respiradero; y todo lo interior era Vestido de piedras cuadradas, puestas en filas circulares con mucha union y limpieza."—Account of Three Expeditions by Captain Dupuix in the years 1805, 6, 7, in search of the Mexican Antiquities. Paris, 1804.

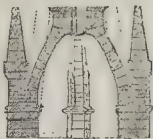
trados, et qu'il suffit de donner à leurs points d'appui les trois quarts de ceux des voûtes en plein-cintre de même forme et dimension."—Vol. iv. p. 232.

There is yet another excellence which has been practised in the construction of Gothic arches, as mentioned by Dr. Möller, in his "Denkmäler der Deutschen Baukunst."

"In regard to the buttresses or contreforts of the vaulting, we find a method practised in the Cathedral at Cologne, which, although hitherto unnoticed, appears to be as judicious and serviceable as it is simple.

"The lower part of the vaulting is formed by horizontal courses of the stone-work projecting out from the wall, similarly to the construction observed in the treasury of Atræus. Consequently, the actual span of the vaulting, and its volume or bulk, are proportionably decreased, while, on the other hand, the abutment is in the same degree strengthened. Still more deserving of attention is the manner in which the essential parts are so linked together as to be rendered incapable of thrusting or giving way, and must therefore, of necessity, remain in the precise position they were intended to be in." (Translation by W. H. Leeds, p. 153.)

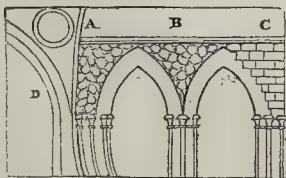
Now, an examination of the steeple of St. Dunstan's in the East, London, will shew that Wren, either from studying the Gothic buildings, or by his own skill, was led to practise the same mode of construction as is to be observed in the vaulting of Cologne Cathedral; for the lower courses of the four flying-buttresses of St. Dunstan's steeple are laid horizontally, and form indeed one with the courses of the masonry of the four pinnacles surmounting the angles of the tower of the church.



Of the Defects resulting from the Use of Gothic Arches, and of the Remedy for those Defects.

There is one defect, which may by oversight subsist in an eminent degree; the property by which pointed arches may, by reason of their steepness, throw off from their extrados or backs the spandrels or materials which are frequently piled upon them. In a range of arches of equal size and strength this is of no ill effect, for repose is preserved by the materials of the spandrels tending to slide equally from the backs of each pair of arches, and thence falling upon the pier beneath them; but against the end arches, must be abutment sufficient to resist the moving power of the spandrels, or they will slide off, and the end arches becoming crippled, the adjoining arches also will be more or less deranged.

This is found in actual practice: a great portion of Gothic masonry, being cheap rubble-work, has a very great tendency to roll where-



- A. Rubble-work rolling from off the back of a Gothic arch.
- B. Rubble-work retained in repose between two Gothic arches.
- C. Spandril graduated in regular courses upon the back of a Gothic arch.
- D. Internal arch-buttresses contracting the bulging of the four great central piers of a Gothic cathedral.

ever there is a want of equilibrium, hence at the crossing of the nave, choir, and transepts of most Gothic cathedrals, there is more or less giving inwards of the four great central piers; and to counteract this failure, and to render those piers capable of bearing a stupendous tower or steeple, the most scientifically ingenious internal "Arcs-boutants" have been inserted in some cathedrals, as those of Salisbury, Wells, and Canterbury.

To prevent this bad effect, the spandrels over Gothic arches, and indeed over all arches should be laid in courses of squared masonry

or brick-work, and the backs of the arches should be formed in a series of horizontal gradations, so as to have no tendency to roll from off their seats the superincumbent masonry.—From *Essay on the Decline of Excellence in the Structure and Science of Modern English Buildings*. By Alfred Bartholomew, Esq., Architect, F.A.S., Hon. Secretary to the Freemasons of the Church.

[It appears that Mr. Bartholomew has much new matter to communicate relative to the construction of pointed architecture, and is able to solve many difficulties relative to the thrust and equilibrium of arches, which he will do by the application of the *catenaria* to the subject, and will further shew the great skill of the Freemasons on this very subject; his papers thereon will most probably appear in the Transactions of the new college, of which he is hon. secretary.]

Miscellanea.

NELSON'S STATUE.—A casting of one of the volutes for Nelson's monument, Trafalgar-square, took place on Saturday afternoon at the Royal Arsenal, Woolwich, and narrowly escaped being a failure, not from any want of judgment in the plans adopted by Mr. Clark, the artist to whom the making of the ornaments of the column has been intrusted, but to an unforeseen accident; the back of the furnace having given way when the metal was nearly in its complete state of fusion, which caused about 700 to 800lb. of the boiling metal to fall amongst the coals and ashes. Fortunately Mr. Clark had added a larger quantity of metal to the furnace in the first instance, and immediately on the accident taking place attempted the casting, and succeeded partly in filling the mould with the aid of about 20lb. of metal which was fortunately in a fluid state in another part of the foundry. The casting has been taken out to ascertain that it was perfect, and a more beautiful piece of workmanship in all its parts could not have been made under the most favourable circumstances. The quantity of metal in the volute is as near as possible to the weight calculated upon, being from 10 to 11 cwt.

HOUSES OF PARLIAMENT.—A return made to the House of Commons, published yesterday morning, states that the total amount already expended for building the new Houses of Parliament is 580,483. 10s.; the amount voted has been 438,500l., and consequently 53,016l. 10s. is in hand unexpended, which will be required for works now in progress of completion. It is estimated that a further sum of 578,424l. 12s. 9d. will be required to complete the buildings. The total amount of Mr. Barry's estimate will therefore be 1,016,924l. 12s. 9d., besides what will be required for completing the landing-places, making good the pavings, furniture, and fittings, and for decorations by works of art.—(How funny the shillings and pence appear in the company of these formidable amounts, particularly as estimates.)

METROPOLITAN IMPROVEMENT.—By direction of the Commissioners of Woods and Forests several houses in the line of the new street, to lead from Oxford Street to Holborn, and which is to be called Oxford Street East, were sold by auction, on Monday last, and they will be immediately pulled down. Very rapid progress has been made during the last few weeks, and a great many houses have been disposed of in a similar way. Nearly all the houses on the west side of Plumtree Street, and on the north side of Hyde Street, are levelled with the ground. The street will be in a straight line, about 1,300 feet long, and 50 feet wide. Applications have already been made to the Commissioners for ground to build upon.

THE AERIAL STEAM CARRIAGE.—The following is an extract of a letter from a gentleman closely connected with the scientific world in London, to a relative in this town. The matter has been by most persons considered a joke, as it appeared improbable. An Act of Parliament, however, is now being obtained, for the purpose of investing the patent in a company, that it may be properly carried out; but until the first public trial is made, the nature of the motive power to be used is kept strictly secret. "The aerial scheme is actually to be attempted; the trial has proved effective; it will convey six to eight passengers from hence to Paris in thirty minutes, to Boulogne in twenty minutes." What will the world come to at last? We shall by-and-by, be accepting invitations to Calcutta to dinner, to return again at night.

GERMANY—*Carlsruhe*.—The opening of the railway from Carlsruhe to Manheim will take place sooner than was expected; it is fixed for the 15th of April.—From the *Chemin de Fer*.

ARCHITECTURE.—We understand that the design and plan of the intended almshouses at Spalding, in Lincolnshire, has been furnished by Mr. Henry W. Todd, of Ripon, a young gentleman just commencing his professional career. As there were seventeen competitors, and this is his first effort, the decision is highly creditable to him.—*Leeds Mercury*.

ERECTION OF A NEW HOSPITAL.—A new hospital on an extensive scale is about to be erected in the Marylebone and Paddington districts.

NEW PLAN FOR MAKING BRICKS, &c.—The following description of a new system applicable to making bricks, tiles, and tesserae, for forming tessellated pavements; also inlaid and mosaic pavements generally; the invention of Mr. Prosser, was given at a late meeting of the Society of Arts:—The essential character of this invention is moulding bricks and tiles from a comparatively dry powder, instead of from a moist clay. Certain proportions of clay and feldspar are ground to powder, and well incorporated; and, when ready for the workman, the powder contains not more than seven per cent. of water. This powder is placed in a mould, and subjected to a pressure, greater in proportion to the size of the mould, and to the required thickness of the article. When removed from the mould, the article is subjected to the usual process of baking, &c. The tiles are cut with iron and sand, are not absolutely dry, never contract, become rather heavier by absorption of water from the air, are not the better if made under a superior pressure, and can be baked immediately after they are made; frost does not hurt them. Bricks can be made cheaper by this than by the ordinary process, the saving being in time, not in material: these bricks are much more dense. A box of shirt buttons, made by the same process, of pipe clay and feldspar, was placed in our hands; they are coarse, and not to be compared with mother-of-pearl; the materials of which these specimens are made do not appear to have been reduced to a sufficiently fine powder, and the moulds could not have been of the best execution. They are, manifestly, susceptible of improvement.

SPALDING ALMSHOUSES.—We believe our announcement of Architectural Competition had some connection with the success of Mr. Todd, of London, to whom the palm of merit has been awarded. Lincolnshire has been the scene of several triumphs to Mr. Kendale, but on this occasion he was destined to experience defeat; there were sixteen competitors, and in addition to those just named were Messrs. Dwyer, of London; Dain, of Leicester; Mitchell, of Sheffield; Pocock and Glover, of Huntingdon, &c. &c. We shall be greatly obliged to Mr. Todd to favour us with an opportunity of giving our readers a sight of his designs.

MONUMENT.—A chaste tablet of white marble, having a suitable inscription, has this week been erected in the church of St. James, Thornton, to the memory of the late Mr. John Fawthrop, of that place. The execution of this beautiful tribute to a good and clever man, reflects the highest credit on the artist.—Mr. J. B. Leyland, of Halifax.

NEW PRISON.—The sanction of the Secretary of State for the Home Department has been received for the erection of a new prison for the borough of Leeds, upon the old Armley-hall site. The quantity of land appropriated to the same not to be less than seven, and not to exceed ten acres. This official sanction will, we understand, be brought under the consideration of the Council at their meeting on Wednesday next.

OFFICE OF COMMISSIONERS OF SEWERS, GUILDHALL.—WOOD PAVEMENT.—A meeting of the Commissioners of Sewers for the city of London took place on Tuesday last at their office, for the purpose of receiving a report of the sub-committee appointed to take into consideration the propriety of paving Cheapside with wood. The chair was taken by Alderman Gibbs, and a vast deal of interest appeared to exist among the members upon a question affecting so important a thoroughfare. The report of the sub-committee upon a petition of certain inhabitants of Cheapside, for carrying into effect the object of paving that street from the Poultry to Newgate-street, was read; it recommended the plan of putting down wooden blocks. Sir Peter Laurie opposed the recommendation of the sub-committee upon the grounds so frequently discussed, the danger to man and horse, and proposed as an amendment, "That no wood pavement be introduced for one year;" Deputy Gordon followed on the same side; Mr. R. L. Jones supported the report of the sub-committee, and declared that in those portions of the city in which wood pavement had been introduced, the greatest satisfaction was felt and expressed at the advantages of the change,—cleanliness, comfort, and convenience, in lieu of dirt and noise. It was finally agreed that Cheapside should be paved with wood.

LAYING OF THE FIRST STONE OF THE CONCILIATION HALL.—Yesterday the ceremony took place of laying the first stone of a building adjoining the Corn-Exchange, to be called the Conciliation Hall of Ireland; and at three o'clock Mr. O'Connell having girded on a richly embroidered apron, prepared by Mrs. Ray, commenced the ceremonies. He struck the stone three times with a mallet, and after applying some mortar, ascended the stone, and waving his hat in the air, called for three cheers for old Ireland and the Repeal. He then read the inscription, which was as follows:—"This stone, the first stone of the Conciliation Hall of Ireland, to be erected for the purpose of combining all classes and religious persuasions of Irishmen on the broad basis of mutual conciliation, mutual benevolence, and entire and cordial affection, for the purpose of elevating once more their fair and fruitful, but long oppressed fatherland, to its natural position of a great nation, protected by the independence of its legislature—pure and unalloyed in its allegiance to the crown of Great Britain and of Ireland—sincerely attached to British connection, but firmly, yet peaceably, determined to be subject to no other nation on the face of the earth, in point of legislative and judicial authority. To struggle incessantly for the blessing of self-government; which has, on a former occasion, proved to be the abundant (as well as the natural) source of prosperity—to encourage the temperance movement throughout the island—to elevate the high moral tone of a faithful and religious people to the practice of all Christian virtues—to discountenance and repudiate all force, violence, riot, or tumult—to detect and denounce all secret and illegal societies—to promote the pure principles of civil and religious liberty all over the loved land of our birth. Such are the means which the founders of the Conciliation Hall of Ireland calculate upon, as irresistibly leading to the success of the majestic object of Irish patriotic exertions—the Repeal of the Legislative Union.—30th March, 1843.—DANIEL O'CONNELL, M.P. for the county of Cork, chairman of the building committee." During the ceremonies several guns were discharged in the inclosure, and a rocket fired off to announce the event. Mr. O'Connell addressed some brief observations in reference to the occasion which had called them together, and the assemblage then began to depart.

HOLBORN IMPROVEMENTS.—We are rejoiced to say that they are progressing very satisfactorily. Plumtree-street has been already razed to the ground, and the other buildings in the neighbourhood are being pulled down as rapidly as circumstances will admit. We understand that it is in contemplation to pull down Bedford Chapel, and to erect a very handsome district church upon its present site.

OXFORD-STREET, EAST.—Workmen have been busily engaged during the last few days in removing a portion in that well-known locality called "the Rookery," known also as "Little Ireland," the rendezvous of the natives of the Sister Isle, and of the lowest class of thieves. In a short time this, like many other ancient sites, will be lost to memory, as, in order to form the new street, a very wide extent of ground must be cleared, and, when removed, there will be one continuous line of street, leading from Hyde-park corner through the city to Mile-end, above four miles in extent.

KEOVL.—We learn that there is every prospect of one or two new churches being commenced in this town in the course of a few months. We also understand that the Pitney Committee are actively engaged in preparing plans for the erection of a new church in that parish, where they possess an ample endowment in glebe lands and rectorial tithes.

ADVANTAGE OF BELONGING TO AN ANCIENT HOUSE.—The following anecdote is related of Mr. Roger, of Wernode, in Monmouthshire, a gentleman who piqued himself greatly on the antiquity of his house. His mansion was in a state of great dilapidation, but he still continued to inhabit it, and to prefer it to every other, even in its decay. A stranger whom he accidentally met at the foot of the Skyrdd made various inquiries of him respecting the neighbouring country, the houses, the prospect, &c., and among other things asked to be informed whose was this antique building before them. "That Sir," said Mr. Rogers, "is Wernode, a very ancient house; for out of it came the Earls of Pembroke of the first line, and the Earls of Pembroke of the second line, the Lords Herbert of Cherbury, the Herberts of Coldbrook, Ramsey, Cardiff, and York; the Morgans of Acton, the Earl of Hunsdon, the houses of Ircowin and Lanarth, and all the Powells. Out of this house, Sir, also, by the female line, came the Duke of Beaufort." "And pray, Sir, who lives there now?" inquired the stranger. "I do, Sir," replied the proprietor. "Then pardon me, and accept a piece of advice," returned the other—"Come out of it yourself, or you will soon be buried beneath its ruins."

SUMMARY of the Number of Houses inhabited, uninhabited, and building in Great Britain and the Islands in the British Seas, from the Census for 1841.

	Inhabited.	Uninhabited.	Building.
England.....	2,753,295	162,756	25,892
Wales.....	188,196	10,133	1,769
Scotland.....	503,357	20,307	2,760
Islands in the British Seas.....	19,159	865	220
Total.....	3,464,007	198,061	30,631

CHURCH OF THE HOLY TRINITY, HULL.—A vestry meeting of the Holy Trinity parish was held on Thursday in last week, at which the accounts of the Churchwardens were audited. It appeared that they have in hand 1,095*l.*, which they are ready to expend in the renovation of the church, so soon as the town shall come forward with the sum stipulated. If that should not be accomplished, it will be devoted to the repairing of the exterior. A vote of thanks was unanimously and heartily passed to Messrs. Forrester and Mitchell, for the mode in which their accounts were kept, and for their general attention and activity in the management of the affairs of the parish.

OTTINGHAM CHURCH, HOLDENESS.—This ancient and beautiful church has lately undergone some extensive repairs, the nave and side aisles being new roofed and covered with lead; the whole of the pews repaired and improved; the pulpit and reading-desk being entirely new, and made of oak. The painting has been executed by Messrs. W. Binks and Son, of High-street, Hull, and reflects great credit upon the skill and taste displayed both in the interior of the nave and chancel.

NEW CHURCH.—A new church is about to be erected in the parish of Manchester, in consequence of the great increase of population. The following sums have been already contributed to the fund—the trustees of the late Mr. Okcever, 200*l.*; W. S. Dugdale, Esq., M.P. Mervale Park, 100*l.*; Richard Jee, Esq., Hartshill, 100*l.*; Miss Jee, ditto, 100*l.*; C. H. Bracebridge, Esq., Atherstone Hall, 25*l.*; the Rev. B. Richings, vicar, 25*l.*; Joseph Taverner, Esq., Hartshill, 25*l.*; R. R. Jee, Esq., Manchester, 25*l.*; Mr. Morewood, Hartshill, 20*l.*; and auditors, 20*l.*

THE CHAPEL ON THE BRIDGE.—The Vicar of Wakefield has received the following letter from Daniel Gaskell, Esq., of Lupset Hall, near that town, and formerly the Member of Parliament for the borough:—"I beg to enclose the sum of 5*l.*, in aid of the fund which you are collecting for the repairs of the chapel on Wakefield-bridge; and should the committee meet with encouragement sufficient to enable them to execute the plan which has been approved, I will with pleasure make the five pounds fifty. The Bridge Chapel, if thus restored, would be an object highly interesting to the antiquarian, and a great ornament to the town, I am, dear Sir, yours sincerely,

"DANIEL GASKELL."

KINGSTON HOUSE.—This house, lately the residence of the Marquis of Wellesley, is to be very shortly pulled down; and a beautiful square of the first class houses is to be built upon the site. We hear, also, that it is in contemplation to erect a handsome church, which cannot fail to prove a great accommodation to the inhabitants, there being no place of Divine Worship between Knightsbridge and Kensington. The unsightly half-way houses are likewise to be pulled down, and the road is to be both widened and improved.

THE EARL OF ROSSE'S LEVIATHAN TELESCOPE.—Sir James South, of the Kensington Observatory, has written to the *Times* Newspaper to contradict a report that the Earl of Rosse's attempt to construct a large telescope had failed, in consequence of an accident to the large speculum. Sir James says that the work is going on favourably, and that he has little doubt that, by the meeting of the British Association at Cork, in August next, the instrument, if not absolutely finished, will at least be fit for use.

The Bishop of Salisbury has undertaken to restore, at his own expense, the beautiful chapter-house of the cathedral; the cost will not be less than 2,000*l.* It suffered greatly from Puritan malignity during the great rebellion, the parliamentary commissioners having held their sittings within its walls. Fortunately, sufficient traces remain of its pristine beauty to allow of its restoration in perfect harmony with its original plan.

INCREASE OF CHURCHES.—Thirteen new churches have been erected in Manchester alone during the last seven years.

The plans of Mr. Talbot have been chosen by the company of bridges and causeways, for the railway between Arvignon and Marville.

HAMBURG, 19th March.—The construction of the railroad from Hamburg to Berlin is determined upon.

TENDERS.

TENDERS given in for building fourteen cottages in Martin Street, Blackfriars'-road, March 30th, 1843, —H. E. KENDALL, Esq., Surveyor.

Mr. Patrick	£2998
Messrs. Bursall and Son	2896
Haynard and Nixon	2595
Mr. Rigby	2590
Mr. Stevenson	2540

N. B. We shall be greatly thankful to our friends for information of the above character, as most important results may some day flow out of its publication. It will furnish evidence of the necessity for some steps for regulating competitions; the difference between the highest and the lowest tender in the foregoing case, is not so serious; but our readers will recollect a case in No. 7, where the difference between the highest and the lowest tenders was twice the above ratio of amount.

The terms of subscription to THE BUILDER are as follows:

UNSTAMPED EDITION.	
Quarterly	3 <i>s.</i> 3 <i>d.</i>
Half-Yearly	6 "
Yearly	13 0

STAMPED EDITION.	
Quarterly	4 "
Half-Yearly	8 "
Yearly	17 4

Part I, stitched in a wrapper, will be ready for delivery on the 1st of April (price 1*s.* 8*d.*), containing Seven Numbers.

THE BUILDER can be supplied from the Office, 2, York-street, Covent Garden, on the remittance of a post-office order in advance.

The charge for Advertisements will be as under: Seven lines

Every additional line

To workmen advertising for situations, the price will be reduced to 3 6

Advertisements for THE BUILDER must be forwarded to the Office before Wednesday in each week.

Architectural Competition.

Under this head we shall give notices of pending competitions, and shall feel obliged by our friends forwarding us the accounts of what may fall in their way of this character. We shall also be happy to give engravings of the selected designs; and think that, by such publicity, the present very defective system of decision may be amended. Publicity is sometimes a remedy when more direct measures have failed.

ERECTION OF A CUSTOM HOUSE AND EXCISE OFFICE AT IPSWICH.—First Plan, 20 guineas; second ditto, 10 guineas. Expenditure not to exceed 4,000*l.*—Town Clerk's Office, Ipswich, April, 22.

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification, of which they may choose to avail themselves.

BRISTOL AND EXETER RAILWAY.—No. 1, 1 mile 56 chains; No. 2, 2 miles 4 chains; No. 3, 1 mile 36 chains.—Engineer's-office, Temple Meads, Bristol.

FOR ERECTING A FIRE-PROOF ROOM AT THE WORKHOUSE IN FLEA-MARKET, OXFORD STREET.—Plans, &c. to be seen as above between 10 and 5.—Proposals to be addressed to "Governors of the Poor," St. James's, Westminster, by April 12th.

GOVERNMENT CONTRACT FOR BALTIC TIMBER GOODS AND NORWAY SPARS.—Address "Store-keeper-General of the Navy, Somerset-House."—April 18th.

RESTORATION OF WEST FRONT OF TRINITY CHURCH, COVENTRY.—April 12th.—R. C. Hussey, Architect, Birmingham.

FOR PAVING CARRIAGE-WAY IN WHITE-CHAPEL.—Mr. R. Kelsey, 37, Chiswell-street.—April 10.

FOR ERECTING NEW ASSIZE COURTS IN LIVERPOOL.—Address, "Town Hall, Liverpool."—April 17.

THE BUILDER,

NO. I.

SATURDAY, APRIL 15, 1843.

THE CARPENTERS' BENEVOLENT INSTITUTION.

If any thing were wanting to prove the necessity of a means and a system of co-operation among the building classes, we should find it in the circumstances attending the report which we give of the meeting of the above-named institution. Until almost the hour of meeting we had no notice or knowledge that such was about to be held, and then only by the purest accident. The foreman of one of our London building firms was kind enough to hurry to our office, immediately on its having come to his knowledge, to inform us. And when we consider this circumstance—the smallness of the number of the meeting—the general privacy of the business—the trifling amount of the subscriptions—and contrast them with the facts, partly stated in Mr. Tomkins' speech, as to the numbers of the body whom this institution aims to represent, their wealth and influence, and the wealth and influence which they can command—contrast them also with the effective and important workings for similar objects of other industrial bodies of our fellow-citizens, of bodies not numbering a tithe or much more of the carpenters, to say nothing of the aggregate of the whole building classes in London, who for such purposes as this ought to co-operate—when we reflect on all this, it forms matter of surprise, of astonishment, and we may add reproach, that such things can be; that with so much power of good so small an amount should be visible; and it determines us, while it confirms our every other view and purpose, to set about, with the important lever in our hands, to move this inert mass, and to wipe away the reproach that must attach to us so long as it can be said that a small committee-room in the Freemason's tavern is sufficient for the purposes of a meeting of THE LONDON CARPENTERS' BENEVOLENT INSTITUTION!!

If what we have said or can say on this topic in this sense be not enough, we can go into particulars, and shame the builders into action. We can search the records of the charitable asylums of the metropolis, and we can search other records, and it will not redound much to our credit to have to show that, in proportion to our numbers and power, we have been negligent of the practice of those virtues, social and moral, for which almost every other class of our fellow-citizens have been distinguished. Old age and infirmity must not longer be cast out from among us, or disregarded. We are not wanting in the private exercise of the duties of humanity, as sons, parents, brothers, friends. But oh, let us consider that there are those of our body, in a number so large, who have had the misfortune to lose all these in their private circle, and let us extend to them a succouring hand, to supply, by public and general bounty, as far as lies in our power, the deficiency. Let the wanderer and the stranger—for in London there are hundreds among us whose home is far distant, or has been exchanged for the chance of one in this great metropolis, a chance in which many have not succeeded—let such as these feel that they are amongst their brethren, and do you not suffer their grey hairs to be dishonoured, or calamity and misery to fall too heavily upon them.

What is it we have engaged ourselves in? and what are the complaints we are now and

then hearing, in the tone of the querulous and impatient, that we should gratify the curiosity of the inquisitive, stimulate the ardour of the student, unfold the mysteries of the craft to the unlearned—give cheap knowledge down upon the nail, and at the commencement of our enterprise? what is it we are aiming at and called upon to do? and of what avail would all these and similar labours be, if we were not awake to and sensible of the still higher functions of our office, if, on seeing this dearth of benevolent feeling in our class, we were not to bestir ourselves to draw from them, and direct into proper and sufficient channels, water from that fount of charity and mercy which so largely and plentifully exists under the rocky hardness of exterior aspects? let us not, in our wayfaring, be all mindful of advance and greedy of expectant gain, while we leave the worn-out and wearied to perish by the road-side of our journeying, or suffer the rear of our camp to be harassed and cut off by that poverty and misery which are the constant assailants of poor humanity in its progress through life. As one, we say many there are amongst us who have no friend to challenge them;—old men without sons or brothers, or brothers only in misfortune, and shall we suffer these to find an indiscriminate refuge—to depend on the charity of those whose hand supplies to the outcast, or to be thrown into the workhouse for the remnant of life, and be buried with the honours of a pauper funeral? Oh! no, it cannot be that we should be thus heartless and heedless; and it shall not be while we have a pen to indite with, or a purpose, through this paper, to promote.

But how are we to effect that good which the case calls for? not, assuredly, by carpings and objections—not by raising a question as to the fitness, or doubting the motives of those who have put a foremost hand to the wheel. We must help them. The small number of those assembled on the occasion referred to must be strengthened; their good purposes must be promoted; their slackening zeal and damped ardour re-inspired; unanimity and energy must be thrown in, and we are here to give the signal and the impulse to all which our poor ability may be equal to. We thank God that He has cast us upon this issue of events, and so disposed us in a promise of usefulness; and we call upon the whole of our esteemed fellow-craftsmen to aid us, by their information and counsel, to carry out the great objects which they, in common with ourselves, have in view.

We shall set about our task in earnestness, and from time to time, and constantly, if needs be, bring this business and all its details before the public eye—before the eye of our class. What we would know is, how much has been already done, and how; and to have it suggested to us what has been thought expedient, and probable of future accomplishment. Depend upon it, matters shall not long remain inactive in this and similar movements for good. We venture to request of those gentlemen, who to their honour have already proceeded so worthily in this business, that they would enable us to second their exertions, by putting us and our poor services at their command in any way in which they think we can be useful. That such a meeting as this should want a president, too! Honour to Mr. Ewart for the association of his name with this institution in that character; but there should be no lack of presidents and vice-presidents, noble and honourable. Let there be no squeamish or mawkish sentiment on our part, or a questioning as to party, rank, or

station. Humanity, whatever a capricious world may say, has had and will have its chivalrous champions in the ranks of the educated, and those whom it has itself distinguished. Titles and distinction do not go for nothing: they have been earned in most instances, and are to be sustained by the practice of peculiar virtues. We reprobate the unworthy holder of his country's patent of approbation. We secure the brilliancy of a reputation when we throw upon its owner or conservator the responsibility of sustaining it by an active discharge of the duties of the higher paths of citizenship.

Let us beat about, therefore, for this co-operation. This is the true levelling—when high and low, the pride of the land and its humblest citizens, meet upon common ground, and for the noblest purposes. The sun of England's glory is not yet set—clouds only have obscured it; let her workmen give and demand confidence; let them respect and be respected; and above all, let us seize this opportunity to vindicate our title to all that we claim by shewing ourselves good stewards and watchful guardians of our own most precious interests.

NOTES OF AN INQUIRER.
No. I.

PUGIN'S ARCHITECTURE.

In looking over Mr. Pugin's "Principles of Pointed Architecture," I was much disappointed by the unjust and depreciatory style of his observations, and the exceedingly unfair character of many of his comparative drawings; nor—conceding to him the denunciation of many grievous departures from taste before unnoticed—do I less regret the *ad captandum* spirit of his arguments, when he attempts to exalt that style, of which he happens to be so eminent a professor, over every other, as respects its adaptation to the climate of this country, and the religion, customs, and wants of its inhabitants. It is my opinion, therefore, that I cannot commence my Notes better than by vindicating my brethren, professional and non-professional, from the sweeping censures which he has passed upon them, and demonstrate, to the best of my ability, that high art is not confined to any locality, religion, or climate, but that the spirit which animates its true professors will inevitably conduct them to the same height of excellence, although the roads which lead to it may be as different as their travellers are numerous.

It should be borne in mind that, if architectural style is to be strictly dependent upon every slight variation in climate, the pointed of Exeter should be less severe than the pointed of York. If cold and snow be more frequent in Northumberland than in the Isle of Wight, the gables should be more acute, the foliage less luxuriant, the apertures smaller, and the whole style of building more solid and substantial in the northern county than in the southern isle. If the principle will not bear carrying out to the farthest extreme, it is useless to attempt setting it up as a universal instead of a particular rule. That every building should be rendered weatherproof and durable, in consistency with its nature, I do not deny, but experience has shewn that these *desiderata* can be attained in the Italian as well as in the pointed style; and when the only reason for an assumed exclusive general rule is fitness or capacity of application, if that fitness and that capacity can be obtained without strict adherence to that rule, it is not and ought not to be enunciated as fixed, invariable, and never to be infringed.

We find in the northern counties of England specimens of architecture light and florid in the very highest degree, and in the south, churches and other buildings in a heavy, simple, and solid style. The advance from heaviness and simplicity to grace and ornament was simultaneous, and depended not upon the increasing mildness of the climate, but the advancing intelligence of the builders. But if the early pointed be the perfection of art, and most consistent with the severity and dampness of our frosts and fogs, the light and airy architecture of Henry the Seventh is capricious in the ex-

treme. The luxuriant ornament, the extraordinary breadth and height of the windows, the gorgeousness of the roofs, were all needless, and therefore are not worthy of our reverence nor fitted for our imitation. Surely, the wants of mankind are not always regulated by climate alone; the Englishman of 1843 is not to return to the habits of the mailed barbarian of the 11th century, simply because the country retains its characteristic atmosphere.

The whole reasoning of Mr. Pugin rests upon two principles:—1st. We ought not to build in a style inconsistent with the purposes for which the edifice is designed. 2nd. We ought to do nothing that is not warranted by precedent. The second proposition I take first.

I know not how to limit the application of the principle here propounded, based as it evidently is upon the assumption that our forefathers attained the very summit of perfection, and we have nothing left but servile imitations of their excellence. Now, they varied the style of their buildings to an almost inconceivable extent. Were, then, the architects of the 13th and 14th centuries more or less perfect than those of the 11th and 12th, and if not, which of the two eras are we bound most to admire? Our ancestors improved upon the plans of their predecessors, and why should not we follow their example? They did not remain stationary—their works contradict the assertion; and we shall best shew our reverence for their authority by emulating their progress.

But Mr. Pugin asserts that this is impossible. Now, he may, perhaps, tell what has been done; but by whom are we to be told that he is entitled to fix a limit upon our future knowledge? And, moreover, we are constantly upbraided by the professor of St. Mary's, Oscott, with our ignorance of "the true principles of Christian architecture;" how, then, can we decide upon the probability of our equalling or excelling our forefathers, when, as he is the first to confess, we are but partially acquainted with the causes of their achievements? Let us first know the grammar of the art: when our knowledge of that is perfect, we will talk of composition. He might as well declaim against a two years' Latinist, because he fell short in Ciceronian dignity and grace.

In short, as the study of the style which he so strenuously advocates has only been returned to of late years, and our knowledge of its capabilities is yet limited, we cannot—we are not—nor is Mr. Pugin entitled to fix the limits of the excellence which more intimate acquaintance with its principles may lead to. As well might the connoisseur of the sixteenth century pronounce a sweeping censure upon Italian and Roman architecture because of the barbarous caricatures of those styles which were and are the disgrace of the age in which they were perpetrated.

Mr. Pugin would be esteemed a philosopher—let him extend the sphere of his observations. Are the ill-fitting doors—the lofty and cold halls, tapestried, to exclude the currents of air that annoyed the lordly owners—the huge chimneys, wasteful of space and uneconomical of heat—the casements glazed only when the owner resided in his mansion—the floors covered with rushes—are these evidences of the taste and comforts of our ancestors that should make us ashamed of our comfortable rooms, and fires, and carpets? or if the serving man—the villain, to use the unamiable phrase of our worthy great great grandfathers to their dependents—rejoiced in a log of wood for his pillow, and a coarse rug for his bed-clothes, are we to banish feather beds and clean sheets, emulous of their misery and dirt? We have improved upon their knowledge of science, of domestic comfort, of mechanical ingenuity, and we have fallen short in domestic and ecclesiastical pointed architecture, simply because we have not made the style the subject of our exclusive study, and because our habits and customs lead us to one less costly and more consistent, because more expressive of those habits and that comfort which we are well contented to exchange for space without accommodation, and magnificence without use.

But our buildings are to be strictly expressive of the purposes for which they are intended. Were post-offices, and banks, and theatres common in England in the eleventh and twelfth centuries? Where are the examples? or is the ecclesiastical spirit of the pointed style applicable alike to all purposes—sacred, commercial, and profane? and if its most

eminent characteristic was its strict accordance with the spirit of the age in which it was most prevalent, how are we to apply it to buildings the necessity for which did not exist at the period on which we are to fix our reverential gaze, and cannot hope to improve?

Far be it from me to impugn the correctness of Mr. Pugin's doctrine, as laid down with reference to this expression of style, but I do impugn the propriety of his limitation of its applicability to British architecture. It does not seem to have occurred to him, that a Protestant church is erected for purposes widely differing from those to which a Catholic building is adapted. In a church or chapel of the reformed faith, to hear is the principal object; in a Catholic edifice, to see is far more important. Long aisles and far distant perspectives would leave half our congregations ignorant of the lessons of their pastors, and as our object is to speak to the soul through the understanding, and not to delight the intellect by gratifying the senses, we are most consistent in choosing a style of architecture most conducive to the end in view. Now, the Italian style, as exemplified in the interiors of Wren and several architects of inferior but admitted eminence, is most suitable for this purpose. "That which is most useful," says Mr. Pugin, "is most beautiful." We comply with the condition—we have a right to claim the merit which that compliance deserves. W. C.

THE CARPENTERS' BENEVOLENT INSTITUTION.

THE half-yearly general meeting of the above admirable society was held on Monday last, at the Freemasons' Tavern, to receive the report of the directors.

Mr. T. W. Tomkins was called to the chair, and opened the business of the meeting. In addressing his brother directors and members, he could not help expressing his regret at seeing so few present. He had been called on to take a place which he knew would have been better filled if some other individual had taken it. He should have been better pleased if he had, on the present occasion, been supported by a larger number of their members, who in this vast metropolis could muster no less than 16,000, and when he glanced from the cottage door to the interior of a palace, he could justly say, no one could do without a carpenter. (Hear, hear.) But he regretted they did not assemble stronger. He held in his hand a prospectus upon which this charity was founded; so good and so benevolent were its objects, that he had hoped upon entering the room it would have been so crowded, that he would have scarcely been able to enter it. (Hear.) He had not forgotten the declaration made by Mr. Gladstone, that the mechanics were an ignorant and unreflecting class of society; he also remembered the prompt, but faithful reply of Lord John Russell, who stated, that there was more true order and good sense in that class of individuals, than in any other in the community. He hoped they had a true sense of what was Christian duty without the aid of noble lords or members of Parliament. (Hear, hear.) He regretted the absence of their president (Mr. W. Ewart, M.P.), whom he had anticipated the pleasure of seeing in the chair this evening, but he was engaged to attend the Corn Law League, this was the cause of his absence, and Mr. Peto was unfortunately out of town, or he would no doubt have taken it in the absence of their president. (Hear, hear.) That gentleman had taken the chair at the last meeting, when it was better attended than on the present occasion, but notwithstanding the thinness of the meeting, he trusted their subscriptions would not fall off. He had pleasure in announcing to the meeting that Mr. George Webb had requested his name to be put down for 10*l.* 10*s.* (Cheers.) Mr. Mitchell had also consented to become an annual subscriber of one guinea—(cheers)—and there were several others who had promised to support the institution, but on calling upon them they were unfortunately not at home. He wished every friend of the institution would stir themselves as he had done, for they were in the situation of a fire, which, without being poked, would naturally go out. (Hear.) He would ask the meeting if it were not a melancholy reflection to think, that when a man got too old to work, he was compelled to leave his employer and sell his tools for support, and had nothing to fall back upon but that of hawking fruit in the street, or to submit to be confined within the walls of a Union Bastille. (Hear, hear.) It was not age alone that might incapacitate a man for work, he might become paralyzed by some accident, or lose the use of an arm, or his sight; they all knew the effect of a rheumatic attack, if not practically, they did theoretically. But if this institution were supported as it ought to

be, and they had many other noble examples before them in this large metropolis, its members would then have something to fall back upon for support in the dark hour of distress. (Cheers.) He was sure that if his (Mr. T.'s) father had been aware of the benefit such an institution would have conferred upon the members of his trade, he would not have left it to this late hour for them to work up, but it was like all noble structures—much work must be done before they could lay a foundation. (Hear.) There was no doubt but they had many friends who were not connected with their trade, and who would yet assist them by subscribing their 2*s.* 6*d.* or 5*s.* They had already many such, and they could boast of having even received the widow's mite. (Cheers.) He would urge upon his friends to give their support to those who had befriended them. He did not merely recommend this, but he (Mr. T.) had actually carried it into effect by making it a point to call at those houses whose occupants had proved friends to this institution, and making a small purchase whenever he visited their neighbourhood. (Cheers.) He did not despair of the success of the society; it had been commenced by only fourteen humble individuals, and now they had enrolled nearly two hundred members. Many had declined becoming members because they said they were too old, and the time had gone by with them, but in this he could not concur.

Mr. King.—By the rules of the society no person can join it after thirty-five years of age.

Mr. Wood, the secretary, read the following rule (No. 15):—"At the commencement of the institution, every journeyman carpenter subscribing 7*s.* or upwards annually, shall be admitted a member; that, after the expiration of two years from the establishment of the institution, no journeyman carpenter exceeding the age of forty years shall be admitted a member; after three years, if exceeding the age of thirty-five years."

The Chairman then called upon the Secretary to read the following, the minutes of the last meeting having been first read and confirmed:—

REPORT.

In the remarkable age in which we live, full as it is of improvements in mechanical science, rich as it is in the discovery of philosophy, there is perhaps nothing more remarkable than the prevalence of such institutions as this which the present meeting is assembled to support. Institutions in which the rich and the poor, the exalted and the humble, unite together to mitigate human calamity. A century, nay, perhaps less than half a century, ago, Great Britain could not boast of one institution of this description, and now, to whatever part of the suburbs of the metropolis the eye is turned, it cannot fail to see some friendly asylum where the bare head of the indigent finds a refuge from misfortune, and where the aged workman may find a resting-place in his travels here, before he goes to that undiscovered country from whose bourne no traveller returns. In this object the efforts of philanthropy may be tardy, but the beams of its spring from on high, and are destined to continue their course until universal peace shall reign on earth. Those who labour for this institution must and will succeed, for it is to maintain the aged and infirm, and we must not relax in our efforts to encourage that divine principle of benevolence which relieves many, and gives an improved tone and higher feeling to society; whose results may be imagined, but cannot be described. Since the last annual meeting of the members of the institution, much support has been received, and it is with feelings of gratitude and thankfulness the directors announce the following additional subscriptions and donations:—

Messrs. Grissell and Peto.....	£.	s.	d.
Mr. James Harrier.....	10	0	0
Mr. Hicks (Stangate).....	5	5	0
Mr. Hotzapsfell (Charing Cross).....	1	1	0
Mr. Frankling (Grove, Camberwell).....	0	10	6

Assistance like this is doubly valuable, as it will scarcely fail to have an advantageous effect upon other employers, who, seeing that men of respectability honour the institution with their countenance, will not long remain neutral, but also grant their powerful aid to the working of benevolence. To forward the objects of the institution, the directors determined in November last on taking a benefit at the Victoria Theatre; though it was attended with no great success, yet it was without injury to the funds of the institution, the profits having been 8*l.* The amount of the funds to the present time are as follows, viz.:—

At the bankers.....	£.	s.	d.
In the hands of the treasurer ..	105	0	0
In the hands of the collectors ..	14	7	6
	5	12	0

Making a total of 124 19 6

As the period is now rapidly approaching when the annual excursion in aid of the funds will be made, the directors trust that every friend to the institution will exert himself in order to render the trip profitable. Considerable sums have been made by other excursions, and if the requisite exertions be made by the subscribers, an ample addition cannot fail to be made to our funds.

Upon the object and principles of the institution the directors consider it unnecessary to enlarge; they

are sufficiently known to all present, and drawing this brief report to a close, they would earnestly impress on the subscribers the necessity of continued zeal. There is a field for labour and of profit not yet explored, which will yield to their hands an abundant harvest.

The members of the trade are numerous, the masters opulent, and the directors indulgent in the hope that when the merits of the institution are more generally known to them, and the benefits it confers are fully appreciated, it will receive their approbation and support. With sincere thanks to the subscribers in general, and more especially to those employers and gentlemen who have supported this institution, the directors close their report, wishing you all health and prosperity till the next annual meeting. (Cheers.)

Mr. James Money said, he rose to move "that the report be received." He regretted with the chairman that the meeting was so thin; he could only attribute it to their looking after their own affairs. He was yet not without hopes, for, during the past year, they had increased the funds 30l. or 40l., and new members were being enrolled. It had been said, they should have commenced earlier; others said, what security have we? He had requested those who put these questions to attend, and they would see. (Hear.) Some carpenters want to know no more than how to build Union workhouses for themselves. (Hear, hear.) This is a fact, however melancholy. Would any man, calling himself charitable, refuse to assist another? And we are told, charity begins at home; then let us come forth and subscribe, and build a house for ourselves, that it may be ready when we want it. He requested every one present to urge their friends to come forward in support of the institution, and he (Mr. M.), although he hoped he should never want assistance from this society, felt he should not be doing his duty, if he did not do all he could to raise the superstructure, having taken an active part in laying the foundation. (Cheers.)

Mr. Howe having seconded it, it was unanimously adopted.

Mr. Wilson said, he rose to propose "that the cordial thanks of the meeting be given to the directors and officers of the institution, and that this meeting earnestly entreats them to consider the apathy evinced by the small number of their body only as an incentive to renewed and still more strenuous exertions during the next six months."

Mr. Richardson, in seconding the resolution, said, as regarded the motion itself, he could only say, so far as he was connected with the society, he was satisfied the officers had used every exertion, and to the best of their ability, to promote the objects of the society, and he was glad to find they were gaining strength. He regretted to see so small a meeting, yet they all knew that young institutions required much exertion to work them into effective operation. More of their success depended upon the exertions of the men than of their masters. (Hear, hear.) This institution might be slow in its progress; and though those present might not see it rise to power, it would be some consolation to them to know that they were instrumental in its foundation. He (Mr. R.), with some others, were at present masters, but they did not know what might befall them in this changeable life;—(hear)—he therefore called upon masters and men to support each other. (Cheers.) If he had money, he would not leave it to a committee, but at once build it himself, for then he should know what he did with his money. When he subscribed to an institution like this, which was slow in its movements, they might not live long enough to know what became of the money. If they had an asylum of their own, they would know what they had to trust to; but if they went to a workhouse they did not. He would therefore call upon the meeting to use every exertion among their friends to subscribe, that they might live to see an asylum erected, and some few decayed members participating in its blessings. (Cheers.) He would conclude by stating the directors had done all in their power to forward the objects of the society, and would continue those exertions. (Cheers.)

Mr. Austin rose and proposed the following resolution:—"That the thanks of this meeting be given to those employers who have subscribed to the institution, and that they be requested to use their influence with other employers, and endeavour to prevail on them to render a like assistance," when he had no doubt but the men would follow their example.

Mr. Edwards was satisfied there were many who would subscribe to the institution; he trusted at the next meeting he should witness a larger number of the employers and employed, and that the former would be present to return thanks for themselves. He would cordially second the resolution, which was carried with acclamation.

Mr. Wood felt great pleasure in proposing the next resolution—it was one to which they would all agree. It was—"Thanks to the public press," to which this society felt greatly indebted—(hear, hear)—for having set their grievances so clearly and so strongly before the public. As a young body,

he felt they could not do better than court assistance from the press in the advocacy of their cause.

Mr. Thompson said he cordially seconded this resolution; he heartily thanked the press for their exertions in behalf of this society; the press had not only spoken truth towards this institution, but had put their cause before the world in a manner which the labouring classes had not the command of language to do. (Hear.) He had to thank them with all his heart and with all his soul! (Cheers.)

The Chairman having put the resolution, it was warmly adopted.

Mr. Wood observed, as they had nearly finished the business of the day, he felt it his duty to call the attention of the meeting to the vacancies which existed in the direction, and which it was necessary they should fill up. He had received no notice from any candidate; and it was necessary that twenty-one days' notice should be given before any election could take place.

Mr. King thought the articles provided against it, and that no notice was necessary.

Mr. Wood wished to inform the meeting, that there was a clause in the articles which made it imperative on every candidate for a director to give twenty-one days' notice before his election could take place; they were governed by an Act of Parliament.

Mr. Richardson asked if the board of directors had not power in themselves to fill up the vacancies.

The Chairman replied, they had not.

Mr. Agate observed, he was a trustee, and as such, he was bound by the articles; when any other gentleman took upon himself the office of trustee, he hoped he would perform the duties as well as the present gentlemen had done.

Some angry conversation now took place between Mr. Agate and Mr. King, which was checked by the chairman.

The Chairman observed, that when a parson preached a sermon, it was usual to give a text. He (the chairman) had an excellent one. It had been his intention, on entering this room, to propose a vote of thanks to their subscribers, and urge them to further exertions in their behalf, but having been called on to fill the chair, he had been deprived of that satisfaction. He would not refer to any particular firm, but to every one who strove to do the best they could for this institution. Of the money, 33l. had been hard-earned by the directors, and it had cost him individually 5l. to get it. (Hear.) He did not find fault with gentlemen who had done their best, but he would ask every man to do what he (the chairman) had done while in office, and if he did not, he should certainly find fault with him. He had never found the money he had spent in such

good causes as these ever lost to him; he was a member of several philanthropic institutions, and the money he had subscribed to those institutions, had returned to him in another form. He approved of such institutions, and while he lived he would continue to support them; and while he was a director to this institution, he would do all in his power to support it. If gentlemen would come into this room and see what they were doing, they would be moved by the scene, for they were assembled to do good for their fellow-creatures. (Cheers.) There were unfortunately many who could give them some support, but who would not, it therefore became a more imperative duty on their part to unite together in support of the institution. He hoped, when he should die, that the exertions he had made in the establishing of this society would be a great source of consolation to him—to know that many were enjoying the fruits of his exertions. (Cheers.) He felt confident that before another six months had passed, another 100l. would be added to their funds. The season for their excursion was coming on, they were sure they would not fail in that as a source of profit; and he hoped they would not forget the fable of "Jupiter and the waggoner," but follow out the advice there given, and they would benefit by it. (Hear, hear.) He had no objection to a little opposition, and the conversation which had taken place from what had fallen from Mr. King would be beneficial to the society; it might otherwise be said the directors had it all their own way. It had been stated by Messrs. Grissell and Peto that, when this society laid their first stone, they would give 200l. towards the building; now he preferred seeing the names of the men down for 7s. each, he was sure that would be more beneficial to the interests of this institution. (Hear, hear.) He approved of the subscriptions of publicans, for there was a mutual interest between them and the members of this society, some of whom he would endeavour to bring here. (Cheers.) In conclusion, he would call upon every friend of the institution to exert himself as much as he could, and not leave one stone unturned. They might rest assured of his best wishes, and he hoped the Carpenters' Society would take the lead of all other institutions. (Cheers.)

Mr. Wood moved a vote of thanks to the chairman, for his able and impartial conduct in the chair.

Several rose to second it, when it was unanimously adopted.

The Chairman, in returning thanks, stated, that the meeting would adjourn to October; but if any gentleman wished to become a member, he might enroll himself at their monthly meeting, held at the Rose and Crown, Union-street, Southwark.

HUNTINGDON LITERARY AND SCIENTIFIC INSTITUTION. Messrs. Pocock and Glover, Architects.



Literature.

Hand and Guide Books to the National Gallery, Hampton Court, the Dulwich Gallery, and the Naval Gallery, Greenwich Hospital. H. G. Clarke and Co., 60, Old Bailey.

We noted a discussion in the House of Commons a few evenings ago, in which Mr. Hume took credit to himself for having caused the publication of a penny catalogue of the National Gallery collection, and a liberal share of praise was justly awarded him by Sir Robert Peel. We suppose the books before us are some of the fruit of the *honourable economist's* labours, and we are compelled to hail their introduction for the sake of the working man, and the thousands of the improved policy of those who have the custody of our national treasures. It appears from one of the books before us, that, in 1839, the numbers who visited the National Gallery were 113,937, while in 1842 they had amounted to 540,315! And when we consider that the official catalogue of the exhibition was published at the price of 1s., and that those before us are at 1d., we must conclude that much of the increase is attributable to the increased powers of enjoyment which the catalogue or hand-book placed in the way of the visitors. This catalogue at 1d. is all that the mere visitor requires, and indeed it is a work which may accompany him to his fire-side, and there afford much additional instruction concerning the schools of painters of different eras and countries; but the three-penny edition goes beyond it, in most interesting comment and elucidation of many of the pictures, and of the great masters by whose hands they have been produced. It is not as a matter of course that we recommend these little books to our readers, but because they are, at a gift price, full of instructive matter and suggestion. It is no small affair to have a chronology of painters alone at the price, but there is much more contained in them. Children should read them, and they would be found of infinitely more profit to them than the thousand ridiculous tales and fictions which are usually put into their hands. We have heard of an immense sale of these interesting little books, and are not surprised that it should be so. One regret constantly crowds in upon our minds, that London must be visited by the millions before they can thoroughly enjoy all that these books refer to. Railway, and railway economy, however, promise much of an abatement of the evil. Meanwhile, we advise those who can to make the most of their opportunities.

English Patents for the Year 1842. By ANDREW PRITCHARD, M.R.I. London, Whitaker and Co.

We brought before the notice of our readers, in our first number, Mr. Pritchard's compilation of patents for 1841, and what we then said of it we have now to repeat of the present for 1842. The former treatise contained a form of English letters patent, and a copy of the Registration Designs Act. This, in like manner, has appended to it some observations and instructions in reference to Belgian patents, and the form of patent letters for that kingdom, by which it will be seen that very liberal facilities are given in that important and growing state.

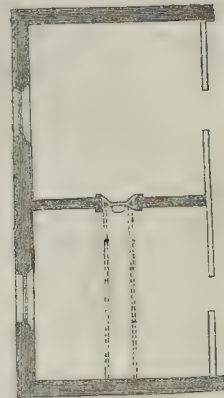
Quarterly Journal of Meteorology and Physical Science, for April, 1843. Price 3s. E. Lumley, 56, Chancery-lane.

This journal in its series has suggested to us some grave reflections as to the necessity of a cultivation of the study of meteorological phenomena among architects and builders. We remember once ourselves having a computation to make as to the quantity of rain-water we should make provision for in an under-ground tank for the supply of a very large building; and referring to the meteorological tables of the quantity of rain falling in a neighbouring district, we multiplied it by the extent of roofing from which we had to collect our supply, and so came at a very satisfactory conclusion, and contented ourselves and our employer much more than by any guess-work we might have resorted to. In recommending, therefore, the study of meteorology, we can do so on practical evidence of its utility.



Section and Plan of the flues.

Section.



Plan of a Cottage. The dotted lines are cold-air flues—the grate to turn to either room.

WARMING & VENTILATING BUILDINGS.

TO THE EDITOR OF THE BUILDER.

Richmond, April 10, 1843.

SIR,—Having had some experience in warming and ventilating buildings, and considering the present mode of doing so very imperfect, I beg to submit the accompanying drawings to your notice, for insertion in THE BUILDER.

According to the present system of warming, it requires a grate for each room, and of necessity the greatest portion of heat either passes up the chimney, or is lost in the mass of brickwork with which the back and sides of the grate are filled up. To prevent this I have invented a single and double-acting register stove-grate, containing hot and cold air, warming and ventilating every room through which they pass, the same being applicable to churches, chapels, schools, halls, staircases, &c., as shown by the plans and sections. I feel assured it will also be a complete preventative from smoky chimneys, as there will always be a portion of warm air in the flues, thereby preventing the cold atmospheric air from descending, also the air-flues driving it upwards.

One of the principal objects gained by the adoption of this plan is economy. There will be a saving of fifty per cent. at least in the construction of the chimneys, and much room gained; but the saving and cleanliness afterwards is beyond description, with almost the impossibility of a building being destroyed by fire.

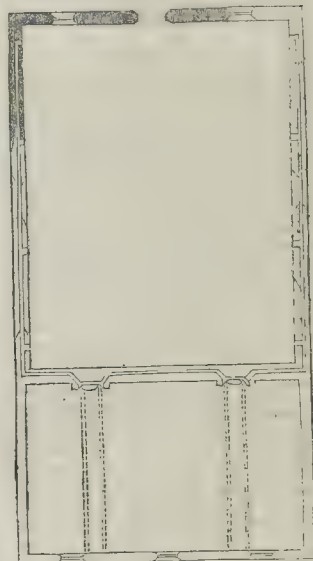
As regards the comforts, they will neither be few nor small.

There are few but would like a warm bed-room on a cold winter's night, but many are prevented, either from trouble, danger, or expense, whereas by this plan the fire from beneath will effect the desired object. Another advantage that is not the least; during the summer months, when fire is not required, there will be a constant supply of cold air ventilating and purifying every room through which it passes. You will perceive by the ventilators in the walls, more or less can be given, as occasion requires.

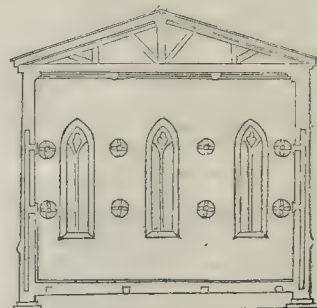
It was my original intention of securing my plan by patent, but considering it may be of incalculable service to the poor and middle classes of society, I at once give it to the public, through the columns of your scientific and wide-spreading journal, hoping to see it adopted in town and country.

I am, Sir, your obedient servant,

J. T. HOPE.



Plan of the Chapel. The dotted lines are the cold-air flues.



Interior Elevation and Section of a Chapel, shewing the flues in the walls, and the Registers for admission of the air.

LIST OF PATENTS.

SIX MONTHS FOR ENROLMENT.

George Benjamin Thorneycroft, of Wolverhampton, iron-master, for "improvements in furnaces used for the manufacture of iron, and also in the mode of manufacturing iron."—Sealed January 31.

William Mangham, of Newport-street, Lambeth, chymist, for "an improvement in preparing aerated soda-water."—Sealed January 31.

William Barnard Boddy, of St. Mary, Newington, surgeon, for "improvements in apparatus and means for opening, shutting, and fastening every description of aliding and lifting window-sashes, windows and window-shutters."—Sealed January 31.

William Robinson Shaw, of Leeds, engineer, for "certain improvements in feeding or supplying steam-boilers with water."—Sealed January 31.

Samuel Kirk, of Stalybridge, Lancaster, cotton-spinner, for "certain improvements in machinery, or apparatus for preparing cotton and other fibrous substances for spinning."—Sealed January 31.

Charles Hancock, of Grosvenor-place, artist, for an "improved means of dyeing or staining cotton, woollen, silk, and other fabrics, and rendering them repellent of water and moisture."—Sealed January 31.

Charles Clark, of Great Winchester-street, London, merchant, for "an improved pyro-hydro pneumatic apparatus, or means of generating, purifying, and condensing steam and other vapours, and of extracting from vegetable substances the soluble portions thereof; as also the application of parts of the said apparatus to other heating, evaporating, and distilling purposes."—Sealed January 31.

James Clark, of Glasgow, power-loom cloth manufacturer, for "an improved mode of manufacturing certain descriptions of cloths."—Sealed February 1.

John Hill, of Manchester, machine-maker, for "certain improvements in, or applicable to looms for weaving carpets and various other fabrics, in which raised loops or a raised pile constitute the face or the figure of the fabric."—Sealed February 11.

Robert Hicks, of Old Burlington-street, Middlesex, surgeon, for "certain improvements in apparatus for impregnating liquids with gas."—Sealed February 11.

Joseph Morgan, of Manchester, manufacturer of patent candle-making machines, for "improvements in the manufacture of candles."—Sealed February 11.

Jonathan Badger, of Sheffield, carpenter and builder, for "improvements in the construction of bedsteads for invalids."—Sealed February 11.

Christopher Nickels, of York-road, Lambeth, gentleman, for "improvements in the manufacture of fabrics made by lace machinery."—Sealed February 11.

Thomas Ensor, of Melbourne Port, glove manufacturer, for "improvements in the manufacture of leather gloves."—Sealed February 11.

Henry Du Bochet, of South Mall, Ireland, piano-forte tuner, for "a new method of making piano-fortes."—Sealed February 11.

Thomas Wolverstan, of Salisbury, iron founder, for "certain improvements in axle-trees and axle-tree boxes."—Sealed February 11.

Alfred Brewer, of Surrey-place, Old Kent-road, wire weaver and felt manufacturer, for "improvements in machinery for manufacturing paper," being a communication. Sealed February 11.

George Ebenezer Doudney and Edward Phillips Doudney, of Mile-end, Portsea, candle manufacturer, for "improvements in the manufacture of dip and mould candles."—Sealed February 17.

James Boydell, jun., of Oak Farm Iron Works, near Dudley, ironmaster, for "improvements in apparatus for retaining the wheels of carriages, in the event of an axis breaking, or otherwise."—Sealed February 17.

Henry Ross, of Leicester, worsted manufacturer, for "improvements in combing and drawing wool, and other fibrous substances."—Sealed February 17.

Charles Brook, of Meltham Mills, York, cotton-spinner, for "certain improvements in the apparatus used for purifying gas."—Sealed February 17.

William Newton, of Chancery-lane, civil engineer, for "an improved system of working coal-mines, and quarries of stone, marble, and slate, which may also be applied to the making of tunnel borings, or to other purposes of the like kind," being a communication. Sealed February 20.

John Kymer, of Pontardalais, South Wales, coal proprietor, and Thomas Hodgson Leighton, of Llanelli, Carmarthen, chemist, for "improvements

applicable to the burning anthracite or stone coal, and other fuel for the purpose of obtaining heat."—Sealed February 21.

Joseph Cranniss and Robert Kemp, both of Southwark, furriers, for "certain improvements in wood paving."—Sealed February 21.

Benjamin Brunton Blackwell, of Newcastle-upon-Tyne, gent., and William Norris, of the city of Exeter, civil engineer, for "an improvement in coating iron nails, screws, nuts, bolts, and other articles made of iron, with certain other metals."—Sealed February 21.

Lawrence Holker Potts, of Greenwich, doctor of medicine, for "a new or improved method or methods of conveying goods, passengers, or intelligence."—Sealed February 21.

Henry Clarke, of Drogheda, Ireland, linen merchant, for "improvements in machinery for lapping and folding all descriptions of woven textures and surface fabrics."—Sealed February 23.

Francis Roubillac Conder, of Highgate, engineer, for "improvements in the cutting and shaping of wood, and in the machinery for that purpose," being a communication.—Sealed February 23.

John Haggerston Leathes, of Norwich, gent., and William Kirrage, of the same place, asphalt manufacturer, for "certain improvements in coffins."—Sealed February 25.

(To be continued.)

COUNTY GAOL OF NORTHAMPTON.

WE are favoured by a friend with the following statement of the tenders sent in for the above work on the 4th instant, as advertised for previously in our paper. Our friend expresses some surprise at its not appearing in last week's impression, but when he comes to know that not a tithe, not the tithe of a tithe of the builders and those connected with them, are aware of our existence, he will have another ground of surprise. It is the merit of our class, that they are not a gossiping, news-hunting set; and it therefore makes it the more difficult to break new ground amongst them. Once, however, it is made, none so staunch, and so able in defending and maintaining it. We shall be extremely thankful for all such information from our friends in every quarter.

Ironwork	Northampton ..	£18,600
Chapman	Leicester	18,790
Jackson	London	19,675
Kirk	Sleaford	19,900
Branson & Gwyther, Birmingham ..		20,483

ON MOULDINGS FOR CORNICES.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—Following up the admirable arrangement which you have commenced regarding cornices, I forward you examples which I have drawn expressly for your work, with the view of illustrating to the student more clearly the application of enrichments to cornices in various styles of architecture. No. 1, you will observe, is a Greek cornice, of similar section to the one shewn in No. 7 of THE BUILDER, exhibiting the pure and chaste character of the ornaments peculiar to this style. No. 2 is a Roman cornice, fully enriched, except the omission of one very prominent member, viz. the modillion, which I shall endeavour to illustrate in a future communication to you. No. 3, the student will readily perceive, is in a diametrically opposite style to the two preceding, and partakes of that bold and energetic manner introduced by the ecclesiastical architects, wherein most of the hollow members are formed from parts of the elipsis instead of the circle, as is the case in all carved Roman mouldings. No. 4 is a specimen of an Elizabethan cornice, with enriched bracket or truss and frieze. The upper ovals and cavetta generally serve as the moulding by which the ceilings are panelled, and is mitred into the cornice where the junction takes place. I offer few comments on the annexed specimens, further than that the three former speak forcibly for themselves, and are highly worthy of adaptation; but were I left to select, I should certainly reject the Elizabethan altogether, as corrupt in the extreme; however, I do not mean to dictate, more particularly on a style that has within the last few years had very extensive patronage. Trusting to be enabled soon to revert to the subject of cornices, and anticipating that what I have already done may have some weight with the student and practical artisan,

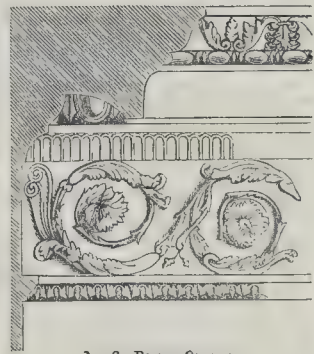
I am, dear Sir, yours truly,

GEORGE WALHEIM.

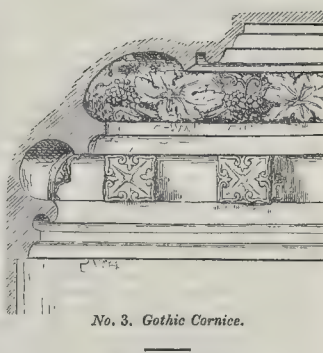
Newcastle-on-Tyne, 6th April, 1843.



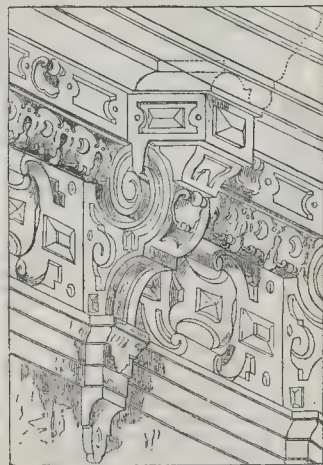
No. 1. Greek Cornice.



No. 2. Roman Cornice.



No. 3. Gothic Cornice.



No. 4. Elizabethan Cornice.

WOOD PAVING.

TO THE EDITOR OF THE BUILDER.

SIR,—I really could not follow such a discursive writer as Mr. Blackie, even if I understood him. As it is, unaided by the peculiar "scientific knowledge" and "common sense" which he possesses, I must be content to remain in a state of unenlightened ignorance, at least as far as his information might serve me.

To my comprehension, the queries put by me in your sixth number remain unanswered.

Mr. Blackie's question, "What means were resorted to with certain members of the committee of Marylebone to obtain their report in favour of the Metropolitan Company's tender?" I will answer, lest my silence should injure those who may be unconscious of the discussion; although that query, like some seven-eighths of Mr. Blackie's letter, is exceedingly misplaced in such a journal as THE BUILDER.

The means resorted to were the most simple and easy imaginable. They comprised no backbiting insinuation, nor aught besides either dishonest or dishonourable. The members of the committee having "scientific knowledge" and "common sense" of a different nature from that possessed by Mr. Blackie, came to the very just conclusion that the Count De Lisle's system was better than Mr. Stead's.

Mr. Blackie's second question I cannot clearly comprehend. I know nothing about "an informality in the tender of the original patentee;" that was his business, not mine. Nor do I know what the Old Bailey had or could have to do with the committee of Marylebone.

And upon the third, I ask, why trouble with any question about Hunter-street in this discussion? Where does it form an antecedent?

I am not accountable for "the slanders and perversions of facts," which Mr. Blackie alleges "have emanated from the Metropolitan Company." I cannot presume to define their objects or motives. I have retired from the employment of that Company, with the directors of which I am just as much at issue upon practical grounds as I am with Mr. Blackie. I neither agree with, nor can I understand either the one or the other. I hold both to be wrong, in different degrees, respecting the real question for discussion.

In my humble opinion, De Lisle's wood-paving is superior to Stead's, and Perring's far better than De Lisle's.

Touching the matter at issue before the public, between the secretary and board of the Metropolitan Company and myself, that subject (and many others) was quite unnecessary to Mr. Blackie's letter, and if mentioned at all, should not have been noticed with reference to the charge alone, but should have been accompanied by my disproof.

Mr. Prosser is the person to whom Mr. Blackie should address his queries respecting the Metropolitan Company. Mr. Prosser and Mr. Blackie will be extremely well matched as correspondents. I confess that they both fly too far a-field for an unfeeling plodder after facts like myself.

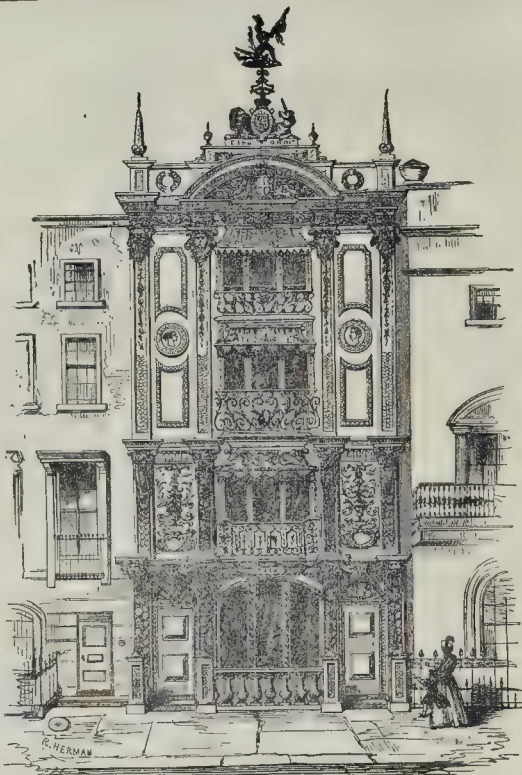
And now, Mr. Editor, let me express my regret that I cannot continue this correspondence. With vague assertion, ungenerous inference, erratic reasoning, and such a mystification of phraseology as it is past my poor skill to unravel, I have neither leisure nor inclination to contend. I had hoped that you would have confined your epistolary contributors to practical facts, or demonstrable theories, simply but clearly expressed. That hope I abandon, and with it the intention of assuming certain positions with reference to wood-paving, to be attacked or supported by others, as the case might have been, when those promulgated by Messrs. Stead and Blackie had been fully examined.

There is, however, ample consolation for us both, in the reflection that you will save space, and I shall save time—of some value to each of us.

I remain, Mr. Editor, your very sincere well-wisher,
J. LEE STEVENS.

London Wood-paving Office, 2, Charlotte-row, Mansion House, 10th April, 1843.

[We agree with Mr. Stevens in thinking that a good deal beside the points at issue crept into Mr. Blackie's communication; but it is an ungracious task for us to lay down a rule for stringent observance. Very much must be left to the good sense of our correspondents themselves; and we may hope for the future that at least Mr. Blackie and Mr. Stevens will exercise the discretion which may save the provocation of sharp words. Surely Mr. Stevens's good sense would tell him that he had no need to follow any man's leading; and a mere note of the avoidance would have answered all the purpose in his present rejoinder.—Ed.]



ELEVATION OF MR. FAIR'S HOUSE IN PRINCES STREET, HANOVER SQUARE.

We are glad to be enabled to place before our readers the accompanying engraving, as descriptive of an extraordinary progress in decorated street architecture. If cement and compo have no other merits than to admit of this species of cheap picture or model-making, this experimenting in style and ornament, it has enough to recommend it in these times of unsettled taste; for it is almost distressing to witness the perpetration of bad taste in a perpetual material; the throwing away of so much good labour, and valuable stone, brick, and timber as is constantly being done on first one and then another capricious restoration, composition, or invention. We are not, however, going to bestow any large amount of praise, qualified or unqualified, upon Mr. Fair's production in this instance. His reputation as a house decorator is not likely to be greatly enhanced by what we have herein presented to us—it is a sort of licentious indulgence of the fancy, that were "better honoured in the breach than in the observance;" yet, nevertheless, there are matters of suggestive import which a well-regulated mind may turn to account; certain principles are, as it were, propounded in this composition which the plasterer and the designer and modeller in decorative architecture may take for his instruction, to associate in the more correct and consis-

tent elements; for instance, there is a well-defined marking of the stones (if we except a little allowable ambiguity in the upper stage), and this is, in our minds, much preferable to the practice of setting up a huge sheet of brick walling as the part of a house, without feature or index of its interior, except the graceless apertures that stare through it in storied lines of doors and windows. Neither would we quarrel about the mere application or use of a redundancy of ornament, for the material has its legitimate end and appropriation in ornament; but we object to see plaster-work personating stone, and affecting the characters of piers and pillars—it has a thousand fitting guises of its own, and need not be the disguise of any other; lay it upon brick-work, or stone-work if you like, or any other fitting vehicle, but seek for and give it its own proper character and expression. If you will run cornices in it, let them be plaster cornices, and not sham stone. If you will have upright strips and panels, make them not into the semblance of ostensible supports and framings; if chapters, let them be appended, not made identical with the structure. Thus, so far from banishing plaster and cement and compo-work from our edifices, by assigning to them their own proper character, you extend and enlarge the province. But we shall have much to say upon this head, and the plaster cornice designs supplied to us by Mr. Walheim, with this matter of to-day, are texts upon which we can appropriately enlarge.

CORNISH ENGINEERING.

THE largest steam engine ever constructed, is in process of manufacture at Harvey and Co.'s foundry, Hayle. The piston rod, which was forged last week, is 19 feet long, 13 inches in diameter in the middle, and 16 inches in the core, and weighs 3 tons 16 cwt. It will work in an 80-inch cylinder, which will stand in the middle of another cylinder of 144 inches in diameter. Five other piston rods will work between the inner and outer cylinders. We conclude, for this has not been explained to us, that the giant cylinder will be perforated in the middle for the 80-inch cylinder to stand in it, and will work between the two. The 80-inch cylinder was cast last week, and the large one will be cast soon. The pumps are to be 14

inches in diameter; a measurement which may afford some idea of the size of the engine. It is intended for draining Harlem Lake in Holland, and it is expected that other orders for similar engines will be received from the same quarter. It is truly gratifying to us to observe the Cornish engineers still keep so far in advance of all the world, and not less gratifying to see that foreign powers know and can appreciate their excellence. Let this wonder of engineering and mechanical skill be considered as well as the duty done by our common mine engine, and it must be confessed that our Cornish mechanics are, in this branch, far in advance of every competitor, and we may reasonably hope, as superior merit must be appreciated at last, that our engine foundries will at length have their full share of public patronage.—*Sherborne and Yeovil Mercury.*

TO ARCHITECTURAL STUDENTS.
No. I.

ON THE CHOICE OF A COURSE OF STUDY.

We deem the letters of our young friends from Newcastle and Sheffield, and the similar letters which we are constantly receiving, as most important evidence in favour of our undertaking. The young architects of this country are those with whom the problem rests as to which is to be the style of forthcoming centuries. Led on by their elders in the investigation of the various favoured modes of antiquity, and influenced by one to affect this, by another to affect that, and among hands to affect all, they will begin, and have already begun, to perceive that this confusion and contradiction is a chaos, from which some reasonable mode of escape is highly desirable. And when we have such questions put to us as in Mr. Walheim's letter, we have sounded in our ears, in the first audible terms, that note of preparation which these times, and we flatter ourselves this paper, is destined to give a public tone to—the note of preparation for emerging from the bondage of centuries of licentiousness in fancy, or slavishness in imitation.

How hard to draw the line between the wild sallies of an aimless originality, and the unreasoning servility of those whom accident or circumstance has made into little better than blind devotees. How hard to make choice of that exact line in one's conduct which dictates a becoming reverence for ancient excellence—for its genius, invention, practised skill, and the like—and which preserves its consistency in tendering the like respect to modern worth under similar conditions.

It is, however, between those extremes that the successful student in architecture has to steer, and to this medium he must attain. But in proportion to the difficulty of the task, must be our diffidence in laying down any dogmas of our own. With Klenze on the one side and Pugin on the other, *NOT WRONG, OR ONLY ONE RIGHT*, in saying which, we think we have said enough for a caution—with these so arrayed in opposite extremes, so confident, so dictatorial, and withal so talented, what have we to do? and what the poor architectural student? We must even labour, labour diligently, and incessantly; but every step in our operations must be accompanied by grave reflection; no thoughtless plungings into this or that arena; no throwing up of caps in childish partisanship; no school-boy freaks of wild enthusiasm; no well-whipped submissiveness; no subscribing of hands, or moulding of opinion, perforce—none of these. *DILIGENCE IN WORK AND FREEDOM IN THOUGHT*, with the devotion of all to the highest purposes—with a consciousness of the high prerogatives of humanity, as well as of its littleness and meanness—of its safe guidance under one bias, of its certain wreck under the other—freely according to all, that which we modestly, not arrogantly, claim for ourselves,—these are some of the general rules by which we must be guided: they are those to which all men will subscribe. We commence, therefore, in safety from these, as from our legitimate starting-ground. All is clear up to this point, and you have your cue for the rest.

It may be necessary for us to say a few words now; and we shall from time to time have occasion to repeat them, as we journey on with our class, to warn them against taking opinions for authorities—the opinions of Klenze and Pugin; and we confine ourselves to these names, because they have been brought before us in the special instance which impels to the writing of this article.—The opinions of Klenze and Pugin are but the opinions of individuals, and while we would not detract one whit's worth from the esteem in which either of these talented men deserve to be held, we would, on the other hand, caution our young friends from attaching a false importance to their opinions. In all these cases, it is a very good plan to imagine yourselves listening to, and being present with, your oracles and instructors, to make yourselves conversant with certain circumstances under which their opinions are delivered, or by which they are influenced; and never for a moment to run away with, as "gospel truth," all that either one or the other may utter. We will just mention one point in order to shew upon what fallacious grounds a force may be given to arguments

upon one side of a question, and by a similar process may be as easily transferred to another. We take the case of the famous work published by Mr. Pugin—his *Contrasts*.

In this work we have placed in the most unfavourable juxtaposition representations of certain edifices of ancient and modern design of similar import; and the styles chosen for contrast are the Gothic and the hybrid or motley of the present day. Every one sees the inferiority of the latter in all those respects which pictorial art and peculiar appropriateness demand, and immediately a conclusion is jumped to, that Gothic is the only style to be tolerated or adopted; while, if the same plan had been pursued in setting before us the beauties of ancient art in any other mode or period, the same disparagement of modern efforts would have been the result, but a different conclusion would have been come to. The question that would most probably have grown out of all this would be, how did these ancients attain to such excellence and possess such beautiful styles of their own; and here we, who have been imitating and reviving for three centuries, seem farther and farther removing from excellence and originality? and the answer would most probably have been the very reverse of that which appears to have been given,—leading to a perpetuation of, and a perseverance in, the same course of confusion and error, the answer would have been, we have failed through the servility of our imitation; every thing has been measured, approved, rejected, or condemned, by precedent, and what has it brought us to? Will not a continuance under some new phase of the same principle be likely to lead to the continuance of the same results. "Classic" one day, "Gothic" next—when shall we have English? Never till we go in search of it, and leave the others in their entirety. Never did the Gothic attain to an existence till it had cast off precedents, and the like may be said of every thing in art or science of which the world has heard; reproduction and revival is an impotent, we had almost said an impious, attempt to controvert *THE LAW*—we mean the reproduction of that which is already wrought out and worn out. Greek, Gothic, and all are defunct. The circumstances under which they lived are passed away; new circumstances have arisen; you may dandle and play with the toy for a period—from Jones to Wren you may play the variations in one key; from Wren to Chambers you may strum it in another; from Chambers to Wilkins in a third;

and the sweet discord may be maintained on the other side of the orchestra from Dance down to Wyatt. What Stuart attempted for the one, Pugin may for the other, and the versatile talent and acquisitions of a Barry may exhibit itself in both; but all will fail, and has failed, to procure more than a brief interval of admiration for each respective effort.

Well has our young friend at Newcastle put the question, and if our answer does not suffice, we invite, and our columns are open to, a better solution. Truly, indeed, has he depicted the difficulty which a mind free to think and reflect, has to encounter; let him proclaim his question abroad, and the answer will be directed to all points of the compass. There is a pole of attraction to men of certain habits which is mistaken each for the true one; but the true pole remains to be discovered, and we are just on the eve of, or actually set out on, the journey of discovery.

But what, it will be asked, is the precise course we would advise or adopt? We have already said, to labour diligently, and to be ever active in thought and reflection; and we have ventured to lay down certain conditions under which this diligence and activity should be exercised—patience must fill up the measure. Not long will be our biding-time.

Every thing is in motion, tending towards a certain point of confluent repose; and we are of the movement, humble atoms or agents, but yet working in an important purpose, and importantly working. Already are the signs of the new era distinctly marked in the horizon; the bright orient arrests the hopeful eye, and in whatever direction we are moving, to that do we constantly turn, cheered and cheering. From the workshop, the mine, and the laboratory must proceed the new spirit, the new genius of structure, which our young architects are to clothe with befitting grace and ornament. Never since the world stood, has its Maker more bountifully favoured it; the very bowels of the earth are made to exhibit a wealth which mocks and derides that of its surface; and the ingenuity of man, rightly directed, and properly influenced, is set in correspondence with it; therefore, then, have we stepped forward, and we conjure our young friends to accompany us in the campaign of virtuous purpose and just adventure. And they are stepping forward, they are eager, generously eager, to accompany us; and now we whisper in their ears the watchword, the rallying cry, "*ART, SCIENCE, AND THE BROTHERHOOD.*"



TIMBER ARCHITECTURE.

TO THE EDITOR OF THE BUILDER.

April 3rd, 1843.

SIR,—I witness with pleasure your efforts to obtain for "timber architecture" a more exalted character than it at present enjoys. I need not say I most cordially wish you success. The enclosed is a design for a gatekeeper's lodge, intended to be built at Milton, near Gravesend.

The external plinth is flint, tooled to a fair face, with oak cills, heads and corner-posts filled in with white stocks—but rough cast may be used to much advantage—and the roof covered with old red tiles.

Should you deem it worthy of notice in "*THE BUILDER*," I shall feel most happy.

Believe me, Sir, your very humble servant,

A YOUNG ARCHITECT.

THE PROPOSED SURVEY OF THE METROPOLIS.

WE beg to call the attention of the surveyors of London to the letter appended to this article, and we can assure them and our correspondent, that we will not lose an opportunity of advocating their just interests in every way that may be open to us.

We feel confident that by a timely and proper representation of the matter in the proper quarter, it may be placed on that footing which for the public interest is demanded. Government we hope and trust will not take a confined or partial view, but will consider the moral influence, if we may so speak, which a right decision on this subject will promote and secure. It is very true, that a Board of Survey may be constituted, as was the case in the production of the "Ordnance Maps," and that the work may be respectably and efficiently done—and so might any other branch of the professional and trading requirements of the country. The Government have it in their power to act as general merchants if they choose, working under a commission; but this, we are sure, will never be attempted. On the same ground, therefore, we are at ease as to their undertaking to survey the City of London. And if we might venture humbly to suggest, we would have them on the other hand avoid the scramble of a competition, by adopting something like the following plan.

It is quite right, perhaps, that Government should take the initiative, though we think, so far as the City of London extends, that after that body had received its instructions, the matter might and ought to be left to it; and we question whether a similar arrangement might not be come to with the local governing bodies of the respective districts of the London boroughs: but at any rate, as we said, let a scramble be avoided. Let it be determined, which is easily done, on the evidence of experienced men, what is a fair rate of payment—a fair average rate—to remunerate the respectable surveyor for undertaking the work upon proper terms, and then let notice be given that as many as choose to undertake such districts as may be assigned to them at such rate, shall send in their names. After that let a meeting be called of all those surveyors whose names have been tendered, and let a board be constituted from among themselves to parcel out the districts, and determine all the minor conditions and details. There might be united with this board a commissioner on the part of Government; but we are well assured that this would be all that would be necessary. Let the plan be tried of giving confidence to a respectable body of men like the surveyors of London, and we are sure it would be contagious in many other ranks and departments of business. We remember to have read somewhere in the old chronicles, that our ancient builders—free-masons as they were called—had a charter conferring on them the power to value their own work, and it was remarked by the chronicler, that they were never known to abuse it; and so we are sure would be the case in the instance we recommend: nay, you may safely leave it to the surveyors, under such a constitution, to fix their own prices.

We spoke of the moral effect, by which we meant much. Government have it in their power, by adopting a wise and liberal policy, in this instance to confer benefits, that even supposing some pecuniary sacrifice, would be abundantly compensated, and more than compensated, by the good moral effects. The satisfaction and good feeling that would prevail, not only amongst the body of surveyors, but in all the ramifications of their connections, would be highly important, while the envious, disappointments, and chagrins of any other system or plan would be fretting and festering through and over the whole period of the survey, and be as wide-spreading in its evil effects. But we deny that any pecuniary sacrifice would be made. We will undertake to say that, if even 5 or 10 per cent. more should be paid to appearance, that as much or more would be the real and absolute gain. In all these cases, there is too much a habit of looking at the net items of a bargain. Let the sum be run up, and let it be taken into account what has been the cost of supervision, and what has been incurred by going out of the regular way of business to arrive at it, and in all or most cases it will be

found that the balance is on the unfavourable side. We could name many instances of great public undertakings where an apparent saving has been effected, but when we come to add expenses of commissions, appointments, new establishments, and the like, and set off on the other side the disruption of vested interests, the amount is fearfully against the commonwealth.

We have thrown these few remarks hastily together, in the humble hope that it will call the attention of the parties interested to the necessity of making a timely move towards an equitable arrangement. The surveyors, and every other class, have only themselves to blame if their apathy leads to results prejudicial to their own interests. On the other hand, we would dissuade from any factious or suspicious bearing. Let a dignified and manly course be pursued, and we are sure Government will not only fall in with any recommendation that may come from the united body of the London surveyors, but will be highly thankful to them for smoothing the way in so great a work by their familiar knowledge and experience. We shall be happy to be the medium of promoting any further measures in reference to this subject.

TO THE EDITOR OF THE BUILDER.

London, April 6, 1843.

SIR,—Notice having been given by Sir Robert Peel of a motion for leave to bring in a bill for a survey of London, and the construction of a map therefrom upon a large scale, may I ask whether you, or any of your correspondents, can inform me whether any thing has been decided upon the subject?

In connection with many others of the profession, I am naturally anxious to learn the nature of the projected work, and the means by which it is proposed to be carried into execution.

There can be little doubt that a complete and accurate map of the metropolis is greatly to be desired, the existing ones being not only too small a scale for any practical purpose, but notoriously distorted and inaccurate. To the builder and architect such a document, if properly executed, will be invaluable; but at the same time, it behoves them to look that the work, after a necessary outlay of a vast sum of public money, be not altogether tendered inefficient by the employment of incompetent parties.

A work projected and directed by government will doubtless be directed by government officers, and without doubt parties of much scientific and practical experience will be selected; but it unfortunately happens, or has happened hitherto, that the details of the work have been intrusted to parties of little or no professional skill or knowledge, to the exclusion of many whose long and laborious practice both entitle them to preference in the work and the confidence of the public.

Now to you, Sir, as the avowed advocate of the practical man, I would appeal to add the assistance of your public remonstrance, if such a scheme should be in contemplation, and to rouse the attention of the properly qualified and educated men to a subject which may give them an opportunity of efficiently aiding all interested in the accurate execution of the work, and putting a stop to a system calculated to pick the pockets of the public, and create a monopoly in the hands of a comparatively irresponsible body.

I beg to subscribe myself, Sir, your obedient servant,
A SURVEYOR.

OUR CORRESPONDENCE.

TO THE EDITOR OF THE BUILDER.

Sheffield, April 5th, 1843.

SIR,—Having been a reader of THE BUILDER ever since its issue, it may not be unbecoming in me to express my warm and ardent wishes for its success, which I believe will be certain and permanent when it has attained the knowledge of gentlemen and builders, &c., that such a valuable and important work to the class exists. I say when it has become known, for as yet it is not so to the majority of them, even at Sheffield. I have, since the second number was published, made a point of speaking about the paper to every builder that I have had intercourse with, very few of whom had heard any thing of it; in fact, I am as good as a walking advertisement, and were the informers aware of it, I should not wonder if I were prosecuted for evading the duty! Every person I have spoken to has been pleased to hear of such a publication as yours is and will be; and not a few have taken it in. There is a part of your paper which will be particularly valuable, viz. that of "Architectural Competition, as publicity will be a great benefit in causing a more just and impartial decision in cases of competition," and the publication of rejected designs is of tantamount importance.

In your cause has got a good supporter, as is proved by the style and mass of information you have already published; I hope you will be like the magnetic pole, a centre of attraction to all our architectural great guns. I also hope to see committees, &c. appointed "for procuring designs for new erections," advertising for such in your columns (as in the instance last week), which would be answered from the length and breadth of the land, and would thereby be a means of bringing in an accumulation of talent which might otherwise live unseen and unknown.

I have heard it said that THE BUILDER was of no use to architects (of which class I am one in embryo), but this I think is well answered by one of the first practical Sheffield architects, who said, "What the workmen read and know practically, the architect ought at least to be master of theoretically."

This observation was made by a gentleman who was brought up at the bench, and who has risen to his present station through his own talent and assiduity. It is a singular fact that he and the now first architect in the town of Sheffield should have been brought up at the bench, and both should leave so honourably the plane and chisel for the pen, compass, and pencil. They are both subscribers to your Journal.

I am of opinion that THE BUILDER should be a newspaper, as it would be much better liked, and would secure more subscribers. Gentlemen out of the pale of the building profession, but who might be amateur professors or "literary idlers," would doubtless then become subscribers, when they would not to a dry magazine, although as a magazine you have certainly favoured us with paragraphs of improvements, &c. going on, which are highly to your credit.

Again, there is another capital item under your charge which will be useful, namely, that of consolidating architectural advertisements, notices, and essays. Before THE BUILDER made its debut, these were spread over a great number of journals, and consequently but few interested persons saw them; and especially in the country, we had no knowledge of what works, &c. were published, and when as some of your monthly contemporaries review books, they do not state the price of the works reviewed. Could not this be done? because our means are often limited, and consequently it is of advantage to know what we are to give for a work before we buy; and therefore, as it will be to the benefit of the publishers of architectural works, there is no doubt that speedy advantage will be taken of your paper. It was certainly a disgrace to the building class, both to theorists and practical men, that no weekly periodical was devoted to their cause, for who have more need of such than they?

They are not like persons bound to a trade, who by devoting their seven years' term to their duties, emerge at length sufficiently taught, and as capable of working at their employment as if they had spent double or thrice the time. No! the architect and his assistants must ever be *vivants*; they have never done receiving their practical knowledge; every day adds its sum to their experience, and their zeal—for zeal they must have for their glorious profession—carries them forward to fields of honour and pleasure, which to the uninitiated are unknown, nor can they exclaim, as did the Moor,

"Othello's occupation's gone;"

for while man exists, there will ever be a call for the building profession.

Now that the public mind is agitated about educational schemes, let it not be forgotten that the young idea should be taught to revere and protect rather than destroy works of art, public buildings, &c., as well as to be taught reading and writing; for it is a lamentable fact that destruction to the above is carried on from a youthful age to a manly one. How disagreeable is it to see a nose knocked off the face of a statue, a corner off a pilaster, or plinth, or a piece chipped from off a fluting or an attic base; yet such things do we often see done. Could it be that the youth of Greece or Rome were taught to behold the erections of man with any thing less than admiration? if so, their works would never have been still in being as monuments of their skill, perseverance, and talent. Then why should not our children have impressed upon their pliant minds the virtue and necessity of preservation?

Apologising for the length of my note, which has far exceeded the limits I proposed when I set out, although I feel benefited by giving utterance to my thoughts, as in the case of a person who has unburdened his mind from a load of care, I am, Sir, with every wish for the success and well-being, of your arduous undertaking,

Sincerely yours,
ELVINO.

P.S. Of course "I shall be most happy to give you my best assistance" in forwarding your views, which I often see attached to the flag-end of letters,

and then no further notice taken of the matter! but I shall be happy to render any local assistance, describing public erections or making you sketches of buildings in my neighbourhood, or forwarding to you designs. Give me an opportunity, and try whether Yorkshireites are not willing to advance the interests of their class, "for where there's a will there's a way."—ELVING.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—As an architectural student, I shall feel extremely obliged by your advice in determining the course of my subsequent studies in architectural science. At the present time I am vacillating amongst various impulses, and troubled as to the precise path I must select and eventually adhere to with a steady and persevering industry, in the presumption of arriving ultimately at some degree of perfection. I have hitherto devoted my attention to all styles indiscriminately, and have now begun to think seriously of determinations are shaken in a great degree by the conflicting ideas and criticisms of two of the greatest professors of the architectural art in the present age, viz. *Leo Von Klenze*, and *Augustus Welby Pugin*. The former of these gentlemen asserts that Greek architecture is superior to all others, and ultimately must become not only the architecture of Europe, but of the civilized world! while the latter treats Greek works with utter contempt, and asserts that Gothic architecture is infinitely superior to every other kind, and should be universally adopted in preference to all others for most purposes. When such eminent professors as these so widely disagree, who shall decide?

Now, Mr. Editor, I am prepared to meet the most conflicting opinions, and am willing to allow and praise the decreed Greek splendour of the Glyptotheca at Munich, by Von Klenze, and also the varied outlines and gorgeous combinations in some of Mr. Pugin's works, but I cannot drive from my imagination the picturesque magnificence of Castle Howard, and Blenheim House, by Vanburgh, nor the classic beauty of St. Paul's, in London, and other works at Oxford, &c., by Sir Christopher Wren, together with numerous other productions of a very different class to the favoured styles advocated by Klenze and Pugin.

Perhaps you will address me thus:—Mr. Student, pray banish from your mind altogether the opinions of others and judge for yourself; reject the bad and incongruous, and adopt the good. Well, so far agreed; but by what means shall I determine which particular style is the *beau ideal* of perfection, for we have the *Egyptian*, with its severe, massive, and imposing grandeur; the *Greek*, with its exquisite proportions, purity, and elegance; the *Roman*, with its magnificent entablatures and domes; the *Gothic*, with its gorgeous and picturesque sublimity; the *Tudor*, with its snugness and comfort; the *Elizabethan*, with its grotesque embellishments; and the *French*, with its redundancy of ornament, and meretricious splendour; and many others I might name.

Now, Sir, I think amongst these various styles of architecture which have prevailed in the world at various periods of its history, you will own with me that it is a somewhat difficult matter to choose the unerring path to excellence and perfection, and trusting that you will aid me by your opinion and suggestions in the matter through the pages of your excellent work,

I am yours very truly,
GEORGE WALHEIM.

Newcastle-upon-Tyne, April 7, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—Your impartiality on the many subjects that have already found place in the columns of THE BUILDER induces me to seek your opinion of an entirely new form of block for wood-paving, which I am prepared to submit for that purpose, and an advocacy of my invention, should it bear the test of investigation, as to the combination of qualities requisite in the superstructure of a road-way of this description.

I have been, from an early period of the revolution in the old system of paving with stone, an attentive observer of what has been done; and it is only upon deliberate conviction of having effected valuable improvements that I could venture to trespass upon you with this application. These consist, first, of a form of block embracing so much economy in the conversion of timber as to permit the use of the foreign material, notwithstanding the establishment of the high rate of duty which precludes the use of it in any of the shapes heretofore introduced; secondly, a constructive principle which should, if unprejudiced judgment may yet prevail, supersede the entire dependence upon artificial means to the same end, by dovelling, clamping, &c.; thirdly, it presents the angularity of fibre which I believe to

be rightly estimated as the best for sustaining the wear, by traction and percussion, of a public road.

It is only upon evidence of these properties in my plan that I presume to rest any pretension to notice. I can but be aware of the partialities and prejudices excited and kept up on the subject of wood pavements, the public being hitherto passive in the struggle going on for possession of the field, by one or other of the contending parties. If, however, I may be allowed to refer to all precedent, the rate-payers have so manifest a cause for interposition, that this state of things must shortly give place to more careful and deliberate decisions than any yet arrived at.

I may farther, as matter of public notoriety, allude to the recent advertisements of the Metropolitan Wood Paving Company *versus* Mr. Lee Stephens, on the subject of Mr. Filbrow's invention (or rather attempted improvement upon their patent), and the former gentleman's smart retort, and if the parties are really in earnest, we are on the eve of interesting disclosures. Mr. Alexander B. Blackie, the representative of No. 1 in the long list of patentees of wood pavements, also has some queries in your last journal addressed to Mr. Lee Stephens, insinuating unfair management on the part of the Metropolitan Company, during the very active and successful battle he fought in their cause; and inferring, upon the whole, an unfavourable condition of the exclusive privileges of that association. Out of these very natural dissensions among those who contend for *monopoly*, good may probably arise; the public will pause before it further commits its purse and interests to the exclusive keeping of those who are loudest in their claims, and leisure will be found to compare the actual merits of the several plans which have, so far, served but to perplex the brains and empty the pockets of the inventors.

I do not consider myself entitled, in this stage of my application, to enter upon a comparison of my own plan with any other, but will, with your permission, add a few words upon the qualities of timber, as the material common to all, which, *after all*, will be found to have much to do with the permanence the public have a right to insist on in a wood road-way. It has been the practice in the most extensive contracts that have been undertaken to use Scotch fir, and this without regard to *fitness*: I mean, first, as to the age or maturity of the tree; secondly, with respect to British-grown timber, without the distinction that should have been instituted between timber of natural growth and plantation timber, the latter being greatly inferior; thirdly, without regard to the proportion in which tops of trees have been currently converted into wood-paving: and so palpable has this neglect already become, that it would not be difficult at once to point out inferior and defective blocks, taken from the tops of trees wholly unfit for this use, while it may be surmised that the butts of the said trees, as of more value, have taken a direction widely diverging from the streets of London.

I do not deny, Mr. Editor, that this is one of the arguments in my favour; it arises out of facts, and I have therefore a right to avail myself of it; is there a paving board in the metropolis who would, even within a shilling or two a yard, prefer Scotch fir to foreign timber? If the reply be in the negative, I may hope through your intervention to meet with encouragement I might vainly seek by desultory efforts, and with fruitless results, opposed as I should be by interested parties, and a clashing of interests too deeply pledged for retreat.

I am, Sir, your most obedient servant,
April 10, 1843. R. R. C.

TO THE EDITOR OF THE BUILDER.

SIR,—I received THE BUILDER, and I have given orders for four sets of the back numbers, and four sets also of the forthcoming numbers for three months, through the stationer of this place, and I have the pleasure to say that I found THE BUILDER's materials far beyond my expectations. I consider it is calculated to be of practical and permanent good to the different branches connected with the building trade, and whatever service I can render in my humble sphere shall most willingly be devoted to it, in assisting to keep it in its "present tenable repair;" and it shall be my constant study (as it is to the interest of all mechanical subscribers) to introduce this work to the public, and endeavour to prevail on them to become subscribers.

We must not suffer to fall into decay for want of the requisite materials this truly precious undertaking; a work that has been so long wanted for our information. If you think this unconnected recommendation is calculated to be of any benefit to this "noble structure," you are at liberty to publish it in your next.

Before I conclude, allow me to wish you every success, and may God speed you in this work is the prayer of an humble, though never the less sincere admirer of this new project.

I am, Sir, yours sincerely,
Thrapston, April 8th, 1843. C. C.

TO THE EDITOR OF THE BUILDER.

SIR,—In the last number of your journal you state that Mr. Todd had obtained the premium for the Spalding almshouses. Does this gentleman know, and do the other competitors know, that a bricklayer's son, a bricklayer by trade, and who has yet obtained his living by bricklaying only—that this person has been employed by the committee of gentlemen to attend at one of their houses (Dr. Crummack's) to copy, trace, and cull, the best parts of each design on purpose that the committee may obtain a design to suit themselves, and be enabled to do without an architect, and employ this bricklayer to superintend these almshouses?

Yours, &c.,
A COMPETING ARCHITECT.

[If the above be true, we have another evidence afforded us of the necessity of an instant revision of the system of competitions—first, we have the anomaly of a self-constituted jury of taste, and now we have their indignity perpetrated on those who chose to submit to that constitution. Depend upon it, architects are as much to blame as those committees. We have not had the opportunity of completing our article on competition, but we will resume it in the next number, and shew our views of what becomes the profession to aim at in these particulars.—ED.]

TO THE EDITOR OF THE BUILDER.

April 11th, 1843.

SIR,—I am a reader of THE BUILDER, and I rejoice to think that such a mighty engine (for I am sure it will become so) has come in operation. Being a mechanic myself, I now feel that we can hold intercourse with each other. We can state our opinions as to the effect which machinery has on us as a body; and not only machinery, but every other subject which affects us. And I hope subjects will be discussed in a rational and brotherly spirit. My object in writing this is to ask any of your correspondents whether a machine is in existence for cutting the tenons to door rails without any labour from the joiner? Any information on the particular subject will oblige,

A YOUNG JOINER.

P.S.—Enclosed I send you six shillings for the benefit of those unfortunate "brethren" who have lost their tools, and consequently the means of gaining a livelihood.

TO THE EDITOR OF THE BUILDER.

SIR,—A beautiful monument exists in the south transept of Westminster Abbey; that monument, it is necessary to say (the inscription being all but obliterated), was, according to Stow, raised by Nicholas Brigham, gentleman, to the memory of the most famous poet of England, Geoffrey Chaucer.*

I was rather surprised, a few days since, upon entering the Abbey, to find that the workmen employed cleaning the abominations which desecrate its venerable walls, had neglected to remove even the dust from that monument.

I imagined that a restoration was contemplated, or that it was at least an oversight; but, on inquiry, learned, alas! that no restoration was contemplated, nor even that it was to be treated like the rest! I ask, is it to remain as it is?

The public are not to be blamed for the neglect with which it has hitherto been treated, but they will be very much so if it continues to be neglected. It would cost but little to restore it in a proper manner; its material is Purbeck marble, which has been adorned with a coat of black paint. But I need not describe it; let those to whom it may be interesting go and satisfy themselves. My task is done; let some open a subscription. I do not doubt it would be followed up. The office of THE BUILDER, surely, would not be an inappropriate place. Nay, the whole Abbey is fast crumbling to decay, but let us begin with this, and hope for better things. ALPRA.

THE ÆOLIAN HARP.—This instrument consists of a long narrow box of very thin deal, about five or six inches deep, with a circle in the middle of the upper side, of an inch and a-half in diameter, in which are to be drilled small holes. On this side seven, ten, or more strings of very fine gut are stretched over bridges at each end, like the bridge of a fiddle, and screwed up or relaxed with screw-pins. The strings must be all tuned to one and the same note, and the instrument be placed in some current of air, where the wind can pass over the strings with freedom. A window, of which the width is exactly equal to the length of the harp, with the sash just raised to give the air admission, is a proper situation. When the air blows upon these strings with different degrees of force, it will execute different tones of sound; sometimes the blast brings out all the tones in full concert, and sometimes it sinks them to the softest murmurs.

* It is generally believed that he was buried beneath it, but Stow says that he was buried in the cloister.

LIGHTNING CONDUCTORS

In reply to Phidias, we have to say we know of no plan more efficient, or better spoken of, than Mr. Smith's (69, Prince's-street, Leicester-square). His circular is before us, which we cannot do better than reprint as an answer to Phidias.

"As not a year elapses but some of the sacred edifices of this country are injured by the effects of lightning, we hope to be excused in calling your attention to our patent rope lightning conductors, so much approved of at the Admiralty, and now becoming in general use in the navy; these lightning conductors being, as stated in the Parliamentary Report, the most efficient, and only about one-fifth of the expense of others—namely, six shillings per fathom."

We have seen several of the testimonials which Mr. Smith has received, and to our mind they are most satisfactory. Subjoined is an extract from the *United Service Gazette* of the 31st of December last, which, although applying to the maritime service, has the same force in the question before us.

"Among the various uses of the wire rope, its application as a lightning conductor appears to be not the least deserving of attention. Being securely fitted to the top-gallant mast head cap, it descends from the top-gallant and topmast down the after shroud and over the ship's side, and is attached to a copper-plate in contact with the sheathing below the water line. In several cases Mr. Smith has applied his wire-rope direct from the top-gallant mast as a back-stay, and as a lightning conductor has continued it down the water line on the principle already described. By this plan the electric fluid is conducted out of the vessel instead of into it, within a short distance from the magazine. This conductor is, besides, much more easily repaired in the event of accident than those of Mr. Snow Harris, being securely grooved into the masts, whilst their expense is said to be much less than those of Mr. Harris—the one costing 500l. and the other 60l. for a first-rate. In the former case it requires three weeks' time to fix them, as the masts and spars have to be unshipped, and the vessel docked, whilst the latter can be fitted in three days, without the necessity for putting the vessel into dry dock, or either unrigging or unshipping the mast. A body of testimony has been laid before us from the captains of merchant vessels, which appears to us to offer convincing proof of the efficiency and inexpensiveness of the operation."

We will, however, collect any other information that may fall in our way for our correspondent.

If Phidias should wish for more than we have already given him, we can refer him to a scientific gentleman who has not only seen hundreds of lightning conductors, but who states the result of his experience to have furnished him with the best means of fixing the same, and a knowledge of the most effectual dimensions and material for the purpose.

THE "TAYLOR AND RANDOLPH INSTITUTE" AT OXFORD.—The splendid bequests of Sir Robert Taylor, the architect, and of Dr. Randolph, the one for the study of modern languages, the other for a picture and statue gallery, to be called "The Taylor and Randolph Institute," having been appropriated by the authorities to a structure to serve both purposes, the building is now proceeding rapidly, and may be expected to be completed in the course of another year. The design chosen was that by Mr. Cockerill, the present professor of architecture at the Royal Academy. The contract for the building was taken by Messrs. Baker & Son, of Lambeth, for the sum of 49,373l. At Oxford itself, several architectural works have just been completed, and others are in a very satisfactory state of advancement. The Martyrs' Memorial has been completed, and is a very beautiful specimen of Gothic architecture, though rather deficient in magnitude. The church of Saint Mary Magdalene has been considerably altered. The north aisles, now distinguished by the name of the Martyrs' Aisle, has been rebuilt and enlarged in the style of the "early decorated," to make it harmonize with the "Memorial." Great additions have been made at University College, under the able superintendence of Mr. Barry, in the Tudor collegiate style. This great architect had displayed his accustomed taste, although it is to be regretted that his original intentions have not been fully executed. The original beautiful timber roof is to be restored to the hall of New College. The work is to be commenced forthwith; the sum required to effect this desirable improvement having been already raised.

ON THE MECHANICAL TRUSSING OF BUILDINGS.

On the subject of the mechanical trussing of the roofs, floors, and quartered partitions of buildings, it is to be lamented that the public is not sufficiently acquainted with this beautiful, simple, yet highly scientific principle; to the neglect of which are owing so many of the failures in buildings. The whole principle, which can be understood in a few minutes by the most ordinary capacity, if properly explained, ought to be really understood by the meanest artificers employed about a building, and not only understood, but every one connected with building ought to be so induced with the fear of forgetting the principle, as on no proper occasion to dispense with it.

Every gentleman, every proprietor of buildings, throughout the whole world, ought to understand the beautiful, the powerful, the

economical principle of trusses; and then his property would not be trifled with as at present by the foolish, and such millions of crazy buildings would not be erected.

Those who are not familiar with the principle of trussing, are to be advertised, that in the roofs, the floors, and the timber partitions of buildings, horizontal beams and ties are required, sometimes 60 feet long, or more; these would by own their weight sink down in the middle, and by their bending either draw in the walls, or be themselves drawn from the walls quite into the building; and if these beams or ties, be omitted from roofs, then the inclined rafters or beams sinking at their heads by their own weight and that of the covering of the building, will thrust out and overturn the walls.

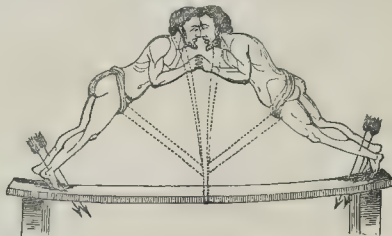
The reader will remember that passage in the *Iliad*, where Ulysses and Ajax are described as wrestling, which is translated by Pope thus:—



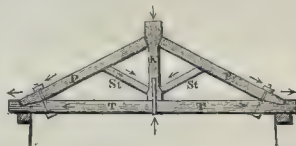
"Amid the ring each nervous rival stands,
Embracing rigid with implicit hands:
Close lock'd about, their heads and arms are mixt;
Below, their plantæ set, at distance fixt:
Like two strong rafters, which the builder forms,
Proof to the wintry wind and howling storms,
Their tops connected, but at wider space
Fixt on the centre stands their solid base."—Book 23rd.

The two classical wrestlers represent the rafters of a building striving by reason of their own weight, and that weight which they have to bear: if the wrestlers, instead of being upon a firm soil, were upon a loose rolling sand, they would fall: so will the rafters of a build-

ing if not confined by either tie-beams, or by the immense strength of the walling. Now suppose these wrestlers, instead of wrestling upon the ground, were wrestling upon a strong beam, and you will in effect have a mechanical truss: but suppose a mere weak plank which could drop down in the middle, employed for the sake of economy, instead of a beam; then imagine a cord attached to the heads of the wrestlers and brought down under the weak plank, so as to hang it up in the middle, and you will have a complete idea of a mechanical truss, as actually used.



In an actual truss, you must however imagine the feet of the wrestlers bolted to the

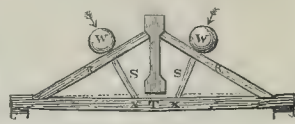


P.P. Principals.
T.T. Tie-beam preventing the principals from expanding.
K.K. Suspender hung to the heads of the principals, holding up the tie-beam in its centre, and improperly termed a king-post, but more correctly termed a king-stirrup.
S.S. Struts abutting upon the king-stirrup, and preventing the principals from bending inwards by their own weight and weakness, and by the burthen which the truss may have to bear.

horizontal plank, to prevent them from slipping from their footing; and the plank must be placed edge-wise, so as not to bend down by its own weight; and in order still further to economise material, and to render the weight of the truss less burdensome to the walls of the building upon which it is placed, you may imagine the wrestlers greatly attenuated, but for fear they should sink in the loins through weakness, a diagonal timber, technically called a strut, is carried from near the foot of the suspender up to each wrestling rafter, and thereby prevents it from sinking; the strut must not be carried down to the horizontal beam, instead of to the foot of this sus-

pender, as many ignorant persons carry it; for it would then tend to distress and sink the tie-beam, and to separate it from the suspender. The whole system of mechanical trussing in buildings, however applied, is a modification of this principle. They who could be brought to understand this, would never allow their buildings or their houses to be trifled with by the neglect of it.

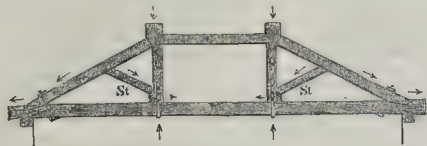
When a truss becomes of more considerable length, it is customary to suspend the tie-beam



R.R. The rafters or inclined principals.
W.W. Weight straining the rafters or principals.
T. The tie-beam.

S.S. The struts bending down the tie-beam at R.R. by the weight communicated to them from W.W. of it in two places by two pieces of material called improperly queen-posts, but which should with more propriety be termed queen-suspenders, or queen-stirrups. This description of truss is like a truss with a king-post separated into two halves, and with a horizontal strut placed between the heads of the two halves of the king-post, in order to prevent the inclined beams or principals from being pressed together: this horizontal strut is termed a collar-beam, hammer-beam, or

straining-beam; and sometimes a smaller collar-beam, termed a straining-sill, is placed upon the tie-beam, between the feet of the queen-stirrups.



P. P. Principals.

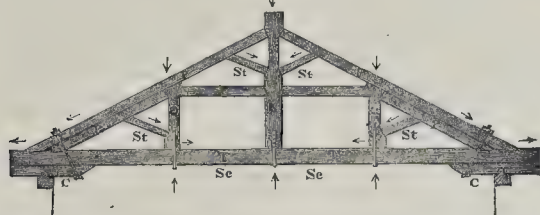
T. Tie-beam.

Q. Q. Queen-stirrups hung to the heads of the principals, and suspending the tie-beam in two places.

St. St. Struts abutting upon the feet of the queen-stirrups, and supporting the principals.

C. Collar-beam, hammer-beam, or straining-beam.

Increasing the number of suspenders to the tie-beams, renders smaller and weaker timbers sufficiently stiff for the purpose of tie; and the principals being also shortened partake of the same economy.



P.P.P.P. Principals.

T.T. Tie-beam.

K. King-stirrup hung to the heads of the upper principals, and sustaining the tie-beam in its centre.

Q.Q. Queen-stirrups hung to the heads of the lower principals, and sustaining the tie-beam between its centre and its ends. The upper principals may also be made to support more of the burthen by passing round them iron straps from the heads of the queen-stirrups.

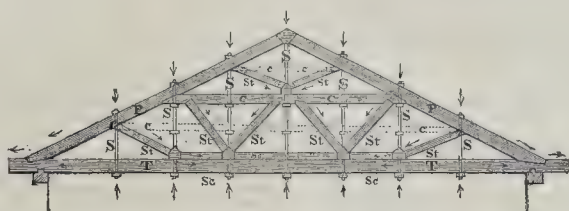
St.St.St.St. Struts abutting upon the king-stirrup and queen-stirrups, and supporting the upper and lower principals.

C.C. Collar-beams between the king-stirrup and queen-stirrups.

c.c. Corbels of oak to strengthen the ends of the tie-beam where all the weight and action of the truss are concentrated.

Sc.—Sc. The part of the tie-beam in which the timber may be scarfed, the counter-direction of the lower struts there pressing the parts of the tie-beam together, while at the other parts of the tie-beam the principals and the struts acting in opposite directions, strain asunder the parts of the tie-beam.

Sometimes three suspenders are obtained to the tie-beam, by forming a queen-truss, as here shewn; and this kind of framing will answer properly for a roof 60 feet or 80 feet span. Sometimes instead of one king-post, this description of truss has two boards hung to the heads of the upper principals, and extending down to the tie-beam; in this case the collar-beam is in one piece, and passes between the two boards. There is yet another method of managing this king-post as practised more than 400 years ago, at the Basilica of St. Paul at Rome. This was by



P. P. Principals.

T. T. Tie-beam.

S. S. S. S. S. S. Suspenders of wrought-iron hung to the backs of the principals, and holding up the tie-beam.

St. St. St. St. St. St. Struts abutting upon the suspenders, and directed exactly to those points of the principals which receive the cross-strain of the suspenders and the burthen which they have to carry.

C. C. Collar-beam.

cc. cc. Other collar-beams which may be framed in short pieces between the struts, but which will become loose by the shrinkage of the struts, and will then require re-adjustment.

Sa. Straining-sill.

Se.—Se. Parts of the tie-beam between which the timber may be scarfed.

limited by the length of timber which can be obtained for the principals: 95 feet is the greatest length of fir timber which the author remembers to have seen in England, so that 150 feet or 160 feet is perhaps the utmost span to which this truss can be carried without scarfing the principals, which is unadvisable, as the more there are of such joints the greater will be the settlement of the framing.

All timber trusses are subject to very considerable downward settlement from their weight, from the natural flexibility of the timber, and

splitting as it were the whole truss longitudinally into two separate lighter or half trusses, and then keying the king-post between these two separate trusses, so as to form one mass. Suspenders of iron obviate this reduplication of the trusses. If it be determined to split each truss into two, it will be best then to place them only half as far apart as they would otherwise have been, and thus reduce the bearing, bulk, and burthen of the purlins, and hold in the walls at twice the ordinary number of places, and perform all this with a smaller quantity of material.

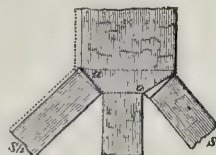
The points of suspension may in this last description of truss be still further increased to seven in number, by screwing through the tie-beam four intermediate queen-bolts of wrought-iron hung to the backs of the principals.

The last-mentioned kind of truss may be simplified, by using only two principals instead of four of them, and by making all the suspenders of wrought-iron. Indeed, there is no limit to the number of suspenders which may be used in this system of framing; the more these are in number, the lighter may be all the parts of the truss except the two inclined beams or principals, which can only be lightened in proportion to the burthen which they have to carry. The span of this kind of truss is only

from the shrinkage of it by drying: in order to counteract the effect of this settlement, it is usual to form at first the tie-beams of trusses with an upward curvatures called a camber, so that after the unavoidable settlement has occurred, the tie-beams, with the ceiling or whatever else may be attached to them, may not drop down. But it must be observed, that the deflexure of the tie-beams of trusses is increased by the reprehensible practice of framing the king-posts and queen-posts at first close into the tie-beams, by which practice, the slightest depression of the principals by settlement, causes the king-posts and queen-posts to punch in immediately the tie-beams, and thus to cause them to sink; whereas, if the king-posts and queen-posts be only attached loosely to the tie-beams by stirrups of iron, as is the case in the roof of the Theatre d'Argentine, at Rome, and as was also the case in some of the trusses of the Basilica of St. Paul, at Rome, all deflexure of the tie-beams may at any time be corrected by wedges or by screws, and thus a ceiling the most sunken may be restored to its original level.

The ordinary mode of forcing up a tie-beam to an excessive camber, is very ignorant and reprehensible; for the tie-beam then, not only by its own weight but also by its natural spring, endeavours to recover its natural state of rest; and thus the principals become the more readily deflected and deranged: to draw up the tie-beam by screws or wedges, only after it is deflected, is to leave the principals free from all strain except that caused by gravity.

In framing the principals and struts into king-posts and queen-posts of ordinary unseasoned timber, it will be well to leave the diagonal joints at first open, as shewn in the adjoining wood-cut, at the letters *o, o*, so that when the broad heads and feet of the king-posts and queen-posts have completely shrunk, and rendered the abutments more steep, the principals and struts may fit closely, as shewn at the letters *a, a*.



S. S. A principal and a strut framed with open abutment into a king-post or suspender of new timber.

o. o. Open crevices left at first in the framing.

St. St. A principal and a strut originally framed with open abutments, but afterwards fitting closely by the shrinkage of the timber altering the abutments *a, a*, to the requisite steepness.

It should be a general maxim with the architect, never to leave exposed to the weather, members of buildings so important as trusses, whether of timber or of iron; if of timber, they may rot, and the fabric may thus become endangered; and if of iron, decomposition will take place, and every thing around them be tainted with rust.

Dr. Robinson makes, with regard to the trusses of roofs, the following excellent remarks:—

"Nothing shews the skill of a carpenter more than the distinctness with which he can foresee the changes of shape which must take place in a short time in every roof. A knowledge of this will often correct a construction which the mere mathematician thinks unexceptionable, because he does not reckon on the actual compression which must obtain, and imagines that his triangles, which sustain no cross-strain, invariably retain their shape till the pieces break. The sagacity of the experienced carpenter is not, however, enough, without science for perfecting the art. But when he knows how much a particular piece will yield to compression in one case, science will tell him, and nothing but science can do it, what will be the compression of the same piece in another very different case. Thus he learns how far it will now yield, and then he proportions the parts so to each other, that when all have yielded according to their strains, the whole is of the shape he wished to produce, and every point is in a state of firmness. It is here that we observe the greatest number of improprieties. The iron straps are frequently in positions not suited to the actual strain on them, and they are in a state of violent twist, which both tends strongly to break the strap, and to cripple the pieces which they surround."—*System of Mechanical Philosophy*. Sir David Brewster's edition, Edinburgh, A.D. 1822, vol. i. p. 60, § 576.

There are two observations more to be made concerning mechanical trusses: the first with regard to struts, and the second with regard to the feet of principals.

With regard to struts, it seems to be rather extensively imagined that they are as much placed according to some vain ideas of symmetry, or of particular inclination, as for any useful purpose; whereas it should never be forgotten, that their only use is to prevent weak principals from being deflected by purlins or

other burthens: therefore struts in trusses should be as numerous as, but for the struts, would be the deflected parts of the principals; and they should be most exactly directed to the points of the principals which but for them would be deflected: thus it may happen, that two or even three struts may emanate from the foot of one king-post or queen-post, and counteract the pressure upon the principals from as many purlins.

With regard to the feet of principals, it is to be observed, that many of our modern trusses are exceedingly faulty, from the feet of the principals being cast a long way within the walls, and thus bending the ends of tie-beams, so as also to bend and crack the ceilings: the thinness of most modern walls, and the lowness of the pitch of some modern roofs, cause this defect to be the greater, and it is sometimes still further increased by a heavy pole-plate with the weight of the rafters and covering of the roof upon it, being set injudiciously within the walls, upon the ends of the tie-beams. Even some roofs of modern churches have speedily required the correction of this defect.

If the rafters be set *horizontally* as small purlins upon the backs of the principals, the strain of the principals may be set in ordinary cases almost upon the walls, and thus save the ends of the tie-beams from the improper cross-strain.

From the train of evils, resulting to edifices from not being properly trussed, it appears upon the most moderate calculation, that a sum of not less than five millions of pounds sterling is annually expended within the British dominions alone, in the mere repairs consequent upon such malformation: that is to say, at least 5,000,000*l.* annually change hands for an useless and dishonourable purpose, still leaving floors out of level and walls thrust over; whereas so vast a sum expended well, would restore to architecture, solidity, intrinsic nature, carving, loftiness, and every adornment which the most noble-minded or even the most princely could desire, and would banish all the base and lazy stunting in our modern church architecture, while our private buildings, remaining unwarped and unsunken, would need but few repairs, and those of but small expense.

The history of the mechanical trussing of buildings is a most interesting subject, which is unfortunately involved in great obscurity; probably with organs, and many national and sacred melodies, the history of which reaches beyond record. Trusses may be derived from high antiquity.

The author abstains from giving any new principles with regard to the strength of the component parts of trusses; he recommends to the particular notice of the man who intends to become a real and practical architect, the fine works of Kraft and Tredgold.*

It must always be remembered, that when trusses are used, a vast weight is concentrated upon each end of them: great care must, therefore, be taken to support well their ends: and if they be inserted in walls, the weight should be diffused over as large and as firm a surface as possible, by strong plates or templets of stone, iron, or wood; but no trace of wood should be set upon supports of stone absorbent of moisture, without the interposition of plates of lead, iron, or other metal, in order to prevent the wood from rotting.—From *Essay on the Decline of Excellence, &c., in Science and Structure of Modern English Buildings*. By Alfred Bartholomew, Esq., F.A.S., Architect, Professor of Carpentry to the College of the Freemasons of the Church.

The subscriptions for the Collegiate Institution of Liverpool already amount to 23,000*l.*, and it is expected that 8,000*l.* more will be obtained in 5*l.* subscriptions throughout England, to be called the M'Neil Testimonial for the Endowment of Scholarships at Oxford and Cambridge, and for nominations for the different schools.

* The author is preparing an extensive set of models of various descriptions of trusses, by which he expects to arrive at greater certainty in the requisite strength and adjustment of trusses; many of these models will be formed with exactly the same quantity of material, so as to ascertain their relative strength, and the most profitable application of materials; there will be several examples of each model, so as to arrive at a fair average of strength, and he proposes to break all these models before a party of his friends, marking the weights which they severally bear in different states of derangement.

SOCIETY OF ARTS.

MESSRS. ELKINGTON'S PROCESS OF ELECTRO-PLATING AND GILDING.

At the meeting of the society last Wednesday, after the usual preliminary business was disposed of, a paper was read descriptive of the above process of plating and gilding. The lecturer commenced by adverting to the well-known action which occurs when zinc and copper are immersed in a solution of sulphuric acid as illustrative of the principle on which all electro deposition takes place. He then proceeded to explain the construction of the batteries used in the process of electro-plating, and pointed out the advantages derived from them when it was necessary to overcome the resistance of a particular solution, because intensity of power, as well as quantity, were then required. It was also necessary to have a correct balance of power, otherwise the articles exposed to the action of the metallic solution would be wanting in the smoothness of surface which it is necessary they should possess.

For the purpose of shewing the rapidity and accuracy with which the electro-plating was effected, several small articles were placed for a few moments in a solution of silver, subject to the action of a model battery which the lecturer had before him. When the articles were withdrawn, they were completely covered with a thin coating of the metal; several pieces of manufacture, such as vases, shields, teapots, &c. were shewn to the meeting as samples of plating with silver and gold by this galvanic agency. Among the rest a bread-basket was pointed out which a short time since was so much worn as to be comparatively useless and of little value. It had been completely renovated by this process at a cost of about 28*s.*, and looked equal to a new piece of plate of 8*l.* or 10*l.* value.

The lecturer then proceeded to observe, that as it is necessary the articles should be well cleansed from dirt, grease, and other impurities which interfere with the process of electro-plating, they are first boiled in caustic alkali, scoured with sand, and well dried before being placed in the solution. As soon as the required quantity of metal has been deposited on the old article, it is taken out and submitted to a hard rubbing with brushes made for the purpose, by which means any grease or other matter which may have been left on it is immediately discovered in consequence of the newly-deposited metal being rubbed off the part by the active friction of the brush. When the article has been thoroughly cleansed, it is again placed in the metallic solution, so that a fresh deposit may take place on the part which has been found imperfectly plated.

According to the old method, no other metal than copper is available for the purpose of plating; by the galvanic process any kind of metal is applicable; but the metal hitherto generally used, is composed principally of nickel, which is as white and about the same density as silver. When proper care has been taken in depositing the metal, the union with the surface below is so much more secure than by any other process, that experienced silversmiths cannot distinguish the difference between such articles and those made of solid silver. When the article is required to be plated with silver, it is placed in a solution produced by dissolving silver in nitric acid and water. A copper wire is then attached to it, and connected with the negative pole of the battery. A piece of silver is also placed in the solution in connection with the positive pole of the battery. Articles required to be plated with gold are placed in a solution of that metal, and similarly prepared to those required to be plated with silver.

But useful as this process of gold and silver plating is, there are other important purposes to which it can be applied. This process opens a new field for the manufacture of solid silver and gold. If a model of an article is furnished, an exact copy of it can be made with the greatest facility, and instead of an article being made in forty or fifty pieces, it can be easily made in one solid whole, whatever the extent of its superficies, and however elaborate the nature of the workmanship may be. Hitherto large works cast in the precious metals have been placed beyond the means of the majority of the people, but by the process of electro-plating, any work can be executed at comparatively little expense. Copies of wax moulds can be easily taken by first precipitating a certain quantity of copper on the

mould, the wax can then be melted away, and a deposit of silver or whatever other metal is required should be afterwards placed on the copper. By the new process, however, moulds of plaster, wax, and similar materials are generally dissolved, and an elastic moulding substituted. A sample of this composition was shewn to the meeting. It was stated to be made of glue and treacle, and its flexible nature rendered it superior to the substances generally used for the purpose of moulding, because it can be used in one solid piece or in several pieces, and, if necessary, it can be put together in such a manner that the joinings are scarcely recognized.

This process is not only applicable to the plating of forks and spoons and articles of that description, but saucepans and other vessels used for culinary purposes may be coated with silver, and as this metal is a greater conductor of heat than iron or tin, a great saving in the consumption of fire will result from the adoption of this plan. The taps of beer-barrels also might be coated with silver and the accumulation of verdigris would thus be prevented.

Having said thus much of gold and silver, the lecturer next proceeded to refer to the more ordinary and more useful metals, one of the most important of which is zinc. Experiments shew that some metals resist the action of water better than others, and it so happens that those which are most generally used are most liable to destruction—such is particularly the case with iron; but zinc is found to be indissoluble in water, and although zinc is now often substituted for iron, yet it has failed to realize the expectations which were at first formed of it, owing no doubt to the many impurities which this metal contains. Speaking of the purposes to which zinc had not yet been generally applied, the lecturer observed that if used by means of the electro-plating process, it would always preserve iron and other metals from oxidation; for instance, iron railings might be preserved from destruction, if the exposed parts were covered with zinc, which might be easily effected at a trifling expense. It may be urged that the application of this process is limited, because, if zinc, copper, and silver come in contact with each other, they will turn black. But under no ordinary circumstances would they be subjected to this action. By the process of electro-plating, every description of iron-work can be coated with zinc, and thus be protected from the certain ruin which must attend its exposure to the atmosphere. In evidence of this fact the lecturer produced a piece of zinc which had been exposed to the various changes of the seasons for six months, without shewing any signs of decay.

As, therefore, zinc is insoluble in water, as any article can be readily re-coated, and the iron or other metal of which it is made can be by this process completely protected, it must be admitted that this is one of the most valuable metals. In illustration of this part of the subject, and as a proof of the preservative qualities of zinc, the lecturer observed that he knew an extensive manufacturer who had a large water-mill. A few years ago the expense of keeping the wheels in repair was very great; indeed, he was generally compelled to have new ones every four or five years; at length he was advised to place some pieces of zinc on the parts of the wheels most exposed to the action of the water; the experiment was completely successful, the oxidation of the iron was prevented, and the expense of keeping the machine in repair is now comparatively trifling.

The lecturer concluded by urging the applicability of electro-plating to the various branches of art to which we have briefly adverted. With respect to gold and silver gilding, he contended for the superiority of the new process. The old mode, irrespective of its imperfections, was so detrimental to human life, in consequence of the quantity of mercury used in the preparations, that hundreds of workmen in the trade were yearly consigned to a premature grave. With regard to zinc plating, he observed that it might be advantageously applied to almost all the purposes where iron was used in maritime affairs; to the prevention of oxidation in iron balustrades, and the ornamental parts of buildings, and to the preservation of the bronze statues in the metropolises, which were rapidly decaying from exposure to the action of the atmosphere.

THE BUILDER,

NO. XI.

SATURDAY, APRIL 22, 1843.

MANY things are before us, and many circumstances are demanding our attention, which render us loath to enter upon new matters of performance or promise until these are accomplished.

Some of these points are specially touched upon in the different articles of this number, and others remain to be mentioned.

Let us not have too many irons in the fire at once, but while we have a cessation from the specific suggestions of other parties, let us try to dispose of those already set down for your attention.

We have had submitted to us letters concerning the Metropolitan Survey, the expected new Building Act, a new Builders' Company, a Distinct Architectural Exhibition; and our own proposals are committed in reference to what we are resolved to carry out, viz.—the delineation of gothic architectural examples; and that we are content to remain somewhat longer upon—a national Builders' Guild. All these matters, together with the business taken up last week in reference to the Carpenters' Benevolent Institution, and the unclosed subscription for Mr. Cummin's workmen, are before us. Let us and our readers bear them in mind, and, like good men of business, despatch one at a time before we encumber ourselves with more; by this we shall ensure success in present and future enterprise.

We are determined not to let the matters sleep on which we are engaged. A brilliant prospect is before us. Subscribers are increasing every day; and the kindest and most generous sympathy is manifested in our behalf—information is cheerfully contributed—there is not a member of either of the professions of Architecture and Engineering to whom we have had occasion to apply who does not treat us with the extreme of courtesy; all these circumstances determine us to exertion and perseverance.

The working men are those whose confidence we bid most loudly for, and we are proud to be able to do it without a compromise of our impartiality. We would encourage them to write—let them not fear as to the reception of their communications—there is not man of the highest and wealthiest of our subscribers, but who, like ourselves, is best pleased by the working man's confidence, and the working man's practical knowledge—that which we all admire and estimate. We all be most happy to put any drawing or writing they may scribble out into a proper shape, and to give them the benefit of their names being attached to their meritorious productions.

What delights us most of all is to see the young men tendering us their zealous and soul-encouraging support; and God knows we have not indulged in any unworthy passion in the boasts of any one to secure it. We preach to them obedience and respect to their superiors, docility and diffidence as to themselves, pride in their profession, and the practice of virtue.

Let it be that our foundations are laid in a species of secure and well-chosen material, and we have no fear as to the solidity of the upper works, nor as to the success and endurance of the whole structure.

Thus shall we be enabled to break down the

barriers of estrangement, to restore the alienated confidence between master and journeyman, to make the master regard his apprentice as a son, the apprentice to look up to the other as a father, to cause employers to give full confidence to tradesmen, and from among tradesmen and all to banish suspicion—at least we will endeavour for all this. A friend said to us one day, "You cannot make all men angels." We replied, "No, we do not hope for it; but we are resolved to keep them as far from devils as possible." Because we cannot accomplish all the good we would wish, is it any reason that we should not try?

We proceed upon no impracticable or fanciful theories, but work out for ourselves what we advance to others. An interminable field of useful labour is open to all, information and instruction presents itself at every turn; we cannot walk into a manufactory, stroll through a workshop, loiter about a building, read a page of a book, but treasures for our class present themselves; all we require are a hundred hands and eyes, and presently we shall have them; they are tendered to us on every side, and merely want one pure guiding principle, to conduct the whole as the working and effort of one mind.

Our work is but a mere shadow of what it must become, and we are so well satisfied with all that we have hitherto determined upon—the size of the paper fitting it for a book, the price, to which, we believe, we shall be able to adhere, even with considerable enlargements, when the advertising support has attained its expected average. We have many hopes for the present, and only now are solicitous to consolidate and complete so far as we have gone. Let us beg of our readers to put their hands to this work along with us.

GOTHIC ARCHITECTURE.

We are impatient to take in hand the matter in this respect to which we are pledged by the force of our own inclinations, as well as our engagement with our readers. But we have been waiting, as we will candidly confess, to have the offer of co-operation from some one to whom such a work would be as profitable and agreeable as it would be to ourselves and readers. We held out the invitation in a former number, and this week repeat it. In doing so we have no misgivings or fear of any misconstruction of our motives; the view we have taken being this—that there are many gentlemen, professional and amateurs, to whom such an offer would be most advantageous, whether as to the maturing their taste, enlightening their minds, or providing a systematic means of the exercise of a favourite investigation. We recollect well how we ourselves, some years ago, wandered over two or three counties, without a compass, or any defined plan to steer by, measuring and delineating old churches and other structures, and filling our portfolio with sketches that served at least for the gratification of a private circle of observers, and our own partial enlightenment. We did this at an expense, not considerable it is true, for we practised economy, but secured, at the same time, all the comforts of a rural peregrination. We never spent a more happy three months in our lives; but how much more agreeable would it have been to us, and how much more we would have prolonged the enjoyment—how much more profitable to ourselves, and how infinitely more advantageous to others, to a large circle—to a whole community—would it have been, if THE BUILDER, or some such publication, had been on foot at the time, and

the editor or conductor of such a work had made us the offer, and we had embraced it, of publishing our collections; how much more systematic would have been our labours, and in the end how much more to our own renown would it have told. What would have been this to us at the time we mention we offer to many now, and we are confident that the young architect and the diligent amateur could select nothing so soul-enlivening—so grateful—so health-securing—so simple—so rational—and withal, so substantially improving to himself and to thousands, as this co-operation with us. Nor need any one have qualms on the score of dignity, or stand higgling about the question of what is called the *respectability of the thing*. The noble and the honourable read, and will increase as the readers of this work—they contribute to its support in various ways, unasked and uninfluenced by any cause, but their kind appreciation of its humble merits. Neither, therefore, should distinction of rank or wealth make any man think it beneath him to commit his hand to the illustration of this work and the extension of its usefulness. Because we have not made it a mere trading speculation, so much the more are we entitled to assume this language. We give and are prepared to give largely and devotedly in the cause of art, and we presume in full confidence to invite others to associate themselves with us in this agreeable task.

To make the matter plainer, we put it thus:—We know there are many architects and amateurs (of the latter particularly among the clergy) who live in the midst of a district, fertile in specimens of ancient structures, who could not be better employed in the forthcoming seasons of summer and autumn than in making excursions from one building to another, sketching, measuring, and exploring, and following a plan which we would take the liberty to prescribe, transmitting to us for publication the gatherings of their portfolio—exercising their minds in technical investigations, inquiries, and essays to accompany their draughts, and communicating through our publication to a wide circle, the great benefits of their united labours. We are entitled to ask for volunteers in such a work, for we enter on our task in much the same spirit, content to toil through the duty of the pioneer, and to encounter many risks, to secure what we believe, and are assured by every one capable of judging of the matter, to be a great common good. We shall still have the expense of the engraving, but this will, we have no doubt, be amply returned to us; and it will be gratifying to add to the fund of employment for that class of artists. We conclude, therefore, by respectfully and earnestly inviting this confidence and co-operation on the part of those who think with us, and approve of our proposals.

At the same time we beg to have it understood that if this invitation is not responded to, we shall proceed, at no matter what cost, to carry out our purpose; if free-labour will not accomplish it, hired labour shall,—or if the trained and skilled hand be not put forward voluntarily, we will enrol our corps of juniors; done the work shall and must be, but we have no fear of obtaining the same generous support from the rural as we have offers of from the town districts. In Dublin, Newcastle, Sheffield, Leeds, Coventry, as well as around us here, and in many other places, we have volunteer auxiliaries generously disposed to give us all that their time and avocations will admit of; we count, therefore, on the rural districts to have the thanks of many for chalking out this delightful and profitable exercise of their time and talent. A word more. We will just mention one instance on a large scale of amateur devotion to architecture, that our invited friends will do well to suffer to stimulate them; we mean the example of the accomplished Mr. Gally Knight; he has at great expense and labour published several works, and one lately on continental architecture, and we could name several other equally generous contributors to the fund of public information—to all we say, "Go and do likewise."

ENGLISH ARCHITECTS.

SIR CHRISTOPHER WREN.

OUR biographical sketches of architects, though not given in chronological order, will not, we trust, be the less acceptable to our readers; in a work expressly devoted to such a purpose, deviations from that order would detract from its value; but in a magazine, or store of general information, variety is the leading feature; compensating, and agreeably so, for the greater precision of heavier tomes. We were induced to enter upon the subjoined sketch from the circumstance of our being favoured by Mr. R. Cole of Tokenhouse-yard, an eminent collector of autographs, with permission to make fac-similes of those of Sir Christopher Wren and some of his contemporaries and pupils.* These memoranda are curious, and will in some degree enhance the interest of the pages to which they are appended.

Biographical accounts of architects of remote ages and distant countries are more or less obscure, and, like the buildings they reared, have passed through so many hands, that alteration and repair has obliterated many peculiar features which are of value as examples. Of WREN, it is otherwise; we write surrounded by monuments of his genius and perseverance; even the humblest among our readers, within the circuit of the metropolis and its environs, have the privilege of referring to these great works, and we hope to increase the attention and feeling with which they are regarded.

CHRISTOPHER WREN, son of Dr. C. Wren, Dean of Windsor, was born Oct. 20th, 1632, at East Knoyle, in Wiltshire. Perhaps no individual on record has exceeded the subject of this sketch in strength of original genius, in scientific acquirements, or in the brilliancy and usefulness of his career. Owing to the delicacy of his health and constitution he was educated at home until he had attained his 13th year, when, after having passed a few subsequent months under the tuition of Dr. Busby at Westminster School, he was entered a gentleman commoner of Wadham College, Oxford. At eighteen years of age he graduated B.A., at twenty-one took the degree of A.M., and was chosen fellow of All Souls' College, and the following year the title of LL.D. was added to his previous distinctions. During this progress he attracted the notice, and formed intimacies with all the great mathematicians of the day; *Oughtred*, in the preface to the "*Clavis Mathematica*," says of him that at the age of sixteen he had already a knowledge of mathematics and natural philosophy which promised future distinction; and Sir Isaac Newton in his "*Principia*" quotes the name of Wren as a proficient labourer in the higher range of demonstrative research. So eminently gifted was the mind of Wren that the earlier and more buoyant years of his life were spent in roving through all the fields of science, and the universality of his talent produced numerous original theories and inventions, among which were,—the weather clock; the weather wheel, or barometer; balance to weigh without weights; to write in the dark; to write in duplicate by an instrument; several new ways of etching and engraving; to weave many ribbons at once by turning a wheel; divers new musical instruments; a way of embroidery for beds, both cheap and fair; divers new engines for raising water; pneumatic engines; probable ways for making fresh water at sea; new ways of printing; to build forts and moles in the sea; inventions for making and fortifying havens, clearing sands, and to sound at sea; ways of sub-marine navigation; the best ways for reckoning time, way, and longitude at sea; new ways of sailing; fabric for a vessel of war; to pierce a rock in mining; to measure the base and height of a mountain by journeying over it; new designs tending to strength, convenience, and beauty in building; to measure the straight distance by travelling the winding way; theory of the moon's libration; to find whether the earth moves. This is but a partial enumeration of the subjects which are known to have occupied the attention of Wren. Some among them may seem puerile compared with the giant stride of the sciences in after years, or the felicity of modern skill in the creation of mechanical power; yet they were telescopic views of a master-mind stretching far forward into the

vista of time, and undoubted precursors of some of the mighty discoveries that have followed.

The first official reward conceded to the superior attainments of Wren was the Professorship of Astronomy at Gresham College, 1657. In 1659 he was elected Savilian Professor of Astronomy at the University of Oxford, and continued his labours in this department of science until the year 1661, when he was summoned to the assistance of Sir John Denham, Surveyor-General of the King's Works, to whom he was appointed coadjutor. Although, hitherto, little was known of Wren's ability as an architect, there can be no doubt he had diligently acquired much theoretical knowledge of a profession to the exercise of which he came with intellect singularly imbued with the governing principles of construction, and, consequently, with exemption from errors in calculation that might have beset a less qualified person in the prosecution of great works. It is probable, also, that the King (Charles II.) was impressed with a conviction that he was well qualified to take the lead in architecture, and to commemorate the Restoration by enduring memorials of that event; he, however, remained unemployed for more than two years, returning in that interval to his studies in astronomy and mathematics, and from time to time enriching the records of the Royal Society, of which he was one of the founders, and afterwards president, with the results of many new experiments. The period now approached when the talents of Wren were to be called into requisition; Denham, the poet, to whom he was nominally an assistant, had no pretensions to professional skill; from the moment, therefore, that Wren was called upon, the entire duty of surveyor-general devolved upon him, as did that office upon the death of Denham in 1668.

The repair of the old cathedral of St. Paul's, resolved upon in 1663, was the first work upon which he was consulted; that venerable edifice had, during the commonwealth, sustained a full share of the outpourings of the puritanical spirit of desecration, having been converted into quarters for the dragons of Ireton, while the splendid (however inappropriate) Corinthian portico of Inigo Jones still sheltered the shops of a host of petty traders. Upon a careful survey, the building was found to be in a ruinous and insecure state, but from causes unexplained, arising probably from predilection for the ancient style of ecclesiastical architecture, and feelings scarcely reconciled to modern innovation, its restoration upon the plans tendered was opposed by the clergy so recently reinstated in their revenues and privileges; this untoward incident did not, however, damp the ardour of Wren, who now found leisure to visit France, with a view to more intimate acquaintance with the French school of architecture; his name, already familiar to all the academies of Europe, proved a sufficient passport to cordial reception by Bernini, Mansart, and Le Peutre, the celebrated architects of that country, and he returned with all of value that so indefatigable an observer could collect. Upon this occasion, as he himself writes in a letter preserved in the *Parentalia*, he laboured incessantly with his pencil, and was liberal in his expenditure, purchasing casts and models of whatever was most worthy of attention in the highly ornamented style, designated as that of Louis XIV.

He now reiterated his proposals and plans for the restoration of St. Paul's, but the same want of concert between the clerical and lay commissioners, associated for that purpose, still prevailed, and a farther postponement ensued. At this juncture, and on the 2nd Sept., 1666, occurred the great fire of London; commencing on Fish-street Hill, the flames, aided by a strong east wind, swept over the greater part of the city. Evelyn, who was present, says, "It burned in length and breadth the churches, public halls, exchanges, hospitals, monuments, and ornaments, leaping, after a prodigious manner, from house to house, and from street to street, at great distances one from the other; for the heat, with a long set of fair and warm weather, had even ignited the air and prepared the materials to conceive the fire, which devoured, after an incredible manner, houses, furniture, and every thing."

At length the cathedral became a prey to the flames, which, running along the extended

roofs, seized the tower, extending high above the surrounding sea of fire.

As soon as the panic occasioned by this calamity had subsided, the commissioners for the repair resumed their discussions, and *disensions*; notwithstanding what may be called the utter destruction of the cathedral, it was still proposed to patch it up; and after two years spent in clearing away the rubbish and removing the more dangerous parts of the ruins, the work commenced by casing with new stone the immense pillars long before declared by Wren to be many inches out of the perpendicular. These proceedings were, however, suddenly put an end to by a communication to our architect from Dr. Sancroft, Dean of St. Paul's, and afterwards Archbishop of Canterbury, concluding in these words:—

"'Tis in my Lord of Canterbury's name and by his order we most earnestly desire your presence and assistance with all possible speed. You will think fit, I know, to bring with you those excellent draughts and designs you formerly favoured us with, and in the meantime consider what to advise that may be for the satisfaction of his majesty and the whole nation."

Wren, once more quietly located at Oxford, received this letter with some misgivings, and in lieu of "hastening to London," wrote, boldly recommending an entire removal of the old building, and the erection of a church, worthy, in his mind, to be classed with the metropolitan structures of Europe. Some months elapsed before it was finally decided to act upon this suggestion; but, at length, we find him engaged in superintending the clearing of the site, and in preparations for the new edifice. The account of the demolition of the tower of Old St. Paul's is interesting; we have lately heard much of the removal by mining of portions of the chalk cliff on the line of the Dover Railway, which excited surprise and commendation of the engineer, for the accuracy and success of his operations; let us pause to admire the precedent afforded by Wren, not indeed to the view of distant spectators, but in the midst of the population of London. The process and result are thus described:—

"The remains of the middle tower of Old St. Paul's that had been the steeple was 200 feet high, the four pillars supporting which were each fourteen feet in diameter. One of the pillars was mined by a hole of two feet square wrought level into its centre, and a box charged with 18lbs. of gunpowder placed therein; the mine was then carefully walled up and fired by a train; the result was a lifting up of the whole angle of the tower, and of two great arches resting upon it, also two adjoining arches of the aisles; this the explosion seemed to do leisurely the mass seemed to be lifted about nine inches which suddenly receding, made a great heap of ruin without scattering. It was half a minute before the heap already fallen opened in two or three places and emitted smoke; by this means 3,000 tons of superincumbent weight was displaced with safety and with a saving of the labour of a thousand men."

(To be continued.)

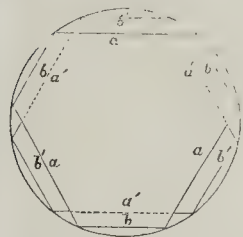
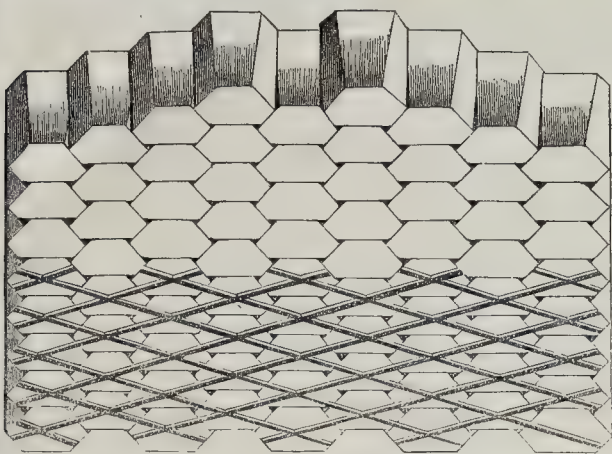
WINDSOR CASTLE.—A number of workmen are now engaged on the north terrace in removing the outer wall which incloses a portion of the tradesmen's passage, and digging out the ground preparatory to laying the foundation of a porter's lodge which is about to be erected between the Cornway and George the Fourth Towers, for a tradesmen's entrance, and where heavy goods will in future be unloaded. Her Majesty having frequently complained of the damp state of the walks in the Lower Park, a party of sappers and miners, and the command of Captain Tucker, have arrived, and are making surveys of the Castle for the purpose of draining and introducing other necessary improvements.

The Commissioners of Sewers are rebuilding the sewer from Sloane Street along the north-east side of Han's Place and Elizabeth Street into the neighbourhood adjoining St. Saviour's Church. This will be a great advantage to that neighbourhood, and also to Han's Place, as the new sewer is at least three feet deeper than the old one.

A suspension bridge, surpassing all that has been seen, is to be constructed at Vienna, says a letter from that city, across the Danube. It will be 14 feet English in length, with only one pier in the river.

Mr. S. Grimsdell, the eminent builder, of St. Andrew's Street, has just commenced digging the foundations for several houses in the New Farringdon-street. The works having fallen in to such able hands, may soon expect to see that great improvement open to the public.

* We shall give these autographs in a future number.



DESCRIPTION OF THE HEMITROPE, OR INTERLOCKING DOUBLE WEDGE BLOCK.

FIG. 1 is an isometrical, and fig. 2 a linear bird's-eye view. On referring to fig. 2 it will be seen that the block is most economically cut from round timber, shewn by the circular boundary line. The upper surface consists of six sides, three of which, aa , being larger, and three, bbb , being smaller than the sides of a hexagon inscribed in the same circle. The under surface has the same boundary lines for its sides, aaa' being equal to aaa , and three bbb' being equal to bbb ; but these are turned round in such a position that each of the larger shall be parallel to the smaller, and *ce versa*, thus forming two triple wedges, the one to resist upward, and the other downward pressure. The block, then, consists of three of parallel sides, as does the hexagon, but they are not, like them, at right angles to the surface, but at an angle; those at aaa ten degrees more, and those at bbb being ten degrees less, though it is not confined to this angle, it being determined by the depth of the block and the quantity of wedge required. Let the angle be what it may, if the top and bottom of the block were equal, and it was bisected parallel to the surface, it would present a perfect hexagon. The mode of grooving is shown in fig. 1, though any other might be adopted if it should be found necessary.

These blocks are produced by a machine at operations, which first crosscuts them into thirds of six inches; these are placed on a travelling bed, fixed at the required angle to remove the first two cuts from parallel circular grooves; these are returned and placed in a proper position for cutting the second pair of sides, and in the process is repeated, which finishes the block ready for grooving; they may then be laid, which is effected as follows. First, a line is started from, by means of half pikes, the whole ones are then worked in, as shown in fig. 1, in a triangular form, like piling up; it is then filled up at the sides, wedging the blocks more or less, according to their state of dryness, so that when they get wet, they shall not rise or burst the curb, as was the case at St. Giles's; pavement, like many other things, may be too well done. From the nature of these blocks reposing on each other, it will be seen that on a weight coming on any block, it is distributed to each of its three

neighbours, who again distribute it to each of their three, thus following the well-known law, that the pressure is absorbed in the square of the distance from the block. It may be more familiarly illustrated by the dropping of a stone in water, and observing the lessening circles: just so in this block, the weight lessens on each individual until it is all absorbed. By the above interlocking arrangement, it will be seen, the integrity of the pavement can neither be disturbed nor broken while the abutments remain firm. It may fairly be presumed that a much less expensive foundation will be sufficient. A saving of at least one-half is effected in concrete; this, at 6 inches deep, costs eighteen-pence per yard; the saving under this head per superficial yard will therefore be ninepence.

Now, in first class streets the stones are 9 inches deep; with a 6-inch concrete (and none of the wood paving companies use less), and 6-inch blocks, there would require 3 inches of excavation and carting away soil; this is worth 1 penny per yard per inch. With the hemitrope block, the whole of this is saved; if laid on a single or gravel bottom, the saving would be more than 9d.

Let us now see how it stands with regard to economy in conversion from round timber (Scots fir is used): theoretically there is 11½ yards of paving 6 inches deep in a load of timber (50 cubic feet). In taking a tree, say 8½ diameter, the cross section of which contains 51·8364 superficial inches, a hexagon inscribed thereon, 42·535, a hemitrope block, 41·5205, and a square used by the Count de Lisle 33·0625, there being a loss of 18 per cent. in Stead's, 20 in the hemitrope, and 32½ in the Count de Lisle's, and thus the hexagon produces 9½, the hemitrope 9, and the Count de Lisle's 7½ superficial yards per load of timber, though in practice it will be found a considerable allowance must be made for waste, not connected with the form of the block, but common to all: thus, at 45s., about the price of Scots fir delivered in London, the price per yard will be, hexagon, 4s. 10d. nearly, hemitrope, 5s., and Count de Lisle's, 5s. 10½d.; the hemitrope thus costing 2d. per yard more than the hexagon, and 10½d. per yard less than the Count de Lisle's.

In manufacturing, the difference is more striking in the Count de Lisle's, but it is equal in Stead's and the hemitrope. This, as before stated, is done at four operations, each of which is worth about threepence per yard: the cost of producing them is therefore one shilling. The Count de Lisle's has, in addition to this, the operations of boring, preparing oak-pins, providing the same, pinning and forming into masses. This cannot cost less than two shillings per yard; the hemitrope and Stead's have, therefore, the advantage over the Count de Lisle's of one shilling per yard in manufacture.

In laying, Stead's and the hemitrope are equal, as they require merely placing and moderately driving up; the Count de Lisle's, from being in masses, are not so easily handled, and cannot be laid so rapidly. The difference may be illustrated by the fact that a brick-

layer would get over more work with single bricks than more unwieldy lumps; the saving in laying may, therefore, be one penny per yard. These are all the savings to be effected at first outlay: the following is a recapitulation:—

	Saving of Hemitrope Over Count de Lisle's.	
	s. d.	s. d.
In foundation	0 9	0 9
In excavation	0 3	0 3
In timber	0 0	0 10½
In manufacture	0 0	1 0
In laying	0 0	0 1
	1 0	2 11½
Less loss in timber	0 2	0 0
Gross saving effected	0 10	2 11½

Thus it is seen there is a saving of 10d. per yard over the cheapest yet produced (the hexagon), and of 2s. 11½d. over the most popular (Count de Lisle's) while the hemitrope block unites the desiderata of the whole. But it is also superior to them in some things; for instance, though the hexagon and the hemitrope are equal in expense in laying, raising, and relaying, yet it will be found superior to it, inasmuch as it will not be liable to sink in the newly-formed concrete, where the pavement is taken up for repair, which is of very frequent occurrence, as all the thoroughfares of the metropolis are traversed under-ground by a net-work, as it were, of gas and water-pipes. In the event of one of the latter bursting, unless some egress for the water is provided for, the effect will be to blow up or float the pavement; now in the hemitrope the effect will be, the water will force the mud out of the funnel-shaped interstices formed by construction of the block, and thus get vent.

It has not been contrasted with any other pavements, Perring's for instance, because it being so nearly like the Metropolitan is in some points to be identified with it, while the saving will be trifling, from the fact of the expenses of manufacturing the interstitial slip will almost counterbalance the saving in wood: all the others yet laid down being either failures, or so expensive as to be impracticable.

To sum up the advantages, then, it has simplicity in construction, in laying, raising, and relaying, and in manufacture, can be therefore rapidly laid down by any labourer, and when down and properly fitted, by the expansion of the timber on being wetted, this pavement will then form one solid mass, which has as yet nowhere been got, except by Rankins' pavement at St. Giles's Church, a pavement excellent in its kind, but from its great expense in construction, it is for all street-paving impracticable, while the same effect is produced in the hemitrope block by its simple, cheap, and geometrical figure.

It is now confidently submitted to the world, to stand or fall by its own merits, though unfortunately merit alone is not always successful. It requires assistance and publicity; it is, however, in good hands for the latter, THE BUILDER's motto being, "A clear stage and no favour," and, in sporting language, "May the best horse win!"

NEW CHURCH AT CAMBERWELL.—The foundation of a new church has been laid for this parish; the site is very convenient for the inhabitants of Denmark Hill, Herne Hill, and Dulwich, being situated between the former; the plan is described as being chaste and elegant. Mr. Garrett, of the firm of Copeland and Garrett, a resident in the immediate neighbourhood, has promised to present a pulpit of porcelain to the church; this will indeed be a novelty, but we know of no objection on that account.

Lord Panmure has given the munificent sum of 1,000l. in aid of the intended erection of the infirmary at Arbroath.

The foundation-stone of a new temperance hall and church was laid on Easter Monday.

GOthic CROSS AT ILAM.—There has been recently erected at Ilam, in Derbyshire, to the memory of Mrs. Watts Russell, of Ilam Hall, a singularly elegant Gothic structure, resembling in its general character the Eleanor Crosses, without being a direct imitation of any one of them. Neither is the beauty of the execution at all inferior to the design; indeed, it has been acknowledged by competent judges to be the most perfect specimen of Gothic art which has been produced in modern times, and is therefore likely to increase the already high reputation of its architect, Mr. Derick, of Oxford.

ARCHITECTURAL COMPETITION.

We are almost pleased that an interval of a month has elapsed since we committed our first remarks to paper under this head. It happened, just as we were going to press with last week's number, that the letter in reference to the Spalding Almshouses (and which we gave in that number) came to hand. We were enabled to append a few observations to it, from which our opinion would be gathered, that a large share of blame may be attributed to the architects themselves; but we must not be supposed by that censure to exculpate Dr. Crummack; and those who act with him of their share; and if he has pursued a wrong course, we are sure that his reputation as a gentleman and a scholar may be relied upon to make him uneasy until his conscience is cleared of that which must be apparent to him to have been an injustice. We do not wish to obtrude our remarks upon his notice, nor do we think them over worthy of it: but we think that if he will take the trouble to read what we have said at pages 78 and 79 (and we will take care that he has the opportunity, so far as forwarding him that and this number of the paper extends to), he will see that we have made a case of conscience of it—a case as strong as that which commits a question in a court of law to the verdict of a jury; and one in which he is by every moral obligation bound to give, as the phraseology of the courts has it, a "true verdict according to the evidence," as solemnly as though he had sworn to it. The seventeen architects who entered the court at his summons, at his public call, who committed to his decision the question of the merits of their respective cases, did so, we are bound to assume, with full confidence in the honour of Dr. Crummack; and relying upon his fair and gentlemanly treatment, they gave pains and labour, which to them is money, and put it in one round sum, from seventeen contributing purses, content to abide the result of an award to the best man. We do not ask how Dr. Crummack took measures to secure himself in the giving a righteous verdict, what he did to assure himself that his decision was, as far as reasonable pains would allow, made up on the best possible data. We, perhaps, have no right to put such questions now, and if we did put them, it would be in a spirit the farthest removed from impertinence. But those were questions that the competitors passed by as unimportant (and therein probably lies the greater part of their share of the blame), and we, therefore, also pass them by; but we do ask Dr. Crummack, if, after having made his decision, he has pursued the course which the conventional usage of business, professional or trading, no less than the ordinances of that code of honour which is stamped in every true gentleman's breast, dictated, or whether he has not trifled in some degree with a grave question, and so compromised his own character, and damaged or damaged the interests of others, as well as cast an indignity on the profession of architecture, which he would be the last to have done knowingly and wittingly; but which being done, he is bound to repair in the amplest manner that the circumstances may admit of?

But there may be urged against us two things—first, that this is a small affair to have so much said about it; and next, that if Dr. Crummack is in error in any way, he is not the first to have so offended—that he has merely followed in the track of previous adjudicators. To the first we reply, the smaller the affair the better, and the more reason why we should seize it as the occasion for our comments. If we can shew the injustice upon this scale, how much more grossly apparent will it be upon a large scale, and how much better is it to speak at this, than to defer our remarks to a graver crisis. And to the next ground of defence, we have simply to say that we are sure Dr. Crummack would be one of the last men in the world to shelter himself behind it, because wrong has been done by others. Whether knowingly or unknowingly—is this an honest man's defence for his commission of wrong? We shall not insult the common sense of our readers by dwelling for a moment on such a wretched sophism.

We do not take objection as to the hands through which the indignity is offered, or rather the injustice perpetrated. It is no matter to us whether a bricklayer or a brick-

layer's labourer be employed to coddle up their plans to his own and Dr. Crummack's taste; but it does seem monstrous that the professional world should be invited on a large scale to submit their designs for the enlightenment of Dr. Crummack and the advantage of his trust—that his bricklayer's friend and he should find themselves at fault to invent, but should lay down a scheme, or act upon one, to set the architects of the country by the ears for a paltry stake of a few guineas to furnish them with a volume of designs, and that the decent act of employing one of those architects to carry out his own or some slightly modified plan should be dispensed with. We do not blame the bricklayer—his ambition or his blunted perceptions may have made him the vile instrument in this dirty work, for what else can we designate it but a dirty work?—nor do we largely blame Dr. Crummack up to this period, seeing how lax the public virtue has hitherto been in these respects, but we shall blame him if, after this putting of the case, as we think in a clear light, he do not vindicate himself, and rescue his own fame and name from the imputation which this transaction is calculated to cast upon it.

Again we say, that it is no excuse that he has erred in a good or numerous company: he is bound to come out of it; his position and standing make it the more imperative upon him; and we also say it is impossible to fritter down this case into anything less than a gross injustice; it is as bad as to get the week's work of seventeen labouring men, and not to fulfil the implied or actual bargain. We conclude, however, by a protest against the whole system of competitions; and how can we put the case stronger than to liken it to that of the labourer? But we shall return to it again as concerns the profession itself; in the meantime we beg and conjure Dr. Crummack to set a high example in the immediate and generous retracing of his steps; it will redound immensely to his credit, and incalculably so to the cause of public morality.

THE ROYAL ACADEMY.

As we were going to press last week, we were called to task by the letter of a correspondent, who complained that we had not inserted or noticed his previous correction of an error into which he says we had fallen in respect of the appointment of architectural students. We recollect his letter very well, and how mindful we were to forward it to the printers, with our note at the foot of it, but, somehow, a thing we are fortunately not much liable to, it has been misplaced. We made such apologetic note of the circumstance as it seemed to call for in closing for the press last week, and have now to add another word of regret, for we are very unwilling to be thought to be wanting in attention or courtesy to our correspondents. Having done which, we must take our friend to task, and through him all those who may be disposed to jump to conclusions by which they impute intentions of an unworthy nature to either us or any one else with whom they may have dealings.

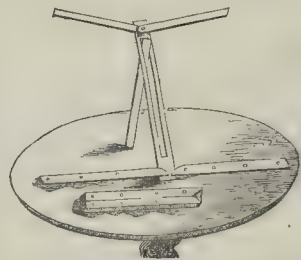
He is pleased to characterize our conduct in this business as careless, or as betraying great ignorance. Now, it would be easy for us to keep this sort of dispraise out of sight, and to obtain credit with our readers for receiving all commendation; but we have a sort of censorship to perform, and if not our office to train to good manners, we still aspire to that of training to good morals—and we seize occasions of this sort to read a lesson to men who have got a habit of censuring and condemning at the whim and impulse of a moment, who try others by a very harsh standard, and who we fear have need of very great indulgence themselves. Let our young friend, a student, correct himself in some of these particulars, and if he take this kindly meant lesson in good part, we venture to say he will have derived as much good on the day he receives it, as from any lesson in his art on that or any other day of his memory or experience.

We had our information in writing from a Royal Academician himself, so far did we take pains to be correct; but it appears that our informant made an error—we had, however, in following him, given the Academy credit for more than it deserved, as we made it appoint every third year an architectural travelling

student, whereas it appears it is every ninth year; and on the other side of the account is a few pounds per annum, or in the travelling allowance, (we forget, and in the absence of our correspondent's letter cannot state which), in favour of the Academy; but we will recollect, in the note which we appended to the mislaid letter, that we recorded our astonishment in something of these words:—"This is what the Royal Academy of Great Britain does for the sublime and important art of architecture! Great Britain, indeed," we said, "great in what? assuredly not in this art, which it so liberally patronizes and protects, through its Royal Academy."

And we now follow this up by saying that matters cannot and ought not much longer to remain in this way. We have not much public spirit or high-toned enthusiasm exhibited among our professors, but we will venture to say that any one of them, any one individual amongst them, might do more, and be none the worse for it, out of his own private resources. We have offered, and now repeat the offer, to do well nigh as much, and we wage our reputation for it that we prove our very, very harmless boast; but it is not in the spirit of worthless banter that we give utterance to what we say—we view the art we profess at an elevation so great, that we are hurt and ashamed at the unworthy servitude of the Royal Academy. Either let the Academy pay a living, active, willing homage to architecture, or quit its service; let it direct the public suffrage more worthily, or stimulate the private. We must have more done and more thought of that supreme science, of which it enrols in its ranks a professor, and affects to countenance by a studentship.

PORTABLE MUSIC OR READING STAND.



An ingenious, and we may add at the same time a generous friend, (for many inventions of such things would be running after patents and registrations) has presented us with his invention of a portable music or reading stand for the benefit of our readers; it shuts up the form shewn lying on the table, in the sketch to the length of nine inches and less than an inch square, and opens so as to stand firm and receive a sheet of music, a drawing, or book. It is a very neat and even elegant little instrument, and we think our friend is entitled to and will receive the thanks of many for making this public offering of it. We need not repeat what we have so often done, that shall be happy to second every imitator, as we are sure there are thousands of persons with ingenious inventions known only to their own little circle, who would gladly through such a vehicle as *The Builder* convey benefits to a wider one.

HOW TO RENOVATE WORN-OUT FILES AND RASPS.—Allow me to lay before your reader plan, often practised by me, for restoring, in a measure, the sharpness of files and rasps that have become abraded and filled up through use. The file in a very strong solution of soda, or what is still better, soap-boilers' lees, which removes all adherent dirt. It must then be allowed to rest for about half a minute in a solution composed of two parts of water and one part of nitric or mastic acid; and after that washed with water, slightly brushed over with oil of turpentine. This shew the efficiency of the dilute acid in producing a keen edge on blunt instruments, dip their round-pointed needle, or worn knife, and the result will be satisfactorily seen.—*Z. Rockwell in Mechanics Magazine.*

ELECTRICITY APPLIED TO THE ARTS.

At the time when Volta made his discovery of the effect of two different metals combined at one end, and the other of one placed on the muscles, and the end of the other on the nerves of a recently-killed frog—it was probably not entertained by him for a moment that, when he saw the muscular contraction of the animal, his discovery would lead to such important results in the arts and manufactures, although he might have imagined that, at some future time, its physiological effects might be productive of much benefit to mankind; which has since been the case. To explain the theory of voltaic electricity is all that is required in this instance, as it is only intended to speak here of electricity as applied to electrotyping. The theory that Volta first laid down was, that electricity was excited by the mere contact of two different metals—for instance, when a plate of copper and a plate of zinc are made to touch by the surfaces, the zinc exhibits positive electricity after separation, and the copper negative; and by a series of experiments of this kind, he found that similar phenomena took place, from which he was induced to arrange the metals in the following order of their respective qualities, it being understood that the first gives up its electrical qualities to the second, the second to the third, and so on—silver, copper, iron, tin, lead, zinc—or in other words, the first is negative to the second, the second to the third, &c. This theory is somewhat at variance with other phenomena of more recent observation, which has proved beyond a doubt that oxidation is the cause of the phenomena, seeing that the chemical agency of the liquids on the most oxidizable metals of the various arrangements is essential to their activity being sustained; and on this theory the batteries that are used for the electrotype and all kinds of galvanic purposes are made, *viz.*—two metals, conductors, and a chemical solution, also a conductor, but not so perfect as the metals. Long before the idea of depositing metals by electricity was brought before the public, it was well known to all who had used the sustaining battery of Professor Daniel, the form of which is a cylindrical piece of zinc, surrounded by a bladder or any other porous diaphragm, into which diluted sulphuric acid is placed; outside the zinc a cylinder of copper, which is immersed in a solution of sulphate of copper; that during the action the sulphate was decomposed, and the copper contained deposited on the negative (copper) plate. But it remained for Mr. Spencer, in 1839, to apply it to the useful purpose of multiplying copper-plates, engravings, &c., and has since, by various improvements by various persons, become a science in itself of great importance. The trifling obstacles that present themselves on first practising the copying of plates, &c., appear at the onset to be very formidable, but on care and observation being exercised, they will vanish, and the various processes employed will then be comparatively easy, so that these causes ought not to stop the progress of the manipulator, the processes being exceedingly simple, and performed as follows:—The object being in all cases to complete the current, so that there may be a continued current of electricity flowing uninterruptedly from pole to pole; so that in all non-conducting substances we have to cover the parts to be copied with a metallic surface, to allow the current a passage, that the metal may be deposited by the passing electricity; and in all absorbent substances, we are compelled, to prevent them being destroyed or otherwise damaged, to coat them over with a varnish, or any other material that will render them non-absorbent, and afterwards proceed, as in non-conducting substances, in taking a metal impression from a plaster cast; we have to let it absorb as much oil as it will, and then dry it in, or varnish with a coat or two of any varnish that will become hard; afterwards it is brushed over the parts to be copied with blacklead, until a uniform surface is obtained, which of course requires a little care, as, where the surface is not thoroughly covered, there the deposition will not take place. The usual method adopted is to take a mould from the plaster in white wax, or equal parts of resin and bees'-wax will answer the same purpose; it is performed as follows:—Fasten by a string, or any other means, a piece of card-board round the cast,

so that it may project about half an inch or an inch above the surface of the cast; according to the depth, the figure will be on the mould; place the bottom of the cast in hot water until the surface appears to shine by the absorption of the water; then pour on the wax, which must not be very hot; only there is caution required to pour it on gently, or there will be bubbles of air that will prevent it from being perfect; it is then to be blacklead, with a camel's-hair brush, in the manner before described, and it is ready to be suspended: a little spirits of wine may be used with the lead in preparing seals—the surfaces can be done the same. In placing medals, &c. in action, care should be taken that they are chemically clean; they should be washed well with an alkali, as potash or soda, to remove the grease (as the perspiration from the fingers will prevent the action going on), and afterwards in distilled water; these being metal, require their surfaces to be perfectly freed from oxide. The manner of proceeding after having got the objects ready for immersion, is simply to fasten to them a piece of copper wire, at any convenient place, by means of wax or any kind of cement, taking care that the wire is in contact with the object to be copied, and then, according to the apparatus employed, the arrangements must be made; the single cell by which the sulphate of copper is decomposed, and the battery arrangement by means of which sheet-copper is decomposed and precipitated, the single cell being a porcelain jar nearly filled with sulphate of copper in solution, a few crystals being suspended to keep up the solution to the point of saturation, a small tube, made of clay, unglazed, so as to be porous, and allow the current of electricity to pass through, is filled with diluted sulphuric acid, and a piece of zinc, with a screw attached at the top, is placed in it; the object to be copied is then fastened to the screw, and suspended in the solution of copper; the action then takes place, and in a short time will be covered with metallic copper by the battery process. A decomposing trough must be used if a Smee's battery is used, which is made of platinized silver and zinc amalgamated, in which sulphuric acid only is used, diluted with about eight times its quantity of water; the trough is filled with a solution of sulphate of copper, the object to be copied is then fastened to the positive pole of the battery, and the negative pole to a sheet of copper; they are both then suspended in the solution, and the action goes on according to the intensity of the action of the battery, which requires some regulation, as when the action is too intense, hydrogen being evolved with rapidity at the negative plate, the metal is thrown down too brittle, and in a state of crystallization; when too feeble, and no hydrogen being given off at the negative plate, it is then deposited in a black powder. The best point is when hydrogen is just at the point of evolution at the negative plate. The manner of proceeding when using a Daniel's battery, as regards the connection, is the same. The facilities this affords to take copies of the various ornaments that are used in the various departments of building are obvious, and must, on reflection, shew the advantages likely to be derived from such a source, the processes being simple, the expense comparatively trifling. It would take up more space than could be conveniently spared in such a work as this, to enter into every detail respecting the science of electrography, as, since the time it was first introduced, there have been so many different forms of apparatus used, and so many persons engaged in its application, that volumes might be written and the subject still unexhausted; but the different ways enumerated above are those which have received the most attention, and appear to be the most perfect methods yet known of precipitating metals by electricity, from the fact of their being almost universally adopted where the art is practised.

H.

BROMPTON CHURCH OF THE HOLY TRINITY, built about fourteen or fifteen years since, the windows, &c. of which were then finished according to the meagre style of the Church Commissioners, is now being renovated by public subscription, by having beautiful new windows, &c. put in place of the original ones. This is one of the most beautifully situated of the new churches near London.

SURVEY OF THE METROPOLIS.

WE return to this subject again this week, because we think that no time should be lost in pressing the matter on the attention of government for the just benefit of all parties. It will be no excuse for us to say that we found the surveyors themselves indifferent or apathetic on the subject. It is our duty to arouse them to a sense of their own interests if necessary. A public journal is a public tongue and a public monitor; nay, we may rather say, a public conscience, and performs its functions best when it performs them conscientiously. Now the man of conscientiousness is not disposed to throw blame upon others when a large share is fairly attributable to himself—he endeavours to set the account right on his own side, and then, and not till then, has he secured a clear privilege of taking objections to the conduct of others. So in this matter as regards the surveyors of the metropolis—let them do all that is necessary on their own parts, and do it in a proper spirit, and they may depend upon it they will not have much after that to reproach the government with.

We are the more intent upon pressing this matter forward because we find from a paragraph in the daily papers, that the survey of Windsor has just been entered upon at the instruction of government by the ordnance department—there may be many reasons why this step may be regarded as a proper one, and we are not prepared upon the slight evidence before us to enter into any question of the proceeding—we cannot condemn or disapprove, without knowing all the circumstances upon which our judgment should be based; but we are apprehensive that something too much of this principle may be pursued in the matter of the London survey, and we say again that we shall hardly be prepared to blame the government if, in the supineness and apathy of the surveying profession, they should come to any such conclusion. But it will be seen that to do so, that is, for the government to enter upon any such course of procedure, would be to violate some of the first principles of right dealing, which this business-like nation has thriven and acted upon. We can only compare the case to that which the government might adopt with the medical or legal staff attached to the executive, by undertaking in the former case to supply medicine and medical advice to the metropolitan parishes, or in the latter, to draw up wills, deeds, and execute conveyances, &c. under a commission. If we are to have a metropolitan surveying government board, let us have one for medicine and for law; nay, let the principle be carried out in full, to test its absurdity and injustice; let us centralize all, and have government stores and merchandize, even down to the baker, the butcher, and the brewer—and why not these as well as government surveyors?

It is most likely that we are assuming an hypothesis, having no foundation in reality—we are willing to suppose that such may be the case; but granting for a moment that it may be otherwise, we ask the surveyors of London whether it becomes them to be inactive; let them not be clamorous and discontented after the evil is done—their own silent acquiescence in it will be the fitting answer to their upbraidings.

Many, many thousand pounds must necessarily be expended in this important work; the public ought to be greatly interested in it, and, not least, in the proper and beneficial distribution of its cost. What so proper and so beneficial as amongst their respectable neighbours? and that the whole control and management should be in those experienced in the properties of their respective districts? Great advantages too will flow of a good system on the basis that we are advocating to the profession, in bringing the leading minds to devise a sound and comprehensive scheme of procedure, and accustoming all to the carrying it out. Rightly managed, this incident may be made to tend more to the perfecting our skill and knowledge in the business of surveying than any thing that could be devised of a more professedly direct tendency. It would be a schooling for the profession which centuries of ordinary practice would fall short of. There are, therefore, many most weighty reasons for an Englishman's activity and energy in this business; and that it be exercised at the right time, the blow must be struck promptly.



THE ROYAL POLYTECHNIC INSTITUTION.

We wish it were in our power to play the showman to the accompanying plate of the interior of the hall of the above institution; but the labour of the artist in depicting so many crowded images and objects were an easier task than would be ours to particularize. We have already given that sort of summary of its peculiar attractions for the building class which we considered the subject called for, and if we were merely to glance over the catalogue of objects of general interest, it would extend our article to a length and into matter which we are hardly privileged to occupy ourselves with. It may suffice to say, that there is hardly a subject of novelty or rarity in manufacturing art, or natural productions, that has not its lively representative or depository here, and that the whole building deserves to be considered, and is, an epitome of British artisanship.

But our business with it is principally as a school, and as offering advantages for the instruction of those in alliance with ourselves. We promised a few weeks back to attempt a sketch whereby it might be shewn that the means of a most effective and economical education for the plodding student were never more conspicuously offered than at the present day in London. We are aware, however, that that faculty of self-training, or rather self-conducting, which certain master minds occasionally exercise is not vouchsafed to every youth to whom these advantages of education are offered, and therefore that the constraint of a system and scheme of study, a forced routine, must be imposed upon many to bring them to partake of the very good upon which they are dependent. To say, therefore, that at this hour of the day a young man may engage himself in this branch of study, and at that hour of the day in another, and in the evening in a third, all dovetailing, as one may say, into a complete framework of knowledge to be agreeably and easily acquired, is to say no

more than might have been said, in a relative degree, at all times of the world's existence. What is wanted is a discreet governing power to lead the young student by agreeable and profitable transitions from one study to another, to make the very transition a step or a filling in, as the cement of the arch of knowledge, and this power we can only hope to see exercised in rare instances by parents alone. There wants the intervention of the man of gifted mind, who will devote his time and talents to this sort of guidance, accompanying the student to the classroom or peculiar scene of labour and study, and in the intervals completing the application of each course to the other. We will just venture to sketch out a plan, which, if worked out by abler hands than our own, might, we are sure, be made of incalculable benefit to hundreds and thousands, not only pupils and students, but professors and masters.

To mention the Polytechnic Institution, with its courses of instruction in practical chemistry, presided over by Dr. Ryan; electricity and galvanism, under Professor G. H. Bach-offer, and that for railway engine driving, all accessible at the cost of eight guineas:—then the School of Design at Somerset House, where instruction is given, not only in all matter pertaining to ancient ornament, but in modern composition suited to the manufactory; where the best models are secured in profusion, and superior instructors preside; and all at an expense of four shillings per month:—then, to refer to the gratuitous admission to the National Gallery, the British Museum, and the Society of Arts:—then, to lectures on architecture and engineering, at King's and University Colleges, at the Royal Academy, and the numerous other easily accessible lectures of other institutions:—to mention these is to suggest, we should think, a classification of hours of attendance and division of time, which, under such direction as we have hinted at, would, we are satisfied, in two years put the student of ordinary diligence in possession of a master fund of ac-

quirements, for with all this he would imbibe the wisdom of practical every-day business; he would move about and intuitively accustom himself to the application of what he has learned—we speak from experience—we know instances where mere boys, who are now participants in this species of peripatetic study and investigation, have a knowledge of which they themselves appear unconscious, but which displays itself in their deportment and conversation among their seniors very much to their advantage, and not a little to the disparagement of inferior modes of tuition.

London is indeed a marvellous city, wherein all is combined for the advantage of the student, provided he be placed under proper direction, and for want of this direction an immense amount of useful and indispensable knowledge flies off uncaught and unavailed of. He should not be left to his own choice of time, or to the hazard of the many temptations to the evil which surround him, equally with the attractions to good; and while we point out that which is presented to us of a favourable aspect in one quarter, we would avoid being understood as recommending it without the strongest and most cautious defences and protection in another. We are, however, sure that it is well worth the while of eminent men to turn their attention as we have directed, and it is for this object principally that we have written.

RUSSIAN COAL.—M. Voskresensky, a member of the Imperial University of St. Petersburg, having analyzed the different sorts of coal found in the south of Russia, has drawn a comparative table of their qualities. The result shews that the best Russian coal which is to be found in the Hanitsa Groushevskaya (territory of the Cossacks of the Don), contains 94.234 per cent. of carbon, and the most inferior, that of Tefles, contains 63.649 per cent. of carbon. A comparative table of analyses of the coals of England and France is added, according to which the best of all the Newcastle coal contains only 84.846 per cent. of carbon, and the best part of the French coals only 91.98 per cent. Thus the coal of Groushevskaya surpasses in quality the best English and French coals.—*German Paper.*

PLASTER WORK.

We promised to return to this subject in treating of the matter of Mr. Fair's house last week.

Plaster, hitherto, appears to have been used for all sorts of sham work and mockery. No one seems to think that it has a legitimate province of its own, as much so as the materials it has been employed to imitate. In whatever shape or form we have it applied, it is to affect a character which belongs to something else. One day it disports in "borrowed plumes" and exhibits in a compo front, all the apparelling of stone or marble; another, as a framed ceiling or partition of wood-work—poor frail thing, it affects at one time massiveness and strength, in the shape of the bulky column and pilaster—the truss and cantilever another time impends over your head, with all the brave aspects of groining and vaulting; a third gaily flaunting it in the variegated hues of precious marbles—these we humbly take leave to say are all perversions; plaster work, in all its varied modes of application, has a hundred and a thousand legitimate phases of character, without the necessity of drawing upon one of its allied constituents in the art of building; plaster cornices, plaster columns, plaster ceilings, and plaster walls are all nevertheless allowable, so that they be to all appearance plaster, and used as the dressing and garniture of the structural parts to which they are attached—case the pillar, no matter whether slight or massive, with plaster if you like, but let it appear unequivocally as a casing—in such case there would be no inconsistency—and instantly a right conception of this principle obtains in men's minds. Architectural ornaments as well as architectural structure obtains a wider charter—make your ceilings curved or flat—panelled or ribbed, as you like, but let the ornaments, if of plaster, be appropriate to plaster—lay on cornices exterior or interior at your fancy, but discard all appearance of the block and mass essential to stone and timber, and where shelter is necessary let it be in a sheltering material; in one word, get rid of the slavish principle of imitation, and plaster-work, papier maché, wood-work, iron-work, stone-work assume their own proper character and expression,

and become the alphabet as it were of a language as voluble and as beautiful as any thing ever given utterance to in the practice of art in any past time or country.

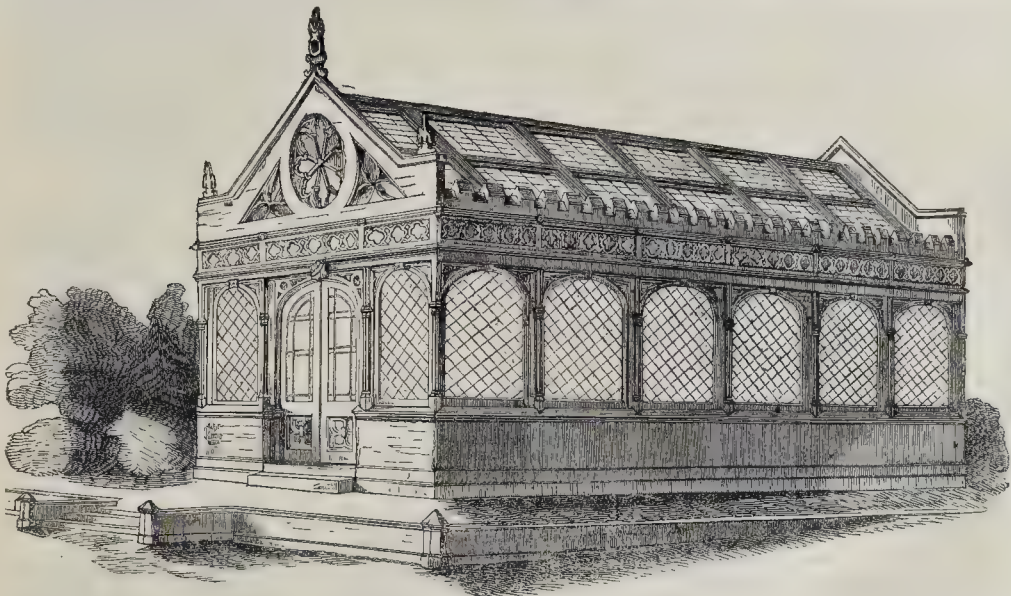
Confining our remarks, however, to plaster work, let us consider what is opened to us on this principle in the way of moulding and of ornament. Attention will be paid not to the shape of the moulding as befitting a marble or timber structure,—no consideration as to the tools employed in those materials, will trammel the hand of the designer; but the question will be, what will look best on principles of artistic truth, and be consistent with the plastic character of the material employed? Lofty and elegant columns may adorn our halls and churches, built in brick if desirable, and plastered over also, with enrichments both of form and colour abounding; but no scoring out to represent stones—no deceptions or falsities. Vaulted or other forms of ceiling, ribs, tracery, pannellings, bosses, pendants, foliations may be lavished on our interiors; but, again, no scoring or jointing to represent stone—no stone mouldings, that is, such mouldings as are bound up with the sole integrity of stone structure—no framings in the fashion of wood-work—no mockery, in fine, of the masons' or the carpenters' art. Let these work up to the desired point in construction, manifesting with their best ability the science of which they are masters; and the beautiful art of fashioning and putting together their materials complete; and let the plasterer follow, with no design to debase, or adulterate, or disguise, or affect, in prejudices to his fellow craftsman in another walk; but to appropriately ornament, to set off if needs be and good taste admit of it. His is the decoration and garnishing, and there is a territory as wide and as extensive for him in this respect, as ever offered to the most elaborate fancy or extravagant imaginings of man.

Many people run away with the idea that there is something insecure and ephemeral in the character of plaster work; so there is if it be exposed to forces and actions for which it is not designed, but we will venture to say that appropriately introduced, whether in the interior or exterior of any structure, it is calculated to endure as long as the most substantial parts; here, however, again the discretion of the

designer has to be exercised in not exposing it to the chance of damaging circumstances. It is, however, pretty well ascertained now, that many of our cements are as durable in their qualities of resistance to atmospheric influences as the majority of our best qualities of stone, and are, indeed, as applicable for many purposes of exterior ornament. We shall return to this subject again.

EAST COWES PARK & BOTANIC GARDEN.

We have a most interesting subject before us, which, if we can so arrange, we shall take up to handle as a text, and as an illustration of what is in our minds the *beau idéal* of this class of villa property. Our object will no doubt apply in two ways, one to bring the speculation, for such we understand it to be, into notice, but our paramount view will be to interest and inform our readers, and to take this as a practical model for all such undertakings. We cannot adopt a better method than to take a matter of fact affair of this sort to dilate upon; it is better than all the imaginary recreations of the fancy. It will teach our builders and proprietors of building-land, a complete lesson from the first mapping of an estate and setting out allotments to the finishing points of house decoration and landscape gardening. We understand that this property is highly favoured by nature to begin with, and that the design of occupying it with buildings and laying it out in separate gardens and grounds has been managed so as not to infringe on its primitive beauty, but rather to add to it by giving the charm of social life in its most attractive forms to be united with those of nature. A botanic garden comprises one portion—the centre of the plan, and this is surrounded by a noble sweep of road and marginal plantings, and beds of flowers of the character that we remember to have seen in the public walks abroad, and for which we were disposed to extol the Germans as being far in advance of us. However, our object will be to make ourselves well acquainted with the subject before we take it in hand, and we think we may promise ourselves and our readers a treat of unusual interest in the subsequent disposal of it.



DESCRIPTION OF GREENHOUSE.

To be built in the gothic style, and capable of containing upwards of 500 plants in pots, also several grape vines. Its extreme length being forty feet, and width, in the clear, sixteen feet, the entrance would be at one end only by folding-doors.

It will be erected on a raised path, as shewn on the drawing. I have introduced over the iron sashes an iron frieze with an ornamental cornice and battlement over. The whole of the wood-work outside, together with cornice, to be painted in imitation of stone. The sashes in front to be as lifting shutters, the other sashes in the roof to be hung in the usual manner.

The contract for the above is 253*l.* 10*s.*, and to be completed in six weeks. The mode for heating the same I propose to be by means of hot-water apparatus, with Thompson's boiler, and the estimate for which is 65*l.*, with sufficiency of pipe &c. to be able to command sixty degrees of heat when required.

HINTS FOR THE FORMATION OF LOCAL COMMITTEES OF THE YORKSHIRE ARCHITECTURAL SOCIETY.

The objects of the Yorkshire Architectural Society can only be carried out, in any adequate degree, by rendering as many of its members as possible really interested in its pursuits and active in its operations.

The work which it proposes to itself is one of no little difficulty, while, at the same time, it is one of the deepest interest to all who have any reverence (and what churchman has not a reverence?) for those beautiful remains of ancient piety which everywhere adorn our land.

This work cannot be done without the labour of many hands, each discharging diligently his allotted task. Every member may do something, if he will, and though to himself perhaps any thing which he can effect (at any rate at first) may seem trifling and unimportant, yet it will not be so, provided it be done in a becoming spirit: it will not be unimportant either to the society or to himself. It is much therefore to be wished that each one will forthwith put to himself the question: "What can I do? Where does my work lie?" and that he will set forth, staff in hand, really determined to do the society's work according to the best of his power.

But it is impossible that in such an undertaking any thing can be effectually done without companionship in the labours and studies which it implies; and equally impossible that persons scattered over so large a space as the two dioceses of York and Ripon, can always or often assemble at the general meetings of the society. It has therefore been thought desirable to recommend the formation of local committees in the more important towns of the county, which may consist of all the members of the society within a reasonable distance, and the operations of which may be directed especially to the respective districts for which they are formed.

Any person with sufficient interest in the proceedings, and sufficient leisure, will find by reference to the list of members those to whom he may in the first place apply for members of the proposed committee. These will meet as soon as convenient, and, having elected for themselves a chairman and secretary, arrange the plan of their operations, and adopt such rules as local circumstances seem to require. It may be well to suggest that the meetings be held not less frequently than once a month, and during the summer, when there is opportunity of visiting the several Churches in the district, it might probably be found practicable to increase the number of meetings, and to hold them in any place which furnishes a good Architectural study.

The chief objects which it is desirable to keep in view seem to be these:—

1. The acquisition of accurate knowledge on the subject of Ecclesiastical Architecture.
2. The collection of information respecting the Churches and other objects of Architectural interest within the district.
3. The procuring additional members of the Society.
4. The endeavour to spread amongst people generally, and more especially amongst the Clergy, a just appreciation of Ecclesiastical design, and a deeper love and reverence for that most noble art, the high aim of which is not merely the erection of temples for the worship of God, but also the embodying therein of Christian doctrine.

Of these heads the first, as it is the most difficult, so is it the most necessary. Without some degree of knowledge, nothing, of course, can be done, and the way in which this may be most surely and satisfactorily attained, is by the study of works upon the subject, with reference to the best Churches and Ecclesiastical remains in each neighbourhood, and this will be rendered far more agreeable, as well as profitable, by intercourse with others engaged in the same pursuits.

The list of works recommended by the Society will sufficiently furnish the materials of study, and attention is especially called to "Rickman's Gothic Architecture," the "Glossary of Architecture," "Pugin's True Prin-

ciples of Christian Architecture," and the publications of the Cambridge Camden Society, particularly the "Hints on the Practical Study of Ecclesiastical Antiquities." A careful perusal of these will lay the foundation and prepare the way for further research, and will also teach, in the examination of existing buildings, how to observe. As Architectural works are rather expensive, a book club would be a valuable accessory to each Local Committee; at the same time it is desirable that each member should have in his own possession some of the books alluded to, as by this means he might probably be enabled to bestow upon them a more careful study than, supposing the number of members to be at all considerable, would be consistent with book club circulation.

As to the second head, viz. the collection of information respecting the Churches and other objects of Architectural interest in the district, it is very desirable that all Local Committees should adopt the same uniform plan; and in order to effect this, it will be well, after a minute examination of each building, to fill up with great care and as fully as possible, one of the Cambridge Camden Society's schemes; in doing which, the "Hints" above alluded to will furnish considerable assistance. A copy of the schemes thus filled up, with drawings of any interesting parts of the building (which it is always desirable to make with as great accuracy as possible), should be transmitted to the Central Committee.

The blank schemes may at any time be procured on application to the general secretaries.

It will no doubt on many occasions be found practicable to combine together the second and fourth heads, and to extend the party beyond those who are members of the society, to any of their friends who may wish to accompany them. A fine church or a ruined abbey will always repay a few hours' study, and can scarcely fail to call forth the admiration of those even who are wholly unskilled in the art. In such cases the chairman of the committee, or some other person qualified for the task, might give great interest to the meeting, by directing attention to the most remarkable features of the structure, and to its history, peculiarities, and beauties.

In attempting, however, to combine these objects, it seems necessary to suggest the following caution:—Beware lest the party degenerate into a mere pick-nick party of pleasure; for if it does this, its professed objects, viz. the collection of accurate information by the members, and the imparting instruction on architectural subjects to others, will be wholly frustrated.

Nor perhaps may it be entirely out of place to suggest that, in visiting any sacred edifices, the thought should ever be present to the mind that they are sacred. The cheerfulness and buoyancy of spirit which are the natural result of a pleasant ramble with a pleasant party, might possibly give rise in a mixed company to an unbecoming levity of conversation and demeanour even within the sacred precincts; in order to prevent this, it is hoped that each will remember that the place where he stands is holy ground.

Another mode of diffusing a taste for architecture would be the occasional reading of papers on interesting architectural subjects which the public generally might be invited to hear. For instance, it would very frequently be found that a history and description of any one of the churches in the neighbourhood, would, from local circumstances, excite more or less the interest of all, and the information collected to be transmitted to the central committee might easily be thrown into the form of a popular essay. Such papers might in most cases be furnished by some members of the local committee, or if this was found impracticable, an application made to the central committee would usually find some one willing to give the desired lecture.

The circulation of some of the popular pamphlets published by the Cambridge Camden Society would also be found very beneficial in calling forth a more reverential spirit and making men more jealous for the honour of the house of their God.

We must not, however, expect that the object we are seeking can possibly be attained all at once. In a science the study of which has

been so lately revived, it must be admitted that there is much to be learnt by all, even the most advanced. No one has yet been able to shew any just claim to the possession of that secret principle, by which our pious ancestors erected churches which we have not the skill to imitate, which we are too proud to copy, and are not ashamed to parody. This secret principle we can only hope to detect by the accumulation of new architectural facts, and their combination with what is already known; but this process of deduction carried on with care and diligence, and, what is more, in a reverential spirit, may lead us (if we will only be content meekly to follow up the stream) to that true principle of Christian architecture which our ancestors in the so-called dark ages discovered, but which we in our deeper darkness have lost.

In the course of time the Society expects to have an accurate description of every church in the county, and this very desirable object can of course only be effected by means of the local committees—to this, therefore, the Society begs to call their especial attention: and in the examination of each church it is hoped that notice may be taken of any violations of architectural order and beauty, but too many of which almost everywhere exist.

For it is not merely the acquisition of knowledge for its own sake which the Society desires; but also the bringing that knowledge to bear as much as possible in restoring the faint and vanishing lines of ancient beauty; in rubbing off the rust of ages from the once beautiful, but now, alas! neglected, temples of our land; in building up the decayed places thereof, and thus saving the nation (if God will) from the curse due to those who dwell in their ceiled houses while God's House lies waste.

It is hoped that all local committees will constantly bear in mind that they are not working simply for themselves, but for the society at large; and therefore of course they will see the desirableness of keeping up a correspondence on all matters with the central committee.

It may be well to add that several local committees have already been formed, and as soon as the whole county has been apportioned, and each part has been placed in some recognized district, a list of the districts, with their boundaries, and the names of the secretaries and the committees formed in each will then be generally distributed.

METEOROLOGICAL SOCIETY OF GREAT BRITAIN.

Tuesday, April 11.

George Leach, Esq., F.Z.S., Vice-President, in the Chair.

The minutes of the last meeting were read and confirmed.

Wm. Wardell, Esq., of Chester, Wm. Kingdon, Esq., of Hyde Park, and the Rev. John Toplis, B.D., Rector of South Walsham, Norfolk, were elected members.

Papers read.

1st. Improvements on an hourly self-registering Barometer.

2. A paper on an hourly self-registering Rain Gauge.

3. A paper on an hourly self-registering Anemometer.

These three papers from Peter M^rFarlane, Esq., of Comrie.

4. A paper on the appearance of the Comet in March, by J. H. Maunly, Esq.

5. A paper on the same subject, by Lieut. Morrison, R.N., shewing that this is its 8th appearance at intervals of 257½ years.

The society's Meteorological day was then discussed, and opinions on the three following queries:—Whether the day should be from sunrise to sunrise, the civil or the astronomical day; and it was resolved, that an invitation should be given in the next number of the Meteorological Quarterly Journal, to all Meteorologists, requesting opinions on this very important point; in the meantime, any suggestions addressed to the Editor, No. 38, Foley Place, will be duly attended to.

OUR CORRESPONDENCE.

TO THE EDITOR OF THE BUILDER.

SIR,—I cannot allow your excellent article "On the Choice of a Course of Study" to pass by me unnoticed, being one of the youthful students to whom it is more particularly directed; not but what I think many of our brother architects, who are more advanced in the art, may gather an excellent lesson therefrom, to steer their course in the wide ocean, without always referring, as it were, to the compass to direct them, which is decidedly the case with many. You will no doubt think this very presumptuous of me, but my inducement to write this is from your having observed that it rests with us to decide the style of forthcoming centuries.

Are we to be mere copyists of what has been before written, published, and created? No, this will not lead us to vie with our ancestors in introducing new styles, ornaments, plans, and elevations. We must not sit down in despair, and imagine that all has been done for the art that can. Let us, my fellow students, rouse ourselves from our lethargy, sink deeply into the mine of invention, see whether there be left a particle or an atom of some gem which has not been favoured with the light of the sun, raise it from thence, fashion and form it into the shape our minds are best able, and lastly lay it before the public for their approval; such, I imagine, to be a mode towards obtaining another order or style. Let us put on the breast-plate of diligence and perseverance, let our helmets be ornamented with discretion, our shield bearing the motto "*quod posuimus perficimus*," our loins girt with brotherly charity, our feet shod with strenuousness and firmness; clad thus, let us go forth into the grand arena with undaunted and never-failing spirit, bearing in our hands the spear of determination to overcome all difficulties.

Although as yet neither a second Shakespeare, Milton, or Chaucer has risen to pen such beautiful lines, nor in architecture a Wren, Jones, or Michelangelo, still these are no gospel reasons why the nineteenth century should not be favoured by bringing one to light. Therefore, let us be eager to obtain the prize of having our names handed down to posterity, and render ourselves worthy of our vocation. On whatever side we turn, we behold the ingenuity of man causing something new to spring forth in connection with us: the varieties of ways of cutting wood, enriched with mouldings by machinery—the Patent Wood Carving Company for stamping it to any pattern; the Iron Mason, &c., combined with various others that have appeared, and some which will soon tend to render the art more practicable, less expensive, and consequently the more to be patronized.

As this letter is composed by a youthful member, some allowance he therefore trusts will be made for what errors and wrong notions he may have fallen into, and will esteem it a great favour by any one giving him a word of advice thereon.

Tho' rugged the way and steep the hill,
Still let us endeavour our path to fill.

I must apologize for the length of my letter, having exceeded the limits I first thought of when I set out, but my love for the art has carried me on. Your pages, I doubt not, can be better filled than with this, but should it meet with your approbation, and you have space left, by the insertion of it you will greatly oblige—

A YOUNG STUDENT.

TO THE EDITOR OF THE BUILDER.

SIR,—Having seen No. 10 of THE BUILDER, and the wish of a Young Joiner to be informed whether there is a machine for cutting tenons, and thinking you may not know, I take the liberty of sending to inform you that there is one, I am sorry to say it, in Pimlico. The inventor is a cabinet-maker—his name is Harrington. He began one for Messrs. Webb, builders, but failed to bring it to perfection. He then went to Mr. Jackson, I believe, and got one to work; it worked with a sliding table; at the end of the table are two iron cylinders about eight inches in diameter, and in each cylinder three iron, like plane irons, and in the front of each iron one cutting tooth. The cutting teeth cut the shoulder, and the irons plane the tenons as they revolve. I saw the one at Messrs. Webb's, and had to alter the tenons, for it was doing shocking work of it. He likewise has invented a machine to mortice, and I saw a specimen of his mortices, and they are good; he says he can mortice a plank eleven inches deep with it; the one I saw was as true as a hair. If this is of any use to you, I shall be happy to send any information at any time that will be of service to my trade. I am happy that such a work has made its appearance, for, in my humble opinion, it will be of great service. I intend to have the back

numbers, and shall continue them, and should be happy if every other joiner would do the same.

P.S.—I forgot to say that the cylinders worked one on the top and the other underneath, so that both sides of the tenon are cut at one time. A rail, nine inches wide, has the tenons cut in one minute's time. I would send you a drawing of it, but the space can be taken up with more valuable matter.

I remain your well-wisher to THE BUILDER,
April 16th, 1843. T. C., A JOINER.

TO THE EDITOR OF THE BUILDER.

SIR,—It is said that a preparation of gas tar, refuse lime, and coarse sand will, when fermented together, form a waterproof, very hard, and durable floor for out-houses, cottages, or even tanks. Do you know this preparation, and can you tell me the proper proportions?

I am, Sir, faithfully yours,
Wareham, April 8, 1843. EDIFICANS.

WOOD PAVEMENT.

TO THE EDITOR OF THE BUILDER.

ATTENTION has been forcibly directed to the contents of Mr. Blackie's letter inserted in your last (9th) number.

Surely nothing can tend more to retard the progress of wood-paving than the course adopted by Mr. Blackie. If one reason more than another would weigh against noticing this production, it is that of depriving it of greater notoriety. Your readers, however, are entitled to correct information which Mr. Blackie's letter fails to convey. On the contrary, the argument is begun, carried on, and ends on the *ne plus ultra* of Mr. Stead's patent, an argument altogether inconsistent with the true position of the various plans of wood-paving now under trial by the public.

Mr. Blackie labours hard in the use, or rather the abuse, of certain names, to warn the public that eventually, by the effect of a judgment from the highest judicial court, these parties and their pretensions will be set aside to make way for Mr. Stead. Mr. Blackie must be well aware all the while that the prospect of any such result is most remote; may more, that Mr. Stead takes no step that can lead to any legal result whatever!

Public opinion has been emphatically expressed in favour of certain plans of wood-paving, and those *not* Mr. Stead's! Does Mr. Blackie suppose that the public is to wait for the settlement of all the questions as to right or priority between the wood paviors themselves as it proceeded with the adoption of those plans which have been found efficient after long trial?

Or does that gentleman wish to set up a claim to the alternative of Mr. Stead, or his licensee, to be, in the meantime, exclusively employed to lay down wood, according to any plan, beyond as well as within the scope of Mr. Stead's specifications?

Or, seeing that notwithstanding the serious obstruction to wood pavement, arising as much through the controversies of the patentees as from the effects of a deep-seated and interested opposition, the public will yet have wood-paving, and will *not* defer to Mr. Stead, is it, Sir, I ask, the object of Mr. Blackie to prevent any other party from enjoying that patronage which he is making such strenuous exertions to obtain?

Of these exertions no one would have a right to complain if the advocacy of Mr. Stead's plan were unalloyed with so large a mixture of invective against those persons who represent the more successful plans.

The innuendo with reference to the Marylebone vestry, may be answered by observing with Mercutio, "a plague on both your houses." The committee (the information is derived from the most authentic source) were heartily sick of the violence of antagonism exhibited on the occasion referred to. The gentleman with whose name Mr. Blackie is so familiar, had no means of obtaining a favourable report from his employers except on the merits of their plan.

For aught that is known to the contrary, the Metropolitan Company's Incorporation Act may be quietly reposing on the shelf near Mr. Stead's action in the Supreme Court of Judicature, and the notice of trial "*In re Sanders*" may be slumbering by their side! But, in sooth, what have the ratepayers, who desire to have wood-paving before their doors, to do with all this?

With regard to the case of "*Macnamara*," Lord Abinger never ruled that he (*Macnamara*) had a prior right. His lordship put a case upon hypothesis which would have left the jury free to return a verdict for the defendants in a way that may be practically demonstrated hereafter in another case!

It is scarcely necessary to ask the judgment of your readers on the specimens of wood-pavement alluded to. If, by the comparison, other persons can come to the same conclusions which your correspondent has arrived at, Mr. Blackie will hence-

forth find much more profitable employment than in publishing writings calculated to damage the very cause they were probably intended to advance.

I should be sorry to add my name to the list of controversialists, and therefore shall adopt a signature for the nonce, confiding my address to your discretion, and subscribing myself,

Your obedient servant,
London, April 12th, 1843. COSMO.

ALMSHOUSES, CAMBRIDGE.

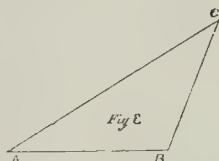
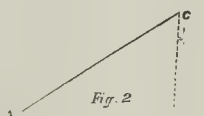
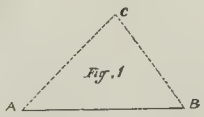
Our building friends will perceive an advertisement in our columns to-day for fifteen almshouses to be contracted for at Cambridge. We have taken the trouble to inspect the drawings and specification, in order that we might save many from being put upon a wrong scent, so to speak, in ignorance of the nature or extent of the work to be contracted for; almshouses have in many instances been structures of an inferior class, and hardly worth the while of a respectable contractor to attend to; but in this case they are of a superior nature, and include other accessory works, so as to make the matter of tolerable consequence. Each house consists of two stories, and each story of a fair height and proportion; there is on the ground-floor a passage entrance, a good front parlour, a kitchen, a pantry, and a roomy staircase; the chamber-story consists of a good back and front room, the out-offices and courtyards are all laid out on a superior scale; these are points, we think, that are worth mentioning, and will form a guide to parties not immediately on the spot as to the prudence of their moving towards it. We shall be happy to give any further information impartially to all—and it may be that we may save some trouble to many, which we shall also be glad to do. Above all things, however, let us beg that none will put themselves out of the way to throw in a random tender, at a rate and price that is not based upon a defensible ground of calculation. We are quite aware that there may be great differences, to as much as five, or even ten per cent. between one man's power of accomplishing a work and another's, but when we come to see twenty-five per cent., and almost fifty per cent. as in the instance of two or three competitions which we have lately recorded, there must be something rotten, which an authority of some kind should take cognizance of, and inquire into. The architect in such cases is bound to inquire on the part of those for whom he is agent and steward, and he is bound also, for the sake of the profession, and of the class with whom he is allied, by every honourable tie, to inquire, we say, as to the grounds upon which some of those extraordinary discrepancies occur, and if he finds error or carelessness, to interpose with strong authority. Better this, arbitrary as it may appear, than the thousandfold injury which his indifference may result in. How many contractors would have had their best friend in such an architect? How many employers would have been spared pain, loss, and constant annoyance? and how much credit would have been saved to the profession and the building class? We throw these remarks out in a kind and friendly spirit, convinced that it is for the general benefit to give heed to them. Bad work, low wages, insufficient profits, go together. On the other hand, exorbitant profits are not pleaded, and we have no fair-dealing man of our class who requires them. Again, we say, "Live, and let live."

A public-spirited individual, Mr. Thompson, watch and clock maker, of Sloane Street, has gone to a very considerable expense in erecting a handsome clock in front of his house between Harriet Street, Lownds Square, and Cadogan Place; it projects five feet from the front of the house, about twenty feet from the ground. It consists of two elegantly carved scroll-work trusses of bronze supporting two dials (facing up and down the street) of slate enamelled with gold letters burnt in the hands and rim gilded. The whole weight of the clock, trusses, &c., is not less than half a ton. Many have been the inquiries as to how it is to be wound up, &c. Now the fact is, the clock-work is in the shop window, the pendulum being suspended from the breastsummer. There is also an index-hand, so that it will be wound up and set from thence. Now such a public-spirited man deserves to be supported for his liberality in having erected such a public convenience regardless of expense.

ON THE PROPERTIES OF TRIANGLES.

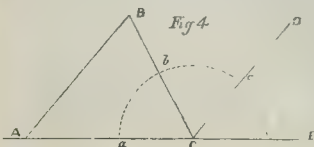
TO THE EDITOR OF THE BUILDER.

SIR,—Having devoted a considerable portion of my time to the consideration and practice of the properties of triangles, I will, Sir, with your permission, endeavour through the columns of your valuable journal to explain their importance in practical geometry, and will begin by shewing their importance and utility in land surveying, navigation, and astronomy, and endeavour to give a general idea of their principles in plain trigonometry, as it relates to each of the foregoing sciences. It has been already shown by previous theorists that all triangles consist of six parts, viz. three sides and three angles, and that when any three of these parts are given, one of which must be a side, the remaining three may be found or determined. Then in plane trigonometry it is absolutely necessary that one of the sides should be given, which can easily be shewn by drawing a diagram representing several triangles, the angles of any one of which would be exactly equal to those of the others, though the size of the triangles were all different, but the instant that the side of any one triangle is known, all the other parts may be determined; for if we suppose the side ab (fig. 1) and the two angles A and B to be given, it is obvious that the inclination of the lines proceeding from the point A and B cannot be changed without altering the value of the given angles: the lines, if produced, must meet in one fixed and unalterable point C , and hence the lines AC and BC and the angle C may be easily determined.

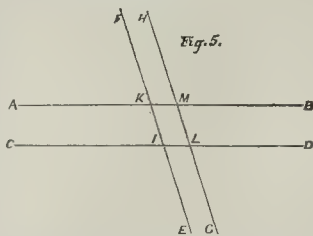


In like manner, if the lines ac and ab (fig. 2) are given, it is equally evident that the relative situations of the two lines cannot be altered without altering the given angle, and the third side of the triangle must be the true distance between the fixed points C and B and the line, CB determines the value of the other two angles. But if, as in (fig. 3) all the three sides are given, as it is impossible the lines AB , AC , and CD , should form any other triangle, it follows, that the angles which they make with each other may be readily ascertained, as one of the most valuable properties of the triangle is, that whatever be its form, its three angles are invariably equal to 180 degrees, or two right angles; the demonstration of which remarkable proposition I will endeavour to explain.

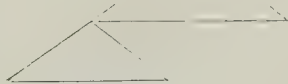
It is generally known that the value of any angle may be ascertained by supposing an arc of a circle to be drawn round its apex as a centre; and if we describe three such arcs round the three angles of any triangle, and then measure them by a protractor, we shall find that their sum is exactly equal to 180 degrees; but this is only a demonstration such as would suit practical men, and not such as mathematicians would require; and, therefore, as no one circle can be drawn round all the angles of a triangle, we must endeavour to transfer them all to one common centre; and if, when we have accomplished this, we find that the three angles exactly fill the space included by the two right angles, the demonstration will be complete.



By a careful study of the preceding diagram, in which the dotted semicircle $abcd$ is drawn round one of the angles of the triangle ABC , it is evident, therefore, that the angle ACB is introduced into the semicircle, and is measured by the arc ab . We have now only to introduce the other two angles, and this is effected by drawing the line CD parallel to the line AB ; to shew that this is the case, it is necessary to revert to the demonstration that when two right lines cross each other, the opposite angles are equal, which will be explained in the following diagram:—



As from the properties of parallel lines it will be evident that as the lines AB and CD (fig. 5) are known to be parallel to each other, and the lines EF and GH crossing them are also parallel to each other, and the alternate angles formed by their intersection are equal, and that all angles formed on the same side of a right line, by lines drawn parallel to each other, are also equal to each other, as well as to their opposite angles; thus the alternate angles AKI and KIL , or the alternate angles KML and MLD , are equal to each other; and it will be seen that the lines by which they are formed bear some resemblance to the letter Z , the angles FKM and HMB being formed on the same side of the line AB by the parallel lines EF and GH are also equal to each other, as well as to their opposite angles AKI and KML ; and if we imagine the parallel lines AB and CD to form but one line of considerable breadth, we shall see that the opposite angles, FKM and CIL , or the opposite angles, HMB and ILG , are also equal to each other; the same observations will apply to the alternate and opposite obtuse angles in the figure, all of which are necessarily equal. Now if we apply these principles to the triangle ABC (fig. 4), that as the line CD is parallel to the line AB , the alternate angles, ABC and BCD , must be equal to each other, and consequently the angle ABC is transferred to the semicircle $abcd$, its value being measured by the arc bc , and it will be seen by following the direction of the letters $ABCD$, that the lines bear the same resemblance to the letter Z as in fig. 5; thus we have two angles of the triangle included within the semicircle, and is measured by its remaining side, cd ; and as the three angles exactly fill the semicircle, it is demonstrated by the foregoing that they are equal to two right angles, or 180 degrees; then, from the foregoing demonstrations, we may conclude that the angles of all triangles which are turned the same way, and have parallel sides, are equal to each other, as in the following figure all the corresponding angles of the two triangles are respectively equal, though the triangles are of different dimensions:—



Hence the principle upon which similar figures are constructed, as illustrated by the plan table for drawings, plans, &c.: the same principle is further exemplified by that useful instrument called the pantograph, for enlarging, or more particularly for reducing drawings of any kind which may be explained by its operation, on which depends the constant parallelism of a series of rods moving freely on joints in any required direction; the instrument being placed on a sheet of paper, a pencil loaded with a small weight is placed vertically in one part of the frame, while a tracing point in another part is passed over the lines of the drawing to be reduced, and the motion thus communicated to the pencil causes it to describe lines exactly similar to those of the drawing, but differing in size according to the relative situation of the pencil and the tracer. The instrument may be so adjusted as to make the copy either larger than the drawing of the same size, or to reduce it to one-half, one-third, one-fourth, or any other required proportion.

Having thus far explained the general properties of triangles, the proportions which their angles bear

to their sides, and the facility with which, when two angles are known, the third may be ascertained, it will be easy to see how extensive is the practical application of these principles; for there are few cases in which we are not able to get one or two angles, and as we can frequently obtain also one or two sides, remaining parts of the triangle can be found with the greatest ease and accuracy. And as the rays of light are known to move in right lines, through a medium uniform density, the lines which are ascertained by means of instrumental observation are more accurate than those which are determined by actual measurement, besides which they approach as nearly as possible to the mathematical definition of right lines.

But in order to make observations with correctness, it is indispensably necessary that the instruments used for that purpose should be constructed with the most scrupulous accuracy in the arcs of quadrants, sextants, &c. The degrees must necessarily be small: as the minutest error would be immensely magnified if the lines described by the rays of light were continued to a great distance; for example, if two straight rods are placed together so as to form an angle, and a careful observer to note any difference in the divergence of these rods, it would be found the difference of $\frac{1}{4}$ of an inch in the divergence of the rods would be scarcely perceptible; but if the lines were supposed to be continued to the moon or a star, it must be evident that the slightest error near the centre would be astonishingly multiplied. It may be added, perhaps, that the liability to error would be diminished by graduating the arcs at a greater distance from the centre. As this opinion, however correct it may appear in theory, has, I think, many insuperable objections to its adoption in practice, I am of opinion that a radius of 30 inches is the largest that ought to be safely used in the construction of astronomical instruments. Mr. Troughton has, I understand, constructed an instrument of two feet radius for the Observatory at Greenwich, some time since, with others of larger dimensions since; but such is the liability of large instruments to derangement, that we cannot even approach them without incurring the risk of altering their figure and enlarging their divisions by the mere warmth of the breath and body. The older instruments for measuring angles extended no further than to a quadrant, but those in which the whole circle is introduced are far preferable. One reason of this is, that in the quadrant or sextant, only one index is used to point to the divisions, whereas in a circular instrument, two, three, or four indexes may be employed, each furnished with a vernier; and if all the readings are alike, they mutually confirm each other; as such was the case with instruments of this description on the Ordnance Survey of Ireland, to my own knowledge. But even with the most accurate instruments you will sometimes find a difference between the verniers, but this is seldom the case, and where it happens it is usual to take the average means of all the verniers, which, in a circular instrument, is equivalent to taking the average of as many successive observations by a quadrantal instrument. This kind of instrument ought to be furnished with a refracting telescope and cross wires, and as the circle itself is movable, the angles might not only be read off in different parts at the same time, but by moving the circle the readings might be repeated on different parts of the same circle as often as might be considered essential to perfect accuracy.

But such extreme nicety is not required except in astronomical observations, or in the calculations of triangles of great dimensions, such as were used in the late trigonometrical survey of Ireland, where some of the triangles were from 50 to 70 and 100 miles a side, as these specific triangles were only observed by Colonel Cobby, Captain Henderson, Captain Portlock, and Lieutenant Downes, of the Royal Engineers. But it unfortunately happens that in navigation, where accuracy is so desirable, the motion of the ship renders the use of all those instruments which are constructed upon accurate principles of little use to the observer, which is much to be lamented; then I shall proceed to exemplify the use of the principal of those instruments (the theodolite), and to examine and explain its operation, which can be done by directing to a distant object the telescope connected with the instrument, and adjusting the cross wires till their intersection coincided with the object; then let the telescope be moved horizontally, and be placed upon another object, and the angle subtended by the two objects we accurately read off by the vernier. Then let the telescope be either elevated or depressed, and on another graduated circle the vertical angles of any object may be read off with equal facility, and the height of any object or space determined thereby. The theodolite is therefore of the greatest utility to land surveyors, in their measuring of estates, counties, parishes, &c.; but however important this instrument is, it is evident from its construction that it cannot be used at sea, and the same remark may be applied to all those instruments which

depend upon the use of the plumb-line or spirit-level. Hadley's reflecting quadrant or sextant, or the circle made upon his principles, are therefore the only instruments adapted for nautical purposes, and they are of the greatest importance, from their enabling the observer to see two objects at the same time, while they do not require that steadiness which is essential to the accuracy of observations made by fixed instruments. The operation of Hadley's quadrant depends upon that principle in optics which says, that when a ray of light is reflected from a flat polished surface, the angle of incidence is always equal to the angle of reflection; thus, if a ray of light fall upon a looking-glass at an angle of 45 degrees, it will also be reflected at an angle of 45 degrees, and so of any other angle; and if the incident ray fall vertically, or at an angle of 90 degrees, with the glass, it will be reflected perpendicularly, or will return in precisely the same line; it must also be remembered that objects are always seen in the direction in which the rays of light proceeding from them reach the eye. Thus a person looking at his image in a mirror, sees it just as far behind the glass as he is before it, because he sees the image in the direction in which the rays of light are reflected from the surface of the glass to his eye. As upon this principle observations are made with Hadley's quadrant, which is furnished with two small mirrors, one of which is only silvered in part, so that in taking the angle subtended by two objects, while the first object is reflected to the eye by the glasses, the second is seen by direct vision through that part of the glass that is not silvered; the quadrant is accordingly adjusted, the two objects exactly coincide, and the angle is then read off upon the graduated arc to which a vernier is attached. This instrument neither requires the use of the plumb-line or spirit-level, the former of which is better adapted to larger and the latter to smaller instruments, as the spirit-level used on all instruments consists of a glass tube hermetically sealed at both ends and nearly filled with water, spirits of wine, or ether, and the small bubble of air contained in the tube, always occupies the highest part; and when the instrument is of such a description as that its horizontal plate can be worked by screws for that purpose, the true horizontal level may be readily obtained by adjusting the horizontal plate till the air bubble is exactly in the centre of the tube in which it is placed, to ascertain which the glass tube should be divided into parts, at a distance from each end of the tube, so as that the smallest error might be discernible; but the quadrant requires no assistance of this kind; it may appear that the vertical angles cannot be taken by it; at sea, however, the natural boundary of the horizon is as perfect a means of taking vertical angles as can be supplied by any instrument; and it is only when the weather is hazy or when observations are made on land, that any difficulty arises in this respect, and in such cases resort is had to what is termed an artificial horizon, which is produced in various ways, but most commonly by reflection from the surface. If quicksilver be poured into a vessel it forms an excellent mirror, and in order to take the vertical angle of any elevated object, a star, for instance, it is necessary to adjust the quadrant till the star and its image in the mirror exactly coincide; the angle is then read off. But it must be observed that this will not be the actual horizontal angle, for as the image of the object is exactly as far below the horizon as the object is itself above it, the angle indicated by the instrument must be bisected or divided into two equal parts, and by taking half the angle, we know we are furnished with the actual vertical angle subtended by the star with the horizon as correctly as though the latter had been visible. But, Sir, I had thought to have continued this letter, and explained the application of trigonometry to various useful purposes; but my time for the present will not allow me, and I will, therefore, defer it till a future number of your paper.

I am, Sir, your very obedient servant,

JAMES WILLIAMS COLE,
C.E. and Land-surveyor.

Bridgend, April 11, 1843.

CITY OF LONDON SURVEYORSHIP.—The death of Mr. Montague has caused a vacancy in this highly important and lucrative office. Mr. Tite is said to be likely to succeed to the city district, and Mr. John Stevens, son of Mr. Deputy Stevens, to the western district; but there are several candidates in the field.

The Queen Dowager has been graciously pleased to transmit the sum of 20l. in aid of the funds for erecting a new chapel in the neighbourhood of Chelsea Hospital. Her Royal Highness the Duchess of Gloucester has contributed 10l. towards the same object.

His Grace the Duke of Northumberland has given the sum of 50l. in aid of the enlargement of the Berwick Charity School.

HOPE'S VENTILATION.

TO THE EDITOR OF THE BUILDER.

SIR,—As your correspondent J. T. Hope wishes to see his warming and ventilating project (as given in the last number of your excellent Journal) become generally adopted, perhaps he will explain more fully the construction of his stove-grate, how the hot air is admitted into the flues? and in what manner the cold air, &c., are connected with the stove and hot air flues, when ventilation only is required.

Although the drawings given are sufficient to give a general idea of the method, they are not sufficient, in my opinion, to be of any essential service in carrying it into execution. Wishing you every success in your spirited undertaking, I remain your obedient servant,

E. S.

Exeter, April 18th, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—In your valuable Journal of last week, I find that a gentleman of the name of J. T. Hope, very liberally gives two plans and sections of a chapel and a cottage, in which he has introduced my patent warming and ventilation plan. This gentleman, like many others, is no doubt unacquainted with the principles of my patent; if he had been, or if he had seen my patent apparatus in operation, he would not have called it his invention; nor would he so liberally have offered it gratuitously to the public for general use. If Mr. Hope will take the trouble to call upon Messrs. Fry & Co., 130, Fenchurch-street, City, he will there find a fire-grate in the lower part of the warehouse, which is fixed, and also a larger one above. He will there likewise learn that formerly three common fire-grates and one of Harper's stoves were found insufficient to warm the said warehouse. To satisfy the gentleman in question of my exclusive claim to the above invention, and to prevent any litigation with parties who might unwittingly infringe my patent right, I enclose to you a pamphlet, with letters, from which you are at full liberty to extract what you may deem necessary in corroboration of my claim. With great respect I remain, Sir, yours, &c.,

April 20th, 1843.

F. A. BERNHARDT.

[Mr. Bernhardt has forwarded us many testimonials of valuable import from architects and others in favour of his plans, which we may reprint at a fitting opportunity; but we may mention the names of Barry, Burton, Donaldson, Hanson, and Drs. Grant, Toulmin, &c., as having contributed them.]

TO THE EDITOR OF THE BUILDER.

SIR,—Would you have the goodness to inform me which is the best evening drawing school for a carpenter who wishes to obtain a knowledge of staircases as well as a moderate knowledge of architecture. I have attended one at a Mechanics' Institution, but find it deficient in respect to staircases. If you would have the condescension to favour a humble mechanic with the information, you will greatly oblige your humble servant,

13th April, 1843. A CONSTANT READER.

We dare not take upon ourselves to say which is the best school for the purposes inquired of by our correspondent, nor can we pretend to much information on this point. We should be glad to be able to say more, and so to benefit those who are devoted to giving instruction, as well as those seeking instruction in this way; but the only drawing master of the class referred to who has been near us is Mr. Cade, whose advertisement is in No. 3 of THE BUILDER, from which we might infer that there is a great paucity of schools of the kind inquired after. We are not surprised at the remark of a Constant Reader concerning Mechanics' Institutes. We have no objection to take to them; on the contrary, have supported them in many ways; but they are much too general in their character to be of real utility to builders. What we want are BUILDERS' INSTITUTES. Building art and science are so comprehensive, as to require not a class room of any general institution, but a hall and class rooms of its own. However, in reply to our correspondent, if he should hear of nothing more to his mind than we have already offered to him, we will engage, as becomes us, to promote his views and those who think with him. Let only twenty young men send in their names to THE BUILDER office, as being desirous of forming a class, and we will take care very shortly after to bring forward a person of first-rate qualifications to instruct them in plans, estimates, architectural delineations, geometrical construction, &c., such as is fitting for their station; and we will also see to every other arrangement being made complete.

LETTERS UPON ARCHITECTURE AND DUBLIN ARCHITECTS.

No. I.

TO THE EDITOR OF THE BUILDER.

SIR,—As a builder and a subscriber to your very interesting (and to our class) very valuable work, I beg leave to submit a few remarks upon what is supposed to direct us in our career of business, and the men who are supposed to direct us, namely, architects. In Dublin we have some half-dozen of "out and outers," with a city knight as their leader (who would not afford to pay the expenses of a baronetcy), who has made money in his hard-working days (being originally a builder's clerk) by strict attention to the arts and the ladies, bless them; this fortunate imitator of Palladio (being a faithful copier of his works) determined to make the profession respectable in Dublin by deluding the aforesaid half-dozen of out and outers to form a society of Irish architects, to extinguish and send roving about the world every unfortunate brother chip who did not join them. Their rules were as ridiculous as their society, as the sequel will tell; woe to the architect that would give plans under 2½ per cent., superintending under 5 per cent., all expenses to the country being paid, together with 3 guineas a day, allowed while travelling, for the worthies of the R.I.I.A.*; and 1 per cent. for detailed estimates, together with sundry other little details not worth specifying. The coterie was formed, and sundry meetings took place, and sundry votes of censure passed upon the government for having foreign engineers over the Board of Works, Shannon Commission, and Ordnance Departments, and sundry resolutions passed, seconded, and determined upon; also sundry little apings at the movements of the Society of British Architects, with many other sundry little nonsensicalities that may be set forth in letter No. 2. This juvenile affair, alas! was nipped in the bud, the rules could not be kept up, the Irish gentry were too poor to pay such fees, and the combiners were obliged to surrender or break up; but how did they? not to their credit, I can assure you: let, they entertained at a public dinner their knighted president, which those as could attend, and those as couldn't did not, 30s. being considered better in some people's pockets than making fools of themselves; they 2ndly found out, by an arbitration left to two of the aforesaid "out and outers," some matters not very creditable to an architect, which were proved home to their now disrespected president, by an erasure in a specification, which was the cause of making a bankrupt of a most respectable builder, where a noble marquis was the defendant; since then nothing has been heard of the Society of Irish Architects, and to show you their inconsistency, there is not a building of any note, when a premium is advertised for plans, but some more or less of the said defunct society does not put in for; recently a building was advertised, stating that 20 guineas would be given for the best, and 10 for the second, and would you guess how many designs were submitted? why, no less than twenty! Four out of that number were the before-mentioned "out and outers," and one (the most aristocratic of the late defunct society) was awarded the second premium, a young man who served his apprenticeship to a provincial architect being awarded the first. So much for the members of the late Royal Institute of Irish Architects.

CAVETTO.

Dublin.

We have inserted the foregoing letter as we received it from our correspondent, but we do so on the principle of deprecating its tone, and of most effectually doing so by giving publicity to first efforts in this way. Granting that the facts are as represented, we would suggest that a work like THE BUILDER will not be most profitably occupied by such a mode of discussing them as that herein adopted. There may have been errors in the management and conduct of the Irish Society of Architects, and the individuals of that society may be vulnerable to many charges of inconsistency and unfairness, as no doubt the sister society and its members here in London are, but the principle of incorporation we hold to be good; we only quarrel with the half-working and half-carriings-out of the principle. We shall be very glad of our correspondent's favours and information, but he will permit us to advise him to avoid all personalities. Let him attack the vicious working or inconsistencies of societies, but respect the persons of its members. Let him give credit to others as well as himself for being actuated by right motives; and, above all things, let him be sure that he has done the best in his own power to be so actuated himself.

* Royal Irish Institute of Architects.

THE AERIAL MACHINE.

A "Wellwisher and Constant Subscriber" is not content without, as he says, a little grumbling at our award, which made him the loser of a wager: he contends that the machine, as depicted in *THE BUILDER*, is not seen from underneath, as we stated; we will, however, endeavour for his satisfaction, and that of numerous readers, to make the matter clear, which it is rather difficult to do from the drawing alone. In the first place, let the spectator suppose himself standing on the left side of the field of view, and that the machine is going away from him, far over head, and bearing to the right; he sees the machine then as he would a huge bird from the rear, the tail towards him, and the wings wide expanded out on each side. Our correspondent is mistaken about the convergency of the lines; if he will apply a rule, he will find that the extreme ends of the wings vanish in an horizon under the picture, and with reference to the upright standards, it should be noted that they go under as well as above the plane of the wings; however, let the spectator get a clear notion as we have put it, namely, that the machine is "going a-head" from him, but bearing to the right, and that he sees it from underneath, and we then think the mystery of the drawing will vanish.

We may say a word as to the circles which some do not understand; these will be understood as being the vanes or propellers in rapid action exhibiting themselves as plane circles—those who look at a wheel in quick motion will perceive the same effect.

We have not committed ourselves to any opinion as to the probability of the success of this particular machine, and we should think it especially impertinent and presumptuous in us to do so. We have been much amused at the grave calculations of our contemporaries, who have resolved it into a simple question of arithmetical calculation, and proved by figures its impossibility; but we question whether they have got all the figures, and if we suppose one or two little items left out, we all know what must become of the calculations. For our parts, we are as firmly convinced of the practicability of man's imitating the aerial as the aquatic travellers. It has been objected by some that the air is not man's natural element; to which we reply, neither is water. It was objected to us many years ago that there was a difference in aerial and ordinary navigation—that in the latter we ride in one medium (water) and are propelled by another (the wind), while in the former we ride in and depend upon the same for propulsion. This argument is done away with by steam, and the analogies of sailing in air and water are now well established; the supporting bodies are only fluids of different densities, and when we see iron floating in the one, why may we not look for it in the other? We contend that there are no physical impossibilities in the case; all we require is a proper machine; whether Mr. Henson's be that we do not undertake to say, but we shall look confidently for a few years to reveal to us a successful accomplishment of the project. We caution the prophets to leave wide loop-holes in their predictions, or we may soon have the laugh against them, as the experience of railway and trans-atlantic travelling have served to supply against the calculations of our Rastrieks', Lardners, and others; figures go for any thing or nothing, according as you have the facts to base them upon.

NIXON'S STATUE OF WILLIAM IV.—This fine statue is to be placed at the end of King William-street, at the city end of London-bridge, towards which the front of the statue will be directly placed. The execution of this work was intrusted to Mr. Nixon (with whose beautiful statues in Goldsmith's hall most of our readers must be familiar) by the Common Council, who voted 1,600*l.* towards the expense of the statue; to this the Commissioners of Sewers added 600*l.* more. The whole credit of originating the statue is due to the citizens of London, whom we are rejoiced to see becoming liberal patrons of the Fine Arts. The material of the statue is granite, and in that respect it will be unique. The art of working this difficult material to a fine surface may be said to have been discovered by Mr. Nixon; and the excellence to which he has brought it is such that it equals the specimens of the Egyptian method of working it, of which the finest examples may be found in Lord Prudhoe's lions in the British Museum.

RINGWOOD ALMSHOUSES.

We beg to call attention to a letter on this subject also; some abuse would appear to have been practised in this case as well, and these abuses, now that alms-houses are on the *tapis*, must be nipped in the bud. It is of little use that the legislature should have been checking one set of abuses in the administration of public charity trusts, if we are to have another set of abuses substituted for them. We shall be glad if our correspondents will furnish us with the necessary information sought for by the letter referred to.

April 11, 1843.

Sir,—I trust you will be able in your next number to give us the same information, as to who was the successful competitor for the alms-houses at Ringwood, as you have in the case of those at Spalding. To the unsuccessful candidates it is satisfactory to know by whom they have been defeated; and as a general principle, I consider it very desirable that publicity should be given to the results of competitions, as it may have a tendency to check any attempt at unfair dealing, which we know to be, unfortunately, too common in such cases, arising in some instances from a wish on the part of persons acting as judges to serve their friends, and in others from their incapacity to decide on the merits of the designs submitted.

I do not of course intend the above remarks to apply in this case, but I cannot help thinking that no time has been lost in the matter, inasmuch as the letter sent with the plans which were returned to the unsuccessful competitors, was dated March 18, and in the *Times* of yesterday I see an advertisement to builders to tender for the works, in which it is stated that the quantities have been taken out by a competent surveyor, so that the drawings and specification, as sent in, could have required but little attention (which is not very common in such cases), or the surveyor could have had but little time for his estimate.

I am, Sir, your obedient servant,
A CONSTANT SUBSCRIBER.

FREEMASONS OF THE CHURCH.

Sixth Chapter, held on Easter Tuesday, April 18.

THE Rev. George Pocock, B.C.L., Vicar of Hailsham, Sussex, in the chair.

The discussion of the laws being resumed, one of the chaplains proposed that before the commencement of business at any chapter, one of the chaplains present should repeat a short collect; and that the college, on the anniversary of its foundation, attend divine service in some cathedral or other church.

James Field, Esq., architect to St. Thomas's Hospital, Southwark; F. Bushell, architect, of Mortimer-street, surveyor to the Earl of Craven; and—Perry, Esq., architect, of Spencer-street, Northampton-square, were elected architectural fellows.

The Rev. F. P. Pocock, B.A., one of the chaplains, was elected Latin secretary. William Papineau, Esq., of Bromley, was elected professor of architectural chemistry.

Four casts, taken by the late Mr. Flaxman, R.A., from sculptures in the chapter-house of York Minster, were presented by Henry Stothard, Esq., F.S.A.; to whom and to several other donors the thanks of the college were ordered to be given.

The secretary having received by post a specimen of asphalt, one of the properties of which was stated to be, when applied to roofs, the prevention of fire, test thereof was made by placing the specimen upon the fire of the room, when it was found to blaze in a manner which would no doubt have been very edifying to our correspondent "Heart-burn Fire-brand."

ST. PAUL'S CATHEDRAL AND FEES.

TO THE EDITOR OF THE BUILDER.

Sir,—I wish to call your attention to the fees exacted in our cathedrals. It is in the metropolitan cathedral that the system of fees is still found to exist in the greatest perfection; there is a fee for the body of the Church—a fee for the choir—a fee for the whispering gallery—a fee for the library—a fee for the clock-work—a fee for the great bell—a fee for the little bell—a fee for the ball at the top—a fee for the vaults at the bottom; wherever an Englishman would examine, in any corner of his own national church built by the contributions of his ancestors, he is met by a mob of money-takers, check-takers, and the like, vociferating *fees! fees! fees!* As a list of those fees cannot but prove ac-

ceptable as a curiosity, I subjoin, for the benefit of the public, the latest edition, published by authority.

Entrance at the North Porch.	..	s.	d.
Exterior Galleries including Whispering	..	0	2
Gallery	..	0	6
Library	..	0	2
Model of Trophy Room	..	0	6
Clock and Bell	..	0	4
The Ball	..	2	0
Vaults	..	1	0
A curious Geometrical Staircase	..	0	2
Total	..	4	10

Is not this disgraceful? Is there not something indecorous, not to say worse, in converting the house of the Most High into a means of extortion? If the public cannot be gratuitously admitted at least to the body of the church without danger of injury to the monuments it contains, let them be excluded altogether; but if, on the contrary, they can be admitted, as it has been proved in the case of the British Museum, National Gallery, and Hampton Court Palace, they may be, without the slightest danger; then, in the name of common sense, abolish those mean and sordid twopenny exactions, and let the poor and the sorrowful strengthen their good resolutions or soothe their thoughts in the temple devoted to God's service without being disturbed by the voracious demands of the "money makers."

VIATOR.

THE LONDON WOOD-PAVING COMPANY.—The mode adopted for the formation of the London Wood-Paving Company is of a nature so uncommon as to call for particular notice. Instead of relying upon the announcement of a number of high-sounding names, at the head of a prospectus, whose possession might be assumed to have satisfied themselves individually of the feasibility of the plan, and of its certainty of success—assumptions too often most unwisely made—this Company is constituted upon the real merits of the undertaking. A very large proportion of the shares intended to be issued were subscribed for, at the outset, by parties who made a deliberate inquiry into the peculiar advantages of Perring's Safety Wood Paving, as well as the details with which it was proposed to be carried into profitable operation. Fully convinced by their investigation, these subscribers proceeded to hold a general meeting; and, after a public examination of the objects of the Company, the means of accomplishment, the manner of carrying them into effect, and the inevitably successful results that must ensue, they very properly selected from among themselves a Board of Directors, highly respectable as principals of firms and men of business, and conversant with the duties which the practical nature of their own occupations must render them eminently qualified to perform. The subscribers, having thus exercised an undoubted privilege, further evinced their judgment by appointing Mr. Lee Stevens to the office of superintendant; a gentleman who, from his great practical experience in wood paving, his celebrity as a lecturer and writer on the subject, and his well-known industry and perseverance, must carry with him more than the common elements of success, into an undertaking in every other respect deserving of public encouragement.—Correspondent.

WOOD PAVEMENT.—At the meeting of the Society of Arts last Wednesday, Mr. Davis described his stereoscopic combination as applicable to wood pavements. It appears that this wood pavement—a sample of which is laid down in Lombard-street—is composed of single and compound rectangular prisms, the size of which is varied according to the purposes for which the pavement is required. For barns and other places where the floors sustain a great weight, the blocks are cut in an oblique direction, which prevents any lateral pressure against the abutments. In order to facilitate the laying down of this pavement, six blocks are wedged together in a frame, and as each block is thus supported by the six surrounding blocks, it would take a force equal to several tons to drive any of them out of their position. In adverting to the great objection to wood pavement, the slipperiness of its surface, he proposed that the vertical fibre of the wood should be shewn to the horses' feet, and deep grooves cut on the surface of the blocks by a machine which he has invented for the purpose. The expense of removing the blocks so as to obtain access to the water-pipes and gas-pipes under the surface, so constantly required in our public thoroughfares, has been often urged as an objection to the general adoption of wood pavement. Mr. Davis says he has removed this difficulty by running a frame about eighteen inches wide, composed of these blocks, up the centre of each street; this frame can be soon separated from the adjoining parts of the wood pavement, and when the mass is thus dislocated, particular blocks can be detached with great facility. When the pavement is required for public halls and similar places, he suggests that the block should be cut from cassia and lime trees, which would give the flooring a varied and agreeable appearance.

THE BUILDER,

NO. XII.

SATURDAY, APRIL 29, 1843.

WE have at considerable pains procured for and laid before our readers the draught of the proposed bill for the Amendment of the Metropolitan Building Act. The importance of such a measure at this time can hardly be overrated, and, although we are not inclined to take much exception at it, we think it should be narrowly scrutinized by those whose interests are to be closely affected by it.

Although to many of our country readers the subject may not be of large interest, yet we shall be readily forgiven by them, inasmuch as it will be recognized as our duty to seize hold of every occasion of this sort, even when a smaller number of individuals are concerned, and to enable that number effectually to meet the exigency which a circumstance of this sort is calculated to involve them in. But this Building Act will, in our opinion, have a more influential bearing upon the provinces than any of its predecessors. It is drawn up with more attention to the present state of general building science, and is no doubt regarded by its framers as a prelude to the introduction of a general measure, at least for the majority of the large towns of the empire. The question of width of streets, rates of building, and the consequent scale of construction, as to foundations, walls, &c.; the question of sufficient drainage, of the ventilation of dwelling apartments, and the general question of supervision and survey, will all no doubt be pressed upon the consideration of the authorities in provincial districts—and it is high time they should be. It will therefore be not regarded as so much waste paper that we have given a reprint of this important bill. It is to be brought into the House of Commons by Lord Lincoln and Sir James Graham; and as there will probably be no time lost in forwarding the measure, it behoves the building world, owners of property included, to discuss its provisions in time, and endeavour to engraft upon it such amendments or additions as they think desirable and practicable. There is not the least doubt of such suggestions—put in the right way and in the right spirit—being attended to, and it will not be presumed, we are sure, by any of the movers in this measure, that it is so perfect as not to require the exercise of other minds who may judge of it under different aspects.

If we have any particular remark to offer at present it is, that we do not see a sufficient provision for meeting those exceptional cases that will undoubtedly occur in this age of improved structure. It is inseparable from matters of legislation upon such subjects that they should be based upon the assumption of a permanent principle; that, for instance, all rules and ordinances should proceed upon the present building practice, without regard to what may become the practice next year, or next ten years; but we think it pretty clear that in one or two respects considerable change will take place, or be attempted; and if such should be the case, then we say we do not see in this bill a sufficient discretionary power to admit of the improvements which that change may be the means of favouring us with. Take, for instance, the question of warming and ventilating our dwelling-houses. It is provided in this bill that all apartments for habitation shall have a fire-place and a

window to open. As far as the latter point goes, it may be always very well and very desirable, but we question whether it will be so as regards a fire-place. The object being to secure a ventilating current, in which the chimney and fire-place so materially contribute, we apprehend that the rule is made stringent with that view; but we submit that many other modes of fueling the walls, and of carrying off foul air, as well as of supplying fresh air, will be introduced, and that, in fact, the philosophy of ventilation has been but clumsily regarded in this provision. Take again the regulation as to walls. Why, we may have iron frame-work introduced with concrete filling, and probably encaustic tile or brick facings,—the application, in fact, but with different materials, of the old principle of post and pane work, or timber framing and filling in. We have had before us for a long time a suggestion and complete plans for this sort of structure. Altogether, however, we think this bill an excellent measure; it is more worthy the name of a Building Act than any preceding measure; and, indeed, we despair of seeing any thing better until a legislative council of architects, surveyors, and builders, on some after day, are empowered by the charter of their incorporation to submit such a measure, matured and complete, for the affirming fiat of the supreme legislature.

One thing, however, as regards the owners of house property, for we must not look at every thing with a builder's eye merely—that is, with a narrow and selfish purpose. Let us hope that this class of our friends, of those upon whom the building class are so largely dependent, whose interests and ours, in fact, so largely reciprocate, let us hope that no vexatious or oppressive enactments, or any thing likely to work in this spirit, will find its place in this bill. It is highly necessary that extensive improvements should be made, both in public and private drainage, but it is equally necessary that, in carrying out those improvements, we should not tax the house owner in any wanton or inconsiderate manner. Great depression has of late been experienced in house property, and it would be a cruel aggravation of the evil, if the greatest possible care were not to be exercised in carrying out the provisions of this Bill, which have a retrospective tendency.

With regard to the appointment of the official referees—the three architects to whom disputed matters are to be referred—we could wish that the right of nomination had been vested in the Profession, and the confirmation only with the Secretary of State; the appointment is one of high import, and its honourable character would, in our opinion, be materially enhanced by making the distinction one to be conferred upon the leading members of the Profession by the discrimination and the suffrages of their united brethren.

We wish that as well as enforcing the salutary regulation in respect of private water-closets, that the suggestions of our correspondent, Mr. Booth, for public ones, and for urinals, could be included in this Bill. We think it ought not to be overlooked.

There is a good deal of very useful matter, which the general builder and workman will find an advantage in perusing—the table of scantlings we think a very good one in most respects, and altogether we do not regret, nor do we think our readers will, to have occupied so much space with it. We believe the document will have merit as a work of reference at all times.

We are especially thankful to the gentleman to whom we are indebted for much assistance in procuring a copy of the Bill, and for the other information with which he has favoured us. We learn that a special meeting of the Committee of the Master Carpenters' Society is summoned for Tuesday next, at the Freemasons' Tavern, to take the matter into consideration. Already the signs of activity in canvassing for new appointments are beginning to be exhibited. We observe from the papers that Mr. H. E. Kendall has put forth his pretensions for the district of Hampstead.

BUILDERS' DRAWING SCHOOL.

WE have elsewhere inserted a letter on this subject, and have had four other names subscribed in consequence of what we said last week under this head. We have no doubt of having the twenty names directly, and we consider this a very important beginning; to what it may give rise it is not for us to conjecture or concern ourselves about—all in its own matured time. For the present we have to make provision for so far as we see, and although we are prepared with a gentleman at our elbow to enter upon the duties that would devolve upon him, and for which he is highly qualified, yet, as we have no purposes of our own, or any other private purpose to promote, and as we are greatly anxious to put the right hand to the work and in the right place, we now invite any other gentleman to favour us with his credentials, and to enable us to judge of his qualifications, assuring him that the post he is invited to aspire to fill will be none of the lowest in the scale of honour and responsibility. A word as to the plan we would pursue. This school should not be a mere drawing school; there must be a collection and classification of models, books, &c.; and much of the modelling or model-making done by the students, so that they may put in practice at a bench, under proper instruction, what they acquire by theory and by lines. It must not only be a carpenters' school, but a general builders'—so that the mason, bricklayer, plasterer, painter, &c. may be well instructed in that which bears upon their respective arts, and acquire a practical skill in drawing and composition. With the support we shall have, we have no fear of doing much good service; but it will be manifest that architects and master-builders may most materially assist this work by contributions of models, &c.; and we shall be most happy to receive such and acknowledge them through THE BUILDER. Let it be understood, too, that we merely take the initiative in the business, we shall be glad to resign to able hands the conduct of the work when it is so far matured as to meet their approbation.

WEST INDIES.—Trinidad, March 1.—A splendid cathedral of the second order of Gothic, has been lately erected. It is 240 feet in length, 120 feet in width in the transepts, 80 feet wide in the nave, and 80 feet in height to the ridge of the roof. It has cost about 50,000*l.* sterling, 16,000*l.* of which were munificently contributed by the government, besides granting the permission to take from the government quarry all the stones necessary for the walls; and to cut on crown lands all the cedar and other timber required for the roof and the interior decorations of the sacred edifice. A suitable college and a large and commodious convent have been established. Since 1828, nineteen new churches, twenty-two new chapels, and several new schoolhouses have been built; there are, at present, six new churches and chapels building.

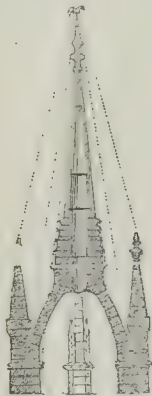
BLACK MARBLE CHIMNEY-PIECES.—The bituminous carbonate, or black marble of Derbyshire, takes a very high polish, and is wrought into chimney-pieces and a great variety of useful and ornamental articles, which are often embellished by figures, the manner of producing which is as follows:—The subject is sketched upon the marble, and those parts intended to retain the polish are covered with a varnish which will resist acid; when the varnish is dry, the article is immersed in a solution of sulphuric acid and water. This decomposes those parts of the marble uncovered, and when sufficiently corroded, it is washed in clean water, and the varnish removed with spirits of turpentine; the corroded parts will be of a lighter colour, and without polish, producing a pleasing contrast.

OF ABUTMENTS.

MUCH of the failure in modern edifices results from the defective nature of their abutments.

The abutment must always be sufficient to sustain the weight, thrust, or moving power, which it has to resist; and it should be more than sufficient; otherwise the slightest accident, as additional weight irregularly disposed, yielding of foundation, sudden emergency or shock, will render it insufficient. Thus the limbs of two similar arches, meeting upon one pier, afford an abutment to each other, of the most perfect kind: but if one of the abutments, supporting the other limb of one of the arches, be so weak as to cause one of the arches to give way, the other arch may also lose its exact equilibrium. Again, if one of the arches have upon its crown more weight than the other, the other arch also may be made to settle irregularly; hence it becomes necessary, that besides undiminishedness of foundation, there must be abutment sufficient to resist all accident.

The most perfect system of abutment is that which is in all respects equal: thus, for instance, the inclined sides of a hollow conical



or pyramidal steeple afford abutment of bulk, inclination, certainty of material, and weight, equal to those of each opposite side; and the entire circuit of abutments gives to the whole perfect equilibrium, which nothing but violent accident, or undue settlement at the foundation, even in the slightest degree derange; and even after such settlement has taken place, frequently no fracture is observable: hence a steeple, consisting of four or more open buttresses, at which the moderns shake their heads in fear and trembling, is a more safe and certain mode of construction than modern square towers, which, by the slightest settlement, have a tendency to fall apart, and overhang, and after that to fall to premature decay, merely by the weight of their materials.

Thus the circular drum beneath the dome of Saint Paul's is conical, settlement tending to consolidate its whole circuit of counter-abutments, and its form adding great charm to an internal perspective of the building,—while the perpendicular drum under the cupola of the boasted Basilica of Saint Peter, at Rome, is split in many places down to its very base, by the gravity and outward thrust of the cupola above it.

Perhaps there can hardly be found in the world a specimen of exact counter-abutment more beautiful than the twelve stone curved ribs (forming a skeleton dome), which rise in a circle from the columns to the upper work of Bow-steeple, Cheapside. They may indeed afford a lesson in the art of constructing real domes, for they shew with what safety ribs may be raised from piers, which may support a roof of slabs of stone, which may be lapped over each other so as to prevent the penetration of rain, which will ruin any ordinary dome, the joints of which radiate to the centre of the curvature; and while the masonic stone work of such a skeleton dome might settle considerably in each distinct rib without shewing any flaws like those in the dome of the Vatican, even the weight of the stone covering slabs may be made to act in some sort as a counter abutment to each rib.

Dr. Hutton, in his History of Iron Bridges, gives the following curious account of the failure of the iron bridge at Staines, which appears to have been almost exactly poised upon its abutments, and to have failed, either because there was no excess of gravity in the abutments, or because their gravity was not made to operate directly against the active force of the arch.

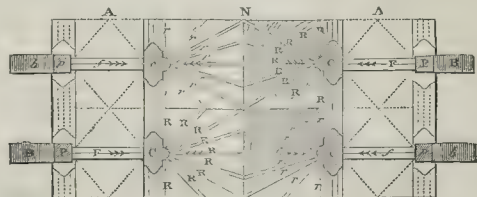
"From the completion of the above bridge" (viz. the iron bridge over the River Parret, at Bridgewater) "few of any note were executed in this country, till about the year 1800, when the stone bridge erected over the Thames at Staines gave way. On this occasion the magistrates of the counties of Middlesex and Surrey came to a resolution to erect an iron bridge there, on the abutments of the stone bridge, the piers of which had failed; and Mr. Wilson, the agent of Mr. Burdon, was employed for this purpose. He accordingly undertook the construction of an iron arch of 181 feet span, with 16½ feet rise or versed sine, the arch being a segment of a circle. In this bridge the ribs were similar to those of Wearmouth; but instead of having the blocks, of which the ribs are composed, kept together by worked iron bars, let into grooves in their sides, the rings of the ribs were cast hollow, and a dowel was let into the hollow ring at each joint, so that the two adjacent blocks were fixed together by this dowel, and by keys passing through the rings. The ribs were also connected transversely by frames, instead of pipes, as in the Sunderland bridge. The haunches were filled with iron rings, and the whole was covered with iron plates.

"It is to be noted, that an iron arch, in small blocks, is not set up after the manner of a stone one, by beginning at the abutments, and building upwards; but is begun at the top, and continued downwards; it being easier to join the stone to the iron, than to cut the iron at the top, if it should not fit. It is somewhat remarkable, therefore, that when these ribs were put together, and before they joined the masonry, it was so nicely balanced, and its parts were so firmly locked together, that after all the supports were taken out, except those next the abutment, the whole was moved by a man, with a crowbar under the top, and it seemed to have little tendency to push the abutments asunder. This, however, turned out unfortunately not to be the case. The centering was taken away, and the bridge was opened for the use of the public, about the end of the year 1801, or beginning of 1802. At first it seemed to stand firm, and the public were much pleased with its light and elegant appearance. But in a short time it was found that the arch was sinking; and soon after it had gone so much, that it was obliged to be shut up, and the old bridge opened again. The sinking of the arch broke several of the transverse frames, and many of the radii at the haunches; which left no doubt that the abutments had given way. But on examination there appeared no visible sign of such failure: there was not a crack in the masonry, nor had they gone out of the upright. After much investigation, however, it appeared that the whole masonry of the abutments, to the very foundation, had slid horizontally backwards, still preserving the perpendicular, or upright position. The failure took place in the south abutment, which was supposed to be owing to a cellar, that had been made in it. The inhabitants of Staines, therefore, by the advice of an engineer whom they had consulted, had this abutment strengthened: but

no sooner was this done, than the north one failed: and they had intended to strengthen this also; but their funds being nearly exhausted, they came to the resolution to take the whole down, and erect a wooden bridge in its stead."—*London Edition*, A.D. 1812, p. 149.

Were it the author's wish to prove, by one example more striking than any other, the falling off of science in the absolute practice of architecture, in these times of pretended superiority, in which the ill-taught practitioner who wishes to pursue the integrity of his art, is obliged, after he is turned adrift by his master, to re-educate himself as far as he is able, by picking up whatever scraps of scientific information may fall in his way, instead of receiving from his master at once the full depth of skill which the freemasons for centuries handed down from father to son, from master to pupil, without diminution and without reserve,—he would fearlessly instance the most singular advancement which the mid-eval architects seem, by nothing short of inspiration, to have made in the most delicate acquaintance with architectural dynamics; a knowledge which taught them at once to unite in their abutments, strength with economy, use with beauty: while in our ignorance we fancy that strength and economy are enemies of each other, and that use and beauty are of necessity opposite qualities. This refined intelligence taught them to render every necessary part of their constructions such exquisite ornaments, that the ignorant modern looking at them, without knowing their use, fancies them to be merely ornamental.

They first began in their vaultings with reducing the lateral thrust of the work to the smallest limits, by cutting out all the otherwise more level and hazardous parts of the vaulting, so that what remained scarcely left its perpendicular bearing upon the walls: they next greatly reduced further the weight of the vaulting, by forming it of small stone ribs, with a mere thin cuticle of lighter materials in short and narrow panels between the ribs; and whereas in our modern brick vaultings, the groin-points are weak by their bond, and are still weaker from the soft and inferior nature of the bricks of which they are composed (vulgarily termed "cutters," and wholly unfit for the purposes of any good work), and we know scarcely any thing of the dynamics of such a vault,—the mid-eval builder put all the strength in the ribs, strutting his ribs across as he deemed necessary, and made every strut a beauty, conducted the active force down those ribs as easily as water is conducted down a pipe, and then instead of leaving the active force within each rib to expend itself in committing unknown and unrestrained damage to the walls of the fabric, he united their force in one point so that he could deal with it as an active power well ascertained; then knowing by the laws of the resolution of forces the way in which the united thrust of the ribs would move, he counteracted by the smallest possible quantity of materials set in the form of flying buttresses, pinnacles, and wall-buttresses, that force which unrestrained might have endangered the walls. Thus by making use of only a small quantity of materials every particle of which was brought into active service, he was enabled to carve, ornament, and enrich every part of his fabric out of those funds which we ignorant moderns expend in raising coarse masses which perform no duty, or ill-directed, either waste much of their weight and strength, or else employ it in rending and dilapidating the fabric.



N. Nave

A. Aisle.

R. R. Arc ribs of the vaulting, the several thrusts of which all uniting at the centre C, the dynamic action is confined to one point tending to move from C to F.

F. Flying-buttress, falling against the point C in the direction exactly suited for opposing the united thrust of the vaulting-ribs.

B. Wall-buttress from which the flying-buttress springs. P. Pinnacle.

The small letters indicate the repetition of sets of the same parts belonging to other divisions of the vaulting.

The author comes now to a department of the Dynamic Knowledge of the Gothic Archi-

fects, which as he believes it outstrips in combination of skill and beauty, all other efforts of the architectural practitioner, ancient or modern,

affords him matter of surprise, that as far as he knows or remembers, it has not been noticed by any previous writer.



The manner in which the Gothic architects conducted the active force of a vault to one place, and then with practical certainty counteracted that force by a small quantity of materials placed exactly in the situation proper for the purpose, has just been shown: it is now proposed to shew the wonderful manner in which the flying-buttresses, the wall-buttresses from which they spring, and the surmounting pinnacles, are together disposed, so as with the most delicate union of the extreme of beauty, to unite the most wonderful economy and such a knowledge of mechanics as will in vain be sought for in any other description of buildings.

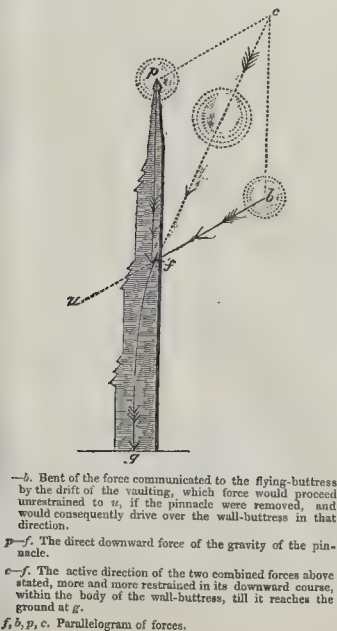
Having found out exactly the precise place where the active force of the vaulting was pressing against the wall, they distended the

flying-buttress or arc-boutant widely at that part, in the same manner as a modern carpenter in temporary shoring places a board flat against a dangerous wall; they then gradually concentrated this distention of the wall-thrust into one point, where the flying-buttress joins the wall-buttress: thus they concentrated at the head of the wall-buttress all the active force communicated by the vaulting, in the same manner as in wrestling all the force received by the arms becomes concentrated in the spine, pressing its vertebrae closely together: but then as the operation of this force, would have required the wall-buttress to be

made sprawling out to a vast distance from the wall in order to prevent the active power from throwing it over, they changed the course of the active force, simply by running up the head of the wall-buttress in the form of a pinnacle, which having only a direct downward gravity, by the resolution of forces, so changed the course of the active force, that it could be confined within the body of a buttress of comparatively moderate dimensions,—the downwardly-increasing gravity of the wall-buttress in fact mingling with the force communicated to it, curved the direction of the force more and more inwards, till it was eventually rediffused horizontally over the broad foundation of the buttress, and was from thence communicated to the earth itself. Thus pinnacles, which are vulgarly considered merely as ornaments, became the most refined instruments in the economy and security of ecclesiastical and other buildings, and like the position of the human head, had a most material influence upon the stiffness and activity of the whole frame. With this knowledge, it was, that the Gothic architects proportioned the weight and size of their pinnacles, and when we see them assuming an extraordinary altitude, as at Worcester Cathedral, it is not from idle, wild, or luxuriant caprice, but because extraordinary means were required in order to change suddenly the course of an active power, which would otherwise have expended itself beyond the body of the abutment, and by displacing it, have brought to ruin the whole work.*

They did not always stop here, for knowing that there was a portion of the wall-buttress near the ground and adjoining to the side aisles, which received no thrust, and lay as it were dead, they cut out altogether, as at Gloucester Cathedral, some of our English Chapter-houses, Westminster-hall, and some of the Continental Cathedrals which have chapels set

* Rondelet, in his "Traité Théorique et Pratique de l'Art de Bâtir," shews that he had sagacity enough to find out the beauty of the whole management of the Dome of St. Paul's, and that he saw plainly the consolidating effect, which the weight of the covering of the Dome has upon the hollow cone; but it is singular, that this sagacity did not preserve him from in some sort deprecating the oblique meeting of the cone with its supporting piers; he did not perceive, that besides the enormous collection of surrounding buttresses which the great cone possesses, the perpendicular extension of the external peristyle above the foot of the cone, acts so as by the resolution of forces to materially change the direction of any expanding thrust which the base of the cone may possess, and to confine it strictly within the bodies of the first set of piers.

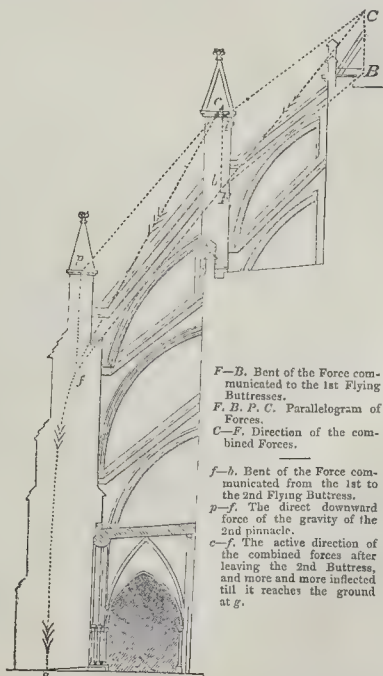


—b. Bent of the force communicated to the flying-buttress by the drift of the vaulting, which force would proceed unrestrained to *a*, if the pinnacle were removed, and would consequently drive over the wall-buttress in that direction.

P-f. The direct downward force of the gravity of the pinnacle.

c-f. The active direction of the two combined forces above stated, more and more restrained in its downward course, within the body of the wall-buttress, till it reaches the ground at *g*.

f, b, p, c. Parallelogram of forces.



F-B. Bent of the Force communicated to the 1st Flying Buttress.

F, B, P, C. Parallelogram of Forces.

C-F. Direction of the combined Forces.

f-b. Bent of the Force communicated from the 1st to the 2nd Flying Buttress.

p-f. The direct downward force of the gravity of the 2nd pinnacle.

c-f. The active direction of the combined forces after leaving the 2nd Buttress, and more and more inflected till it reaches the ground at *g*.

between their wall-buttresses;* so that in fact, the whole form, position, and management of the counter-abutments of Gothic vaultings, were like those of a human skeleton, placed in a leaning posture, with the bones of the legs away from the base, those of the hands and arms pressing against the moving part of the vault, with the skull erect to confirm and steady the spine, and the whole strengthened by sufficient flesh and muscle.

That the true mechanical office of the pinnacles of pointed architecture is as stated above, appeared to the author to be so evident, that it at once struck him after coming to the knowledge, that the double set of flying-buttresses on the south side of Westminster Abbey must be respectively inclined so as to receive within their solid substance the pressure of the vaulting; and that on account of the operation of the two sets of pinnacles, the lower flying-buttress must be set more uprightly than the upper one: this upon examination proved to be the case, shewing that if the original builders were not fully versed in the subject (which may be greatly doubted), Wren, who restored these buttresses, was so, and probably by his great scientific knowledge was enabled to adjust more accurately their proper positions. The great masters who had to do with this fabric could not avoid the great extra consumption of materials which arose from removing the great buttresses away from the wall out into the cloister-green, in order to leave room for the north avenue of the cloister: but having a difficult task to perform, they performed it with admirable skill, and with knowledge greater than is exhibited in many of the Continental Cathedrals, some of which have two sets of buttresses in order to admit side chapels.

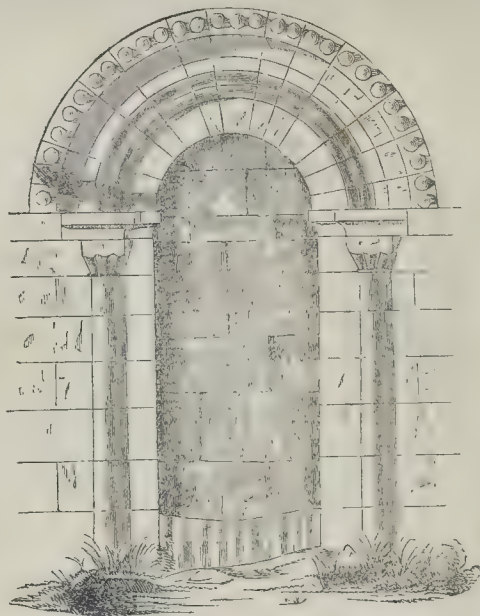
With what humility should we look upon our whole modern use of buttresses, pinnacles, and abutments, which we pretend are the results of a far outstripping science, and of an improved taste,—while men whom we have been in the habit of calling barbarians have in a dark age (more enlightened in many things than the best ages of Greece and Rome) at once mingled in their works, poetry, economy, taste, strength, and invention.—From *Essay on the Decline of Science &c. in Modern English Buildings*. By Alfred Bartholomew, Esq., F.A.S., Secretary to the Free-masons of the Church.

Literature.

A Descriptive and Historical Account of the Churches of the Division of Holland, in the County of Lincoln, with Illustrations, by STEPHEN LEWIN, Architect. T. N. Morton, Boston. Simpkin and Marshall, Ollivier and Weale, London.

Is all those who have the opportunity would do as much as Mr. Lewin has attempted for the district in which he resides, we should soon have a collection of great interest and importance referring to our ancient parochial churches. It would not require much of abstruse calculation to prove, that the combined purpose of such gentlemen as Mr. Lewin, upon something of the plan recommended by us in last week's number, under the head "Gothic Architecture," would be infinitely more economical and advantageous than the one upon which Mr. Lewin's public spirit and enthusiasm for his art has thrown him. Here at the non-remunerating charge of 1s. 6d. each number (when we consider the limited number of subscribers which such a work will command), Mr. Lewin has undertaken what the title purports, and we have No. XI. before us for December last, to which he had then attained. This work will circulate locally and among a few of the liberal encouragers of such enterprises; whereas it is entitled to, and ought to have a national circulation, and in return for Mr. Lewin's generous devotion to his labour, he ought to be kept in countenance by, and favoured with, the corresponding efforts of similar labourers.

* Mr. Savage, at the New Chelsea Church, has omitted the inactive parts of the wall-buttresses in order to admit a free passage in the dry areas which surround the basement-story of the edifice: but he has not changed the drift in the flying-buttresses; by placing pinnacles over the wall-buttresses; sufficient, the present wall-buttresses of the Church to be allowing the present combustible ceilings over the galleries of the Church might be exchanged for groined roofs of stone, and the addition of pinnacles would still confine the drift within the present wall-buttresses, notwithstanding the added drift of the new side vaults. More upon this subject will be seen in the author's papers on the *Broken Cathedral*.



NORMAN PORCH.

We are indebted to an esteemed friend for the above drawing of the North Doorway of the Nave of Tachbrook Church, Warwickshire; we commend it for its clearness and simplicity, as a good working example for the student in this particular style.

ENGLISH ARCHITECTS.

SIR CHRISTOPHER WREN.
(Continued from the last No.)

It may be supposed that the plans for the building had now been decided on, yet the progress was so slow, we are left to doubt that such was the fact; an opposition to departure from the form and interior disposition of churches in past times was maintained in the highest quarters, and the king, always singularly indifferent upon religious matters, hesitated to interpose his authority. Thus nine years were suffered to pass merely in clearing the site and in preparations; for it was not until 1675 that the final order was given to proceed with the new structure. Other causes, however, than want of unanimity have been assigned for the delay, namely, the non-productiveness of the coal tax imposed for this especial purpose, and the very moderate pressure upon the labouring hand, as compared with modern practice.

Inert as may have been the overseers and workmen employed under Wren, the tide of his personal activity had fairly set in, and for nearly half a century there was no intermission to its onward course; the quaint yet expressive summary of his labours given by Horace Walpole has not yet been equalled by any subsequent biographer: "the length of his life enriched the reign of several princes, and disgraced the last of them. A variety of knowledge proclaims the universality, a multiplicity of works the abundance, St. Paul's the greatness of Sir C. Wren's genius. The noblest temple, the largest palace, the most sumptuous hospital in such a country as Britain are all the works of the same hand."

In the interval preceding the laying of the foundations of St. Paul's he had other works in hand. The theatre at Oxford, built and endowed by the individual munificence of Archbishop Sheldon, was the first completed (1669). It was opened, we are told, by a most splendid act, and the architect presented by the founder with a golden cup, who in addition appointed him, jointly with the vice chancellor of the university, perpetual curator of the fabric. This building was celebrated for its geometrical roof, covering a space eighty feet long by seventy broad, without the aid of columns. The details of this masterly piece of carpentry are extant, but too elaborate for explanation at this moment. The erection of

the Monument on Fish-street-hill, commenced in 1671, by an order of the Commons, in commemoration of the great fire, and the rebuilding of the city, was also far advanced, and when finished, in 1677, was a realization of one of the many objects designed to ornament the new metropolis. The plinth sculptured by Cibber, still retains an inscription obnoxious from the moment the chisel had done its work at the bidding of a faction; national justice has been tardy in decreeing the erasure of the calumny, and we still labour under the reproach that

"London's proud column pointing to the skies,
Like a tall bully lifts its head and lies."

Wren's great work now proceeded with a steadiness that met no material interruption until the placing of "the highest or last stone on the top of the lantern (in 1710), by the hands of the surveyor's son, C. Wren, deputed by his father, in the presence of that excellent artificer, Mr. Strong, his son, and other free and accepted masons, chiefly employed in the execution of the work;" having occupied thirty-five years in building. We will not here attempt a professional description, or opinion of St. Paul's; its importance as the metropolitan church, and the particular era of its erection, being that of transition on the most extensive scale from the ancient style, has more than ordinary claim to a deliberate canvassing. We are told historically that the building is one of many designs submitted by the architect, and that finally he wrought out this, which by repeated alterations had been rendered less objectionable to parties whom it was necessary at least to conciliate, a disadvantage entitled to full weight in any estimate to be formed of his ability from the example in question.

Wren had also had it in command from the king to submit plans for laying out the streets and squares of the new city; the principal and secondary of the former he proposed should be ninety and sixty feet wide, and lanes thirty, to the exclusion of alleys; the north bank of the Thames, from London Bridge to the Temple Gardens to be formed into a splendid terrace, churches to be built in the principal streets, as easy of access, and suited to architectural display; the removal of all grave-yards, and the substitution of cemeteries to be marked out at a distance from the populous districts. There is indeed scarcely a feature of his plan

that, within little more than a quarter of a century, has not been adopted or proposed; though at the time the rights of property were successfully urged against it, and the combined laxity and profligacy of the government had left it neither energy nor means to combat opposition. But to revert to more tangible matter. The present, much more than any other intervening period since the year 1673, is one of church building; the fifty churches of London, exclusive of St. Paul's, built by Wren are therefore likely to excite more than usual attention—fifty designs carried into execution and superintended, the greater number simultaneously, and the whole within twenty-five years, by one hand and one mind! Nor are these to be likened to the puny efforts of a builder of conventicles; we have before us a classification of them, for which, though we do not vouch, we believe to be in the main correct; ten have no further peculiarity than great solidity of workmanship; ten bear marks of the propriety and elegance which distinguish his more elaborate works; and ten are free restorations of churches destroyed by the great fire; ten in classic character and skill in design and execution, are equal to any of similar pretensions in Britain; and ten are deservedly celebrated for splendour of elevation, the geometrical accuracy of their towers and steeples, and the completeness of their interior arrangements. In the metropolis, the ordinary perambulations of every day present to view some or other of these fine buildings: St. Magnus, London Bridge; St. Stephen's, Wallbrook; St. Mary-le-Bow, Cheapside; St. Bride's, Fleet-street; St. Clement's, Dances, Strand; and St. Andrew's, Holborn, are too prominently placed to be out of ken of the most careless observer.

Turning from ecclesiastical to civil architecture, we find equally important memorials of talent and industry. Chelsea College, the retreat of the military veterans of the United Empire, owes its origin to the suggestions of Stephen Fox, the patriotic and worthy ancestor of the Holland family, who found means to stimulate even a Charles the Second to disburse from the usually scanty contents of his privy purse a considerable sum towards the building. Of this national institution Wren was not only the architect, but in his quality of commissioner prescribed the statutes and ordinances by which it has been so long successfully governed.

The palace at Winchester is, perhaps, next in order of date after Chelsea College; the king had a predilection for the spot, which he personally pointed out to the architect, and a building, destined never to be finished, was commenced. There are conflicting opinions upon the propriety of the style, as well as the choice of site; with the latter Wren had nothing to do; with the former just so much as to develop masses without the adjuncts of equilibrium and ornament to constitute the entirety he contemplated. Winchester Palace has been converted to meaner purposes than a king's lodging, having served as a depot for prisoners of war, and is now, we believe, a barrack for troops.

There are two other great efforts of Wren's genius worthy of study, though widely differing in style. Hampton Court and Greenwich Hospital will scarcely cease to be objects of popular admiration and delight from the facility with which they may be visited. We are indebted to Mary, consort of William III., both for the extension of the palace, and the erection and establishment of the naval hospital. At Hampton Court the architect appears to have been trammelled by the opinions of the king, who was adverse to a design of far more splendid elevation and proportions preferred by the Queen; this interference with better taste decided the question, and the existing additions to the old palace built by Wolsey, were made; neither was the rough soldier, William, slow in avowing the share he had taken in deciding the plan, for upon a notice by one of the courtiers about his person of the lowness of the cloisters under the palace, he is said to have turned upon his heel like a challenged sentinel, answering sharply, "Such were my express orders."

Greenwich Hospital we consider to be a free example of Wren's manner; he had, it is true, to adapt his plans to the structure already built by Charles II., and that by Inigo Jones, called the Queen's house, but there is an ab-

sence of constraint and a harmonious magnificence that confirm the integrity of the design. There are few who would not recognize in this structure the same conceptions that produced St. Paul's; his favourite feature, the dome, is preserved, and much of the detail is corroborative of the taste for classic architecture that pervaded his mind.

Many other public edifices were built by Wren; of these the late Royal Exchange is fresh in recollection; the library of Trinity College, Cambridge, and the chapel of Emanuel College were also executed by him; and a yet more important trust was confided to him in 1698 in the appointment he received of surveyor for the repair of Westminster Abbey. Here we may not omit to observe that his reports on the state of that building shew clearly the bias of his mind to have been inimical to the ancient style of church architecture; always a cautious man, he knew that these opinions could be more safely declared in 1700, than in 1673 and subsequent years, and he did not neglect, in these documents, to impugn both its principles and practice; the venerable edifice was in his hands, and he might have spared his exotic engravings; but during this his last work, age was fast stealing upon him, and to say the least, the taste that could direct the restoration of the towers of the western front in the mixed and corrupt style they exhibit, had become vitiated.

Upon the accession of George I., after public, and often unpaid, services of fifty years, this eminent man was unfeelingly superseded in his office of surveyor-general, and he retired in his eighty-sixth year without remuneration or observation, either on his own part or that of his family, to pass the few remaining years of life at Hampton Court. Walpole says of him at this period, that "having lived to see the completion of St. Paul's, a fabric and an event which one cannot wonder left such an impression of content on the mind of the good old man, that being carried to see it once a year, it seemed to recal a memory that was almost deadened to every other use." For five years longer he was cheered by the solicitudes of his family; nature failed almost imperceptibly, but his end now approached, and was so peaceful as to have been at the moment unobserved. This event happened on the 25th February, 1723, in the ninety-first year of his age.

Contemporary writers of the time immediately following the death of Wren, are unanimous in eulogising his character. Professionally he kept in view the essentials of success, *beauty, usefulness, and durability*. Constant study of the classic styles, and an ardent seeking to apply them on the great scale, decided the decorative features of his buildings; an extensive acquaintance with the requirements of society secured appropriateness in whatever he undertook; and his familiarity with the sciences rendered him confident in his art. He never attained the extent in construction to which the application of geometrical principles would have led him; all his structures are, therefore, far within the limits usually acknowledged as those of safety and durability.

In private life he was amiable, and in disposition rather passive than obtrusive; kind and generous to his family and dependents, and esteemed, beyond precedent, in every circle to which his numerous acquisitions had introduced him.

The oratorical powers of Wren were any thing but brilliant; his inauguration discourse on taking the professor's chair of astronomy at Gresham College, is highly figurative and somewhat bombastic. Of his writing little is extant, but it is far better than his oratory; we select a specimen paragraph, his opinion on architecture, from the *Parentalia*.

"Architecture hath its political uses; public buildings being the ornament of a country; it establishes a nation, draws people and commerce; makes the people love their country, which passion is the original of all great actions in a commonwealth. The emulation of the cities of Greece was the true cause of their greatness. The obstinate valour of the Jews, occasioned by the love of their temple, was a cement that held together that people for many ages, through infinite changes. The care of public decency and convenience was a great cause of the establishment of the Low Countries, and of many cities in the world. Modern

Rome subsists by the ruins and imitation of the old; as does Jerusalem by the Temple of the Sepulchre, and other remains of Helena's zeal."

Er. Wren

He was buried under the dome of St. Paul's with the following laconic, but appropriate epitaph:—

"Si queras monumentum, circumspeice."
"If you seek his monument, look around."

OUR CORRESPONDENCE.

TO THE EDITOR OF THE BUILDER.

SIR,—It would no doubt be desirable to many of your readers (who, like myself, are not well acquainted with the methods of warming and ventilating buildings) to have a more clear explanation of Mr. Hope's plan as given in your 10th number; whether the flues are formed with brick or metal, and also the connection they have with the stove, so as to obtain the desired effect. Any information on the above subject will oblige

Yours sincerely,
AN ARCHITECTURAL STUDENT.
Exeter, April 24th, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—When THE BUILDER was first announced, no one hailed its appearance with greater welcome than myself, and I may say, with your Yorkshire friend, that I have been like a walking advertisement, spreading it far and wide, being aware it would be a channel of communication, conveying information of the most useful and practical kind, thereby informing the mind and bringing matter to and from individuals who would otherwise have remained in obscurity, and, like the rose, have spent their fragrance in the desert air; and it is with pleasure I see the opening bud expand, through every number that makes its appearance; 'tis, therefore, far from me to take up its pages but for a practical purpose, but I think a little explanation is required, as regards myself and the public generally, in answer to Mr. Bernhardt's letter in your last number.

As regards the double and single acting stove, as given in No. 10, and its practicability for warming and ventilating buildings, as shewn in plans and sections, I do say it is altogether my own. I have for the last twenty years used some of the arrangements therein contained, and to a good and practical purpose; for instance, I have applied the cold air due for ventilation, and to cure smoky chimneys, and it has scarcely ever failed; but the manner of application has been as situation or circumstances required. And as regards hot-air flues, I have used them with great success for a variety of purposes; but it will suffice to mention one. Some years ago, I fixed a common furnace-grate under ground, the flues passing backwards and forwards under the floor of a room, the room above having a lattice-floor to allow of a free circulation of warm air; both rooms were heated to a great height for the purpose of drying hides, and the desired object was completely effected, and coal of the very worst description was used. But it is only within the last six weeks that my attention has been turned to applying these different means to the ordinary stove, whereby the fire is kept to the principal rooms, and the otherwise waste heat applied to the rooms above, &c. I am not at all aware this is an infringement upon Mr. B.'s right, as what I have seen of his invention as regards the make of his stove or apparatus, there is no similarity whatever. I think no one would take them for twin brothers. Perhaps Mr. B. will throw some light upon the subject, and favour your subscribers with details and drawings of his plan in a future number of THE BUILDER, which I should be most happy to see, or otherwise we had better conclude with the wise man, "There is nothing new under the sun."

In answer to your Exeter correspondent, if it be worth his while, I have a rude model of my plan, which I shall be most happy to shew him. Apologizing for taking up so much of your valuable time and space,

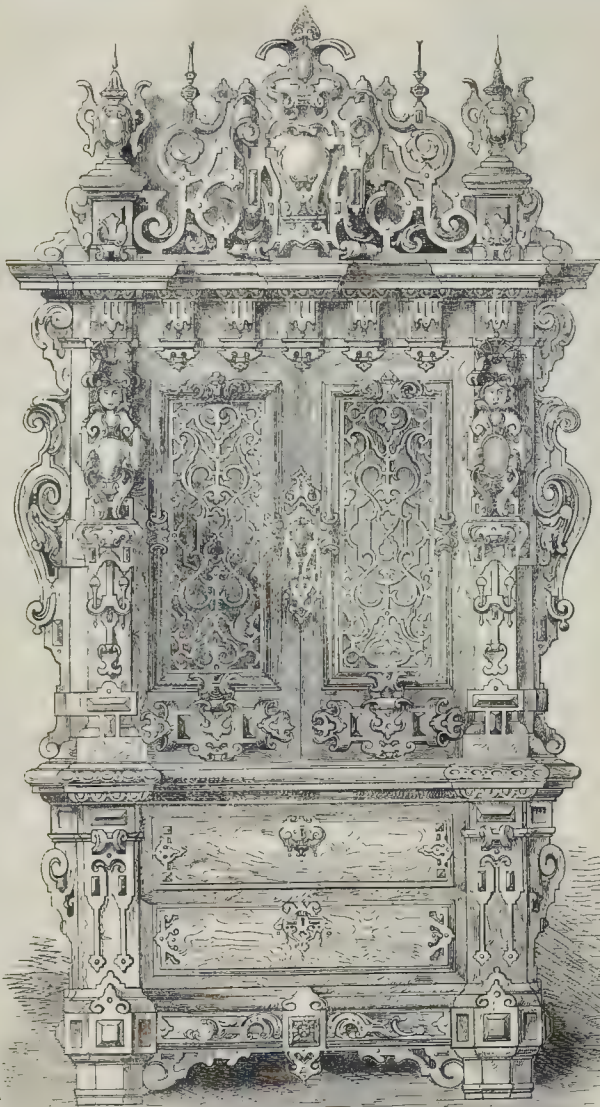
I am, Sir, your obedient servant,
J. P. HOPE,
Clerk of Works of the Wesleyan Theological Institution, Richmond.

Richmond, April 24, 1843.

ETC.—We hear that the noble, and almost unrivalled Early-English Barn, at Ely, has been recently demolished by the Dean and Chapter, on the ground that the repairs it required were too expensive. The loss of this building, one of the very few of that date now left in England, is irreparable. —*Ecclesiologist*.

ELIZABETHAN BOOKCASE OR WARDROBE.

We have great pleasure in submitting this beautiful specimen of our young friend's ability, and have no doubt it will be equally agreeable to our readers, and may be turned to much account. It will admit of dissection and application in various ways—the panels are suited to many objects by enlargement or contraction, and the lower part as a chest, side-piers, &c.



INSTITUTION OF CIVIL ENGINEERS. APRIL 11.

The meeting was commenced by reading an appendix to Mr. Mackain's accounts of the Glasgow Water Works, which was read at the last meeting. It described the construction of a reservoir for supplying the new portion of the city, situated nearly four miles from the works, at a height of nearly 106 feet from the Clyde. In order to take the utmost advantage of a limited space, the sides of the reservoir were made of cast iron plates, connected with a floor composed of Arbroath pavement, fastened together with iron cramps, and the joints pointed with cement. It is supported on consecutive layers of sand, clay, and rubble. The interior dimensions are 123 feet long, 85 feet 6 inches wide, and 11 feet deep, and the whole is covered by three wrought iron roofs, each of 28 feet 6 inches span. A drawing was exhibited of the

great Coradino Tank, erected in the island of Malta in the years 1841 and 1842, by Mr. W. L. Arrow-smith, A. T. C. E., superintendent of Government Works. It is the largest modern covered tank in Europe, and it will contain 15,000 tons of water. It is destined to form part of the projected water works for supplying Malta with good water, a description of which was promised. A letter was read from the late Sir J. Robinson, giving a short account of the Artesian Well at Paris. After detailing the various disasters attendant upon the work, before the water was reached, at a depth of 1,794 feet English, and at a cost of upwards of 12,000*l.* sterling, the letter proceeded to give Sir John's objections to the idea of the contortions suffered by the copper tube being due to the hydrostatic pressure. He attributed it to the violent manner in which it had been forced down the bored hole, and even more so in withdrawing it.

ARCHITECTURAL LIBRARIES.

TO THE EDITOR OF THE BUILDER.

SIR,—Having been a reader of your useful journal, and considering the following question not inappropriate in the columns of your magazine, I forward it to you, in the hope that you or some of your numerous readers will favour me with an early answer: it is—Are there any architectural subscription libraries in London, or in the country? if so, what are their general rules and regulations? In Sheffield there is nothing of the kind, but I believe that, were such formed on a proper basis, they would be of great service to the profession, especially to the junior branches of it.

The supply of knowledge in this our day is more plentiful than it was in former years, therefore I have often wondered that gentlemen have not oftener associated together for the establishment of such societies as I have above alluded to.

I am, Sir, with ardent wishes for your success,
Sheffield, April 19, 1843. W.

The evil which the writer of the foregoing letter complains of is one that so forcibly pressed itself upon our attention many years ago while residing in the country, that we applied to Mr. Weale to know whether some arrangement could not be come to to supply to us a remedy for the disadvantage of not being able to have access to a suitable collection. The provincial architect is placed at wonderful odds below his metropolitan brother professor in this respect. Here, in London, is the British Museum, and many facilities of reference to those expensive works, that by reason of their expense are shut out from the reach of most private book collectors. Since receiving our correspondent's letter, we have made further inquiries, with a view to ascertain whether there was a disposition on the part of some of the large circulating librarians to add a fair collection of architectural works to their stock, and to forward them in parcels as is now done by their other books to country subscribers on payment of the usual subscription of so many guineas per annum. We have applied to Mr. Bull and Mr. Churton, both owners of country circulating libraries, but have not obtained much encouragement, and we are disposed to fall back upon and recommend a plan upon which we were about to act, at the time above referred to, which is, that a number of architects in the country should subscribe, say their five or ten guineas each, and with the fund purchase a well-selected class of books, which the expenditure of a round sum would enable them to get at an advantage; that then, by a sort of ballot, these books should be distributed amongst them to circulate from hand to hand until they had made the round of the subscribers, and that at the end of the circulation a distribution should be made in equal shares as to value, either by agreement among themselves as to the books they would have, or by ballot. To prevent the laying in of books already possessed by some of the parties, those books might form part of the circulation; and thus, with one or two hundred pounds in cash, and probably as much in books in hand, a library might be formed, of which all the subscribers would have the reading, and at the end of the term the full value of their subscription, and, as we have shewn, probably a larger value than their own disbursement of their subscription would have procured. There will require the working out of a few details to complete such a plan, but we shall be very happy to be instrumental in it in any way. A large town like Sheffield might have a dozen books at once. These might pass on to Leeds, and so on through a prescribed route. If any gentleman like to send us their names, we will do our best in completing the subscription list.

MR. CUMMINS' WORKMEN.

We have to correct a mistake in No. 10. In the postscript of the letter from a Young Joiner, wherein we are made to put to his credit six shillings instead of sixpence. We have to-day another letter from Acanthus, with the spirit of which we are particularly well pleased, as he encloses sixpence as his contribution, which we consider a generous concession to a principle that we had to advocate in opposition to some of his prejudices. His example is a good one, and we hope will have its weight with those who calumniate the societies of which he is a member.



KINGSTON BRIDGE, SURREY.

THERE are few subjects in the march of architectural improvement which, within the last quarter of a century, have made more rapid strides in the embellishment of our capital than the bridges, which unite the shores of the noble Thames, not only in the immediate vicinity of its more populous neighbourhood, but also those of a more remote distance, which for the chastity of design and elegance deserve our notice. Hence our artist has favoured us with a faithful delineation of the one, as it is erected at Kingston, which at once bespeaks its own merits. The old bridge was of wood, and of similar dange-

rous and unsightly construction as those of Battersea, Putney, and Hampton. It became so dangerous and dilapidated in the year 1825, that at the instance of Mr. Lapidge, the county surveyor of Surrey, it was proposed to substitute the above beautiful structure, of which he was the author; the corporation of Kingston having obtained the necessary Act of Parliament, the bridge was forthwith commenced, and completed within three years, and including all the expenses of the approaches, &c., did not exceed the original estimate of 40,000*l.* (a rare instance in engineering undertakings). The bridge is of Grecian architecture, consisting of five elliptical arches similar to London Bridge, which

was not selected and commenced till about six months after the Kingston Bridge was begun, which maintains the fact of its being the original design of its artist, and not a copy of the former, as has been asserted. The abutments are terminated by circular towers, over two of which are the toll-houses. The structure is surmounted by a cornice and balustrade with galleries over the piers. The space of the centre arch is 60 feet, the side arches are 56 and 52 feet. The length of the bridge is 382 feet, the width 25 feet. It was completed and opened to the public on the 17th July, 1828, thus affording an elegant and safe communication between the ancient town of Kingston and Hampton Wick and Bushey.

TEMPLE CHURCH.

WE have not time to do justice in our comments upon the beautiful, the exquisitely beautiful lithograph of this now notorious edifice. Mr. Essex has produced a work which must stamp him high in the ranks of architectural draughtsmen, and he will obtain the thanks of every lover of the graphic art and admirer of the Temple Church, for this faithful and beautiful delineation of its interior. We shall return to this subject for general purposes.

PROPOSED NEW METROPOLITAN BUILDING ACT.

A Bill for the better regulating the Buildings of the Metropolitan Districts, and to provide for the Drainage thereof.

[Note.—The Words printed in *Italics* are proposed to be inserted in the Committee.]

WHEREAS it is expedient to alter and amend the Laws now in force for the regulation of Buildings in the Metropolis and in the neighbourhood thereof, and to provide for the more effectual Drainage of such Buildings; BE IT ENACTED, by the QUEEN'S most Excellent Majesty, by and with the Advice and Consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the Authority of the same, THAT from and after the *First day of January, One thousand Eight hundred and Forty-four*, the following Acts shall be and the same are hereby repealed (except so far as any of the said Acts may repeal any other Act, either wholly or partly), and except as to offences committed, penalties incurred, and fees payable, and any proceedings taken or commenced, or which might be taken or commenced, under the first of the hereinafter referred to Acts, on or before the *First day of January, One thousand Eight hundred and Forty-four*, which shall be taken, commenced or prosecuted and recoverable and completed as if this Act had not been made: (that is to say),

An Act passed in the fourteenth year of the reign of his late Majesty King GEORGE the Third, intitled "An Act for the further and better Regulation of Buildings and Party Walls, and for the more effectually preventing Mischief by Fire within the Cities of London and Westminster, and the Liberties thereof, and other the Parishes, Precincts, and Places within the Weekly Bills of Mortality, the Parishes of Saint Mary-le-bon, Paddington, Saint Pancras, and Saint Luke, Chelsea, in the County of Middlesex; and for indemnifying, under certain Conditions, Builders and other Persons against the Penalties to which they are or may be liable for erecting Buildings within the Limits aforesaid contrary to Law."

An Act passed in the fifth year of the reign of his late Majesty King GEORGE the Third, intitled, "An Act to amend an Act of the fourteenth year of his present Majesty, for the better regulation of

Buildings and Party Walls, and for the more effectually preventing Mischief by Fire within the Cities of London and Westminster, by permitting John's Patent Tesser to be used in covering of Houses and Buildings within the Places therein mentioned."

And further be it Enacted, That from and after the said *First day of January, One thousand eight hundred and Forty-four*, so much of an Act passed in the Session held in the fourth and fifth years of the reign of his late Majesty King WILLIAM the Fourth, intitled, "An Act for the better Regulation of Chimney Sweepers and their Apprentices, and for the safer Construction of Chimneys and Flues;" and of an Act passed in the Session held in the third and fourth years of the reign of her present Majesty, intitled, "An Act for the Regulation of Chimney Sweepers and Chimneys," respectively, as relates to the construction and regulation of Chimneys and Flues within the limits of this Act, but not otherwise, shall be and the same is hereby repealed.

AND for the better comprehension of the terms used in this Act, Be it Enacted, That the following words and expressions shall throughout this Act have the several meanings hereby assigned to them, unless where the context shall be repugnant to such construction; (that is to say)

The word "building" shall comprise all buildings of what nature or kind soever, not being bridges or structures wholly underground, and excepting all Royal Palaces, houses and buildings being in the possession or used or employed for the use or service of Her Majesty, her heirs and successors:

The term "external wall" shall comprise all outer walls of buildings now or hereafter to be built which shall stand wholly upon ground of the owner of such buildings, and shall not be used or intended to be used as party walls under the definition hereinafter contained, whether the same shall adjoin or not to other outer or to party walls:

The term "party wall" shall comprise all walls which shall be used or intended to be used as a separation of one building from another, and also all walls which shall stand upon ground not wholly belonging to the same ownership or occupation:

The word "street" shall include every square, circus, crescent, street, road, place, row, mews, lane or place used or which may be used or is designed to be used as a carriage-way:

The word "alley" shall include any court, alley, passage or other public place which may be used or is designed to be used as a footway only:

The word "owner" shall mean the person or persons in possession or receipt of the rents or profits of any tenement:

The word "surveyor" shall include all surveyors to be appointed in pursuance of this Act, or whose appointment is confirmed by this Act, and also all deputy surveyors to be appointed in like manner:

And the word "surveyor" shall always be taken to mean the surveyor in whose district the buildings, street, or alley, or other subject matter shall be:

And the term "already built" shall apply to all buildings, streets or alleys built or laid out before the *First day of January One thousand eight hundred and Forty-four*:

And the term "hereafter to be built" shall apply to all buildings, streets or alleys to be built or laid out after the *First day of January One thousand eight hundred and Forty-four*:

The word "Month" shall be taken to mean calendar Month:

The words "Clerk of the Peace" shall mean the Clerk of the Peace for the county or place within which the building or other subject matter is situate:

"Two Justices of the Peace" shall mean Two Justices of the Peace for the county within which the building or other subject matter is situate; except when the building or other subject matter is within the City of London or the Liberties thereof, then any matter or thing to be done by Two Justices of the Peace may be done by the Lord Mayor of the City of London, or any Two Justices of the Peace for the said City:

And all words importing the singular number and masculine gender respectively, shall include respectively the plural number and feminine gender:

A Square shall contain One hundred square or superficial Feet:

And be it Enacted, That the limits of this Act shall be taken to include all such parts and places lying on the north side of the River Thames as are within the exterior boundaries of the parishes of Fulham, Kensington, Paddington, Hampstead, Hornsey, Tottenham, Saint Pancras, Islington, Stoke Newington, Hackney, Stratford, Bromley, Poplar, and Shadwell, and also such part of the parish of Chelsea as lies to the north of the said parish of Kensington, and also all such parts and places lying on the south side of the said river as are within the exterior boundaries of the parishes of Woolwich, Charlton, Greenwich, Lee, Lewisham, Camberwell, Lambeth, Streatham, Tooting, and Wandsworth.

And be it Enacted, That all buildings already built, or which shall be hereafter built within the external limits of this Act, whether upon new or old foundations, or on foundations partly new and partly old, shall be distinguished and divided into Eight several Rates of Buildings hereinafter described, and such Eight Rates of Buildings shall be under the rules and directions hereinafter contained concerning the same respectively.

And be it Enacted, That the floors of all buildings shall be counted from the foundation inclusively, but exclusive of the rooms in the roof thereof (if any); and that the height of all buildings (except such as are comprised in the Fifth and Seventh Rates hereinafter defined) shall be measured from the surface of the lowest or first floor to the top of the wall or parapet of any one of the fronts thereof.

And be it Enacted, That every dwelling-house which shall have more than Four Floors, and also every dwelling-house which shall be higher than Fifty-seven Feet, and not higher than Seventy Feet; and every brewery, distillery, manufactory, warehouse or other building whatsoever (not being a dwelling-house or of the Sixth or Eighth Rate of Buildings), which shall be higher than Forty Feet, and shall not be higher than Fifty Feet, shall be deemed to be of the First Rate of Buildings.

And be it Enacted, That every dwelling-house which shall not have more than Four Floors, and which shall

be of the height of *Forty-seven Feet*, and shall not be higher than *Fifty-seven Feet*; and every brewery, distillery, manufactory, warehouse, or other building whatsoever (not being a dwelling-house or of the Sixth or Eighth Rate of Building), which shall be higher than *Thirty Feet*, and shall not be higher than *Forty Feet*, shall be deemed of the *SECOND RATE OF BUILDING*.

And be it Enacted, That every dwelling-house which shall contain either *Three or Four Floors*, and which shall be of the height of *Thirty-three Feet*, but shall be under *Forty-seven Feet* in height; and also every dwelling-house of a lower height (if any) which shall have more than *Three Floors*; and every brewery, distillery, manufactory, warehouse or other building whatsoever (not being a dwelling-house or of the Sixth or Eighth Rate of Building), which shall be higher than *Twenty-two Feet*, and shall not exceed *Thirty Feet*, shall be deemed of the *THIRD RATE OF BUILDING*.

And be it Enacted, That every dwelling-house which shall not have more than *Three Floors*, and which shall be less than the height of *Thirty-three Feet*; and every brewery, distillery, manufactory, warehouse or other building whatsoever (not being a dwelling-house or of the Fifth or Sixth or Seventh or Eighth Rate of Building), which shall not be higher than *Twenty-two Feet*, shall be deemed of the *FOURTH RATE OF BUILDING*.

And be it Enacted, That every building not being a dwelling-house, brewery, distillery, manufactory or warehouse, or of the Sixth or Seventh Rate, which shall contain only *One Floor*, and shall not exceed a height of *Twelve Feet* from the top of the footings to the top of the wall or parapet of any one of the fronts thereof, shall be deemed of the *FIFTH RATE OF BUILDING*.

And be it Enacted, That every building which shall be at the distance of *Twenty Feet* at the least from any existing or intended street or way, and which shall be detached from any house or building, or from ground not in the same possession therewith, *Fifty Feet* at the least, or which shall be connected therewith only by a fence or fence wall, shall be deemed of the *SIXTH RATE OF BUILDING*, and the walls or inclosures thereof may be built of any materials whatever, but such walls or inclosures, if built of brick or stone, shall be built, according to their several heights, of the thicknesses hereinafter required for external walls of the First or Second or Third or Fourth or Fifth Rate of Building, and all the chimneys and flues shall be built as hereinafter directed for the building of all chimneys and flues.

And be it Enacted, That every building which shall be built for the purposes of trade or the collection of toll, and which shall be detached from any house or building, and which shall not cover more than *One hundred square Feet* of ground, and the height of which shall not exceed *Twelve Feet* from the ground to the highest point of the roof, shall be deemed of the *SEVENTH RATE OF BUILDING*, and may be inclosed with any materials whatsoever, except the roof, which shall be covered as hereinafter directed; and except the chimney and flue (if any), which shall be built as hereinafter directed with respect to chimneys and flues.

And be it Enacted, That all churches, chapels and other places for public worship; all theatres, exhibition rooms and other buildings, whether included within the aforesaid Rates or not, and which shall be at stated periods for purposes of public business, instruction, debate, diversion or resort; and also all breweries, distilleries, manufactories or warehouses, which shall be more than *Fifty Feet* high from the level of the lowest or first floor thereof to the top of the wall of any one of the fronts thereof; and also all dwelling-houses which shall contain more than *Seven Floors*, or which shall exceed *Seventy Feet* in height from the surface of the lowest or first floor to the top of the wall or parapet of either of the fronts thereof, and which shall hereafter be built, shall, when such buildings shall be capable of being classed under any of the Rates hereinafter set forth, be built with party and external walls at least *Four Inches* and a *Half* thicker than hereinafter required for party and external walls of buildings of the Rate to which they shall belong; but whenever the same shall exceed the limits hereinafter assigned to the First Rate of Building, then with party and external walls at least *Four Inches* and a *Half* thicker than hereinafter required for *Four Inches* and a *Half* thicker than hereinafter required for the First Rate, party and external walls of buildings of the First Rate; and shall be included in an *EIGHTH RATE OF BUILDING*; and all such buildings shall be built in other respects and according to all the rules and regulations of this Act, so far as the same apply, but subject nevertheless to the special contract hereinafter directed; and when all the walls of every such house or building shall have been built, of their full height, and all the timbers of the floors, built of their full height, and all the partitions, and every roof and partition shall have been covered in, the owner thereof shall give *Twenty-one Days* notice to the Surveyor and to the Official Referees, who shall, at a time to be specified in such notice, survey the said house or building; and they shall, within *Seven Days* after the making of such survey, certify under their hands to the owner thereof their approval of the same; or in case of any part of the walls, timbers, roof or internal supports shall appear defective or insufficient, such Surveyor and Referees, or any Three of them, then within the same *Seven Days* they shall give notice in writing to such owner of such parts as shall so appear to them to be defective or insufficient; and upon such notice, the said owner shall forthwith proceed to alter and strengthen such defective and insufficient parts, and shall not cover up any such parts until such Surveyor and Referees, or any Three of them, shall be satisfied and shall have certified in writing their approval, as aforesaid.

And be it Enacted, That Her Majesty's Principal Secretary of State acting for the Home Department, shall appoint Three persons, being Architects, who shall be termed "Official Referees," for the purpose of determining the questions hereafter directed to be referred to

them; and the determination of any Two of such Referees shall be binding on all parties in respect of any matters referred to such Referees; and any questions hereafter directed to such Referees, or any questions hereafter directed to be referred to them, if the parties interested agree, to be referred to any One of such Referees, whose decision shall be binding in all respects; and such persons may be nominated from time to time, and may be removed, as such Principal Secretary for the time being as aforesaid shall think proper.

And be it Enacted, That any building or office now built or hereafter to be built, attached to any dwelling-house or building of the First, Second, Third, Fourth, and Fifth or Eighth Rate, and to any brick or stone building of the Sixth Rate, and to be held in the same occupation therewith, and whether such attached building or office was or shall be built at the same time with such dwelling-house or building to which the same shall be attached, or at any time afterwards, shall, so far as regards the external walls thereof, be held to be of the Rate of which such attached building or office would be if not so attached, but so far as regards the party walls thereof, if attached, shall be held to be of the Rate of the dwelling-house or building of the highest Rate to which such party walls shall adjoin when such attached building or office shall be completed; and also, that it shall be lawful to build any greenhouse for plants, vinery, aviary, or such like building, either attached to or detached from any house or building, in such manner and of any such materials as shall be approved by the Surveyor in whose district the same shall be built, provided that the party wall, if any, shall be built as hereinafter directed for party walls.

And be it Enacted, That every building or office now built, or which shall hereafter be built, to be held in the same occupation with any house or building of the First, Second, Third, Fourth, Fifth, Sixth and Eighth Rate, and entirely free and detached from such house or building, or connected therewith only by a fence or fence wall, or covered passage, open on one or both sides, shall be deemed to be of the Rate such building or office would be of if the same did not belong to such house or building.

And be it Enacted, That the Rate of any house or building shall be ascertained by the Surveyor's measurement of the wall of the highest front or side thereof, not being a party wall; and that the number of Squares contained in any house or building shall be ascertained by such Surveyor by measurement of the surface of the floor containing the greatest number of Squares at or above the principal entrance to such house or building, including such parts of the party walls as belong to such house or building, but not any attached office, area or balcony, or open portico; and in case the owner, or any other person interested in such house or building shall apprehend himself to be injured by the measurement made by such Surveyor as aforesaid, it shall be lawful for such owner or other person to refer the same to the determination of the aforesaid Official Referees, whose decision shall be final.

And be it Enacted, That the thickness of any party wall, external wall, or party fence wall, and of the footings thereof, of any house or building already built, or which shall be hereafter built, shall be ascertained by measuring only the thickness of which such walls or footings shall have been originally built; and that no additions shall be made at any time to the thickness of such walls or footings; and if any person shall build any wall of a less thickness than is hereby required, or shall at any time take down any portion of any wall so as to reduce the thickness thereof, and shall be convicted of the same before any Two Justices of the Peace, he shall forfeit *One hundred Pounds*, and such wall shall be declared a nuisance, and shall be taken down accordingly, as is after directed with respect to ruinous walls.

And be it Enacted, That it shall not be lawful, after the passing of this Act, to form any street of a less width in every part thereof than *Thirty Feet*, nor any alley of a less width in every part thereof than *Twenty Feet*; where less width in every part thereof than *Twenty Feet* at opposite sides shall have two entrances, one at each side, or at the sides or ends, at least *Twenty Feet* wide, open from the ground upwards, and where such alley shall have only one entrance thereto, and which entrance shall be at the least *Thirty Feet* wide, open from the ground upwards; and the width of every street or alley shall be ascertained by measuring (at right angles to the surface thereof) such width only as shall be given up to or used by the public, or shall be paved or lighted at the public expense, and shall be under the superintendence of the District Surveyor.

And be it Enacted, That every dwelling-house which shall be hereafter built on any old or new foundations shall have an inclosed back yard or an open space of at least *One Square*, exclusive of any building therein, except where such dwelling-house shall be built on foundations either wholly or partially old, then such open space may be the buildings thereof, but not to be carried up beyond the level of the ceilings of the under-ground and ground floors.

And be it Enacted, That it shall not be lawful hereafter to build any house or building, either upon old or new foundations, in which the floor of any room or cellar intended to be used as a dwelling-house shall be below the surface or level of the ground in the immediate neighbourhood of such house or building, unless there shall be an open space or area adjoining to the front, back or external side of such room or cellar, and extending the full length thereof, and not less than *Three Feet* wide in every part, nor less than *Six Inches* below the floor of such room or cellar, or to the surface or level of the ground, and not less than *Six Feet* long and a part or space of such area, and not less than *Three Feet* wide in front of the window of such room or cellar, left open or covered only with open iron gratings.

And be it Enacted, That in any house already built or which shall be hereafter built, it shall not be lawful to let

separately, except as a warehouse or storehouse, nor to occupy nor suffer to be occupied for hire as a dwelling-place any room containing less than *One Square*, nor any underground cellar or room of any dimensions, unless every such room shall have a window in the same to open into the street, or into a court, or into a garden, or into an area, and fireplace with proper flues thereto, as hereinafter directed; and any open area adjoining to such underground cellar or room; nor shall it be lawful to use, or to suffer to be used, any part of any dwelling-house as a pig-sty, dog-kennel, or any other like obnoxious purpose; and every person who shall wilfully let or suffer to be occupied or used any underground cellar or room contrary to the provisions of this Act, shall, on conviction thereof before Two Justices of the peace, forfeit and pay the sum of *Twenty Shillings* for every day that such cellar or room shall be so occupied, and Half of such penalty to go to the person who shall be the informer, and the other half to the Surveyor for the district in which such unlawfully occupied or used cellar or room shall be situated, unless neglect or default can be proved against such Surveyor, in which case the whole penalty shall go to the person so informing.

And be it Enacted, That there shall be made for every underground room intended or used as a dwelling in every house or building which shall be hereafter built, a fireplace at least *Three Feet* high and at least *Two Feet Nine Inches* wide, with proper flue therefrom; and also a window opening at least *Four Feet Nine Inches* high, and at least *Three Feet* wide in the clear of the reveals, and which window opening shall be fitted with a frame filled in with glass panes, at least the *One-half* of which shall be made to open for ventilation.

And be it Enacted, That in any house or building which shall be hereafter built, there shall not be in any part of the roof thereof more than one floor of rooms, which rooms shall not be of a less height than *Seven Feet*, nor exceeding *Ten Feet* within the roof; nor shall there in any other part of such house or building be built or used any room as a dwelling of a less height than *Eight Feet* from the floor to the ceiling.

And be it Enacted, That if any part of the external walls or inclosures of any building of the Sixth Rate shall be more than *Twenty-five Feet* high from the foundation thereof, and shall be wholly or in part of any other materials than are hereinafter directed for external walls, such building shall be built, as regards the structure thereof, to the satisfaction of the Surveyor; and if it shall not be lawful hereafter to build any house or building of any Rate whatever nearer than *Fifty Feet* to any timber building, or to any other building of the Sixth Rate, which may be used for dangerous, offensive or obnoxious trades, as herein defined.

And be it Enacted, That as from the *First day of January, One thousand Eight hundred and Forty-four*, it shall not be lawful to carry on within the limits of this Act, in any house or building, or vault, or in the open air, at a less distance than *Forty Feet* from any public way, or the *Fifty Feet* from any other house or building, or on ground not in the same possession or occupation therewith, any trade or business such as that of a soap-boiler, or any other trade or business which is or which shall be dangerous, or dangerous or offensive or obnoxious as regards fire, or dangerous or offensive or obnoxious as regards persons, more especially those persons living or passing in the vicinity thereof, nor shall it be lawful for all such trades and businesses as shall have been already established, to be continued to be carried on in their present situations for a term not exceeding *Thirty Years* from the passing of this Act, provided the same be not contrary to any existing Act of Parliament, nor otherwise contrary to law; and any person who shall be convicted before Two Justices of the Peace of carrying on such dangerous or offensive trade, shall forfeit and pay such sum not exceeding *Fifty Pounds*, as the said Justices may determine.

And be it Enacted, That upon the completion of every such building as aforesaid, the Owner thereof shall again give *Twenty-one Days* notice to the Surveyor; and such Surveyor, together with the said Official Referees, shall survey the same, and shall certify that such building is built to the satisfaction of them, and that such building has been built to the satisfaction of the Clerk of the Peace, paying such Clerk *One Shilling* for filing thereof, and no more; and then and in every such case, and not otherwise, it shall be lawful to use such building as aforesaid; and in case any such house or building shall be used either as a dwelling-house or for any other of the purposes aforesaid, before such certificate of satisfaction as aforesaid shall have been given by the Clerk of the Peace, such person shall, on conviction thereof before Two Justices of the Peace, forfeit a sum not being less than *Five Pounds* nor exceeding *Fifty hundred Pounds*, to be paid by the Owner or Occupier of such house or building, daily, until the filing of record of such certificate of satisfaction as aforesaid, One-half of which shall go to the person giving information, and the other Half to the poor of the parish in which such building shall be: Provided always, That if within *Twenty Days* from the assessing of such penalty such certificate of satisfaction shall not have been filed as aforesaid, such house or building shall be liable to be abated as a nuisance under the powers in this Act contained.

And be it Enacted, That in case any party shall be desirous of erecting any building which, in the opinion of the Surveyor, shall not come within any of the aforesaid Rates, then the same shall be built in and according to such Rate as the Surveyor shall direct; and if the party so desirous to build shall be dissatisfied with the decision of the Surveyor, it shall be referred to the aforesaid Official Referees, and their decision shall be final.

And be it Enacted, That every wall which shall hereafter be built to divide any house or building into Two or more distinct houses or buildings, shall be built as a party wall, in the manner and of the materials, and of the several heights and thicknesses hereinafter described for party walls of the highest rate of building to which such party wall shall belong or adjoin; and every house or building already built, or which shall hereafter be built, or of one of such houses or buildings, as Two or more and which shall be built or occupied as Two or more separate houses or buildings, each having a separate entrance and staircase, and each being separately rated to the poor, shall be deemed to be Two or more separate houses, and shall be divided from each other by a party wall, built in manner aforesaid.

And be it Enacted, That every dwelling-house which shall be hereafter built, which shall contain more than Twelve Squares, shall have external and party walls as herein described for First Rate buildings; and it shall be lawful to make openings through a party wall between one dwelling-house and another dwelling-house, provided that when the houses so united shall contain more than Twelve Squares, they shall each have external and party walls as herein directed for First Rate buildings; and provided that such dwelling-houses shall be and shall continue to be in the same occupation, and if used for trade, to be used in the same trade, and the poor's-rate thereof paid by the same person; and provided also, that by making such openings the stability of any or either of such dwelling-houses, in the opinion of the Surveyor, shall not be endangered.

And be it Enacted, That it shall not be lawful hereafter to add building which shall exceed Thirty-five Squares for warehouses and workshops, except buildings of the Sixth Rate, unless the same shall be separated by party walls into Two or more divisions, each one not exceeding Thirty-five Squares, such party walls to be built in the manner and of the materials, and of the several heights and thicknesses herein required for party walls of the First Rate; and it shall be lawful to form openings in such party walls, provided every such opening shall be floored with brick or stone, and shall be protected by brick piers, at least Fourteen Inches wide, and projecting at least One Foot Six Inches from each face of such party wall, and shall have brick arches or stone landings the entire width and depth of such opening, above and below the same; and every such opening shall be not more than Five Feet wide and Seven Feet high, and shall be provided with Two strong wrought-iron doors, fixed in wrought-iron frames, and not less than One-fourth of an inch thick in the panels thereof, and the space between such doors shall not be less than Four Feet.

And be it Enacted, That no portion of any building for stables, including coach-houses and harness-rooms, which shall be hereafter built, shall contain within its walls, whether party walls or external walls, more than Twenty-five Squares; nor shall any enlargement be made at any time hereafter to any building for stables already built, or which shall be hereafter built, so that any portion of the same when enlarged, including coach-houses and harness-rooms, shall contain more than Twenty-five Squares as aforesaid.

And be it Enacted, That if any building of the Sixth Rate shall be hereafter divided into Two or more distinct buildings, and that the several parts of such buildings so divided shall not be at the several distances from each other and from other buildings and grounds as hereinbefore directed for any building of the Sixth Rate, then every such several parts of such buildings so divided as shall not be at the several distances shall be deemed public nuisances, and shall be taken down as such, unless the external walls of such several parts shall be built in the manner and of the materials, and at least of the several heights and thicknesses hereinafter described for external walls of such several parts, and shall be of whole or divided; and unless also, that if the several parts shall remain adjoining, they shall also have such external walls, and shall be separated from each other by such party walls as hereinafter directed, and shall be built in every respect as hereinafter required for buildings of the Rates to which they shall belong when so divided.

And be it Enacted, That the footing of every party wall, external wall and other wall of every house or building which shall be hereafter built, and of every addition or alteration of every house already built or which shall be hereafter built, shall be laid upon a natural solid stratum of ground, or upon a foundation of concrete at least Eighteen Inches thick and Twelve Inches wider than the bottom of such footing, such concrete to be composed of stone-lime and Thames ballast, broken stone, or flint or sharp clean gravel, mixed in the proportion of at least One Bushel of stone-lime to Eight Bushels of such ballast stone, or flint or gravel; and that in the party walls, external walls or other walls of every dwelling-house, and of every addition or alteration thereof, already built or which shall be hereafter built, the two courses of brickwork immediately below the level of the bottom of the timbers of the lowest or first floor shall be of good sound stock bricks laid in good cement.

And be it Enacted, That every house or building which shall be hereafter built, and every addition to every house or building already built, or which shall be hereafter built, shall be drained as hereinafter directed; and that the several walls thereof shall not be built higher than Ten Feet from their foundations before the drains of such house or building, or addition thereto, shall have been properly built and made good into the common sewer, if any, within One hundred Feet distance from such building into which it is lawful and practicable to drain, or otherwise into proper and sufficient cesspools, so as to render such drains available for the perfect drainage of the lowest floor of such house or building or addition thereto, and also of its areas, water-closets, privies and offices (if any).

And be it Enacted, That if any house or building already built shall not be drained in at least as sufficient a manner as hereinbefore directed for every house or building which shall be hereafter built, it shall be lawful for the Commissioners of Sewers in whose district the same shall be, to give One Month's notice, signed by any Officer appointed by them for that purpose, to the occupier of such house or building, requiring him within the time specified in such notice, to begin to construct a drain or drains in manner, and of the materials, and at least of the areas and currents hereinafter directed; and if the occupier or owner of such house or building shall refuse or neglect to begin to construct such drain or drains within the time specified in such notice, or shall thereafter fail to carry out and complete the same with all reasonable despatch, it shall be lawful for the said Commissioners to construct the same, and to recover the expenses to be incurred thereby by distress and sale of the goods and chattels either of the present or any future occupier of such house or building, or of the owner thereof, by warrant under the hands and seals of Six or more of the said Commissioners; and any occupier who shall pay any or of whose goods and chattels any distress or sale shall be made as aforesaid, shall be entitled to deduct such monies paid, and the amount of such distress or sale, and all expenses incurred by him in or about such construction, distress or sale, or on account thereof, from the rent by him payable to the owner of such house or building for which such drain shall be made.

And be it Enacted, That no cesspool for the reception of drainage, or for any privy or water-closet, shall hereafter be built under any house or building, or the offices attached thereto, nor within Five Feet of the external walls of any such house, building or offices, and every cesspool shall be built with brickwork all round, at least Eight and a Half Inches thick, set in good mortar or cement, and properly domed over at the top, and of at least Three Feet diameter in the clear, and five Feet deep below the bottom of the drains at the entrance thereto; nevertheless, it shall not be lawful to build or use any cesspool for the reception of drainage within One hundred Feet of a common sewer, unless there shall be or shall be built a good and sufficient drain from such cesspool to such common sewer: Provided always, That where no common sewer shall exist as aforesaid, within One hundred Feet of the building to be drained, or where it is not lawful or practicable to drain into such common sewer, it shall be lawful to build cesspools under any street or alley, but nevertheless not without the certificate in writing of the Surveyor, and of the Overseers of the poor of the parish or place in which the same shall be, stating that the construction of such cesspool will not be injurious to the public health.

And be it Enacted, That every dwelling-house, and every building used as a dwelling, already built or which shall be hereafter built, shall have at least One privy, either draining into a common sewer, or such cesspool as aforesaid, or a water-closet drained as aforesaid, and with water laid on, but no privy shall hereafter be built or formed within the walls of any such house or building; and every privy built in the yard or area of any house or building, or under any street or alley, shall have a door and be otherwise properly inclosed and screened and fenced from public view, to the satisfaction of the Surveyor.

And further be it Enacted, That as regards any houses or buildings already built, which shall not have any such privy or water-closet as aforesaid, the Surveyor or the Churchwardens and Overseers in whose parish the same shall be, may give notice for the construction of the same as is before provided with respect to drains, and in default of the construction of such privy or water-closet in manner hereinbefore provided with respect to drains, the same may be built by the Churchwardens and Overseers, and the expenses thereof shall be recovered and paid and released as all respects as is herein provided with respect to drains to be made by the aforesaid Commissioners.

And be it Enacted, That the inside of the drains under and from every house or building for the carrying off of soil shall be of an area of at least Eighty square or superficial Inches, and every such drain shall be laid to a fall or current of at least One Inch to Ten Feet, and so that the whole of every such drain within the walls of such house or building shall be wholly covered over and the lowest floor and independently of roof, and every such drain within the walls of such house or building shall be built and covered over with brick, stone or slate, set in cement, so as to render the drain air-tight, and Two-thirds at the least of the lowest part of the inside thereof shall be rendered with cement; and every part of such drain outside the walls of every house or building shall be built of brick, stone or slate, set in mortar or cement.

And be it Enacted, That all drains shall be deemed to be private drains to within Three Feet Five Inches of the point where they shall unite with the common sewer; and that all private drains, watercourses, cesspools and privies already built or which shall be hereafter built for any house or building shall be under the survey and control of the Surveyor and of the Overseers of the poor for the time being of the parish in which such house or building shall be, and shall be repaired, emptied and cleansed at the cost and charge of the owner or occupier of such house or building, and if such owner or occupier shall neglect to repair, empty and cleanse such private drains, watercourses, cesspools and privies within Seven Days after notice in writing for that purpose, signed by such Surveyor or by such Overseers of the poor, shall have been given to such owner or occupier, or left upon the premises, it shall be lawful for such Overseers of the poor, or such persons as they shall appoint, to enter upon and break up the ground floors and cellars or basements in any place or part they shall think fit of such house or building, or of any of the offices, yards, gardens or areas belonging thereto, to be opened, doing as little damage as may be, and to repair, empty and cleanse such private drains, watercourses, cesspools and privies; and

all costs and charges occasioned thereby shall be paid by such Overseers out of the poor's-rate, and shall be repaid, levied and recovered by them in all respects as hereinafter directed regarding ruinous houses and buildings.

And be it Enacted, That in every house or building which shall be hereafter built, and in every addition or alteration to any house or building already built, or which shall be hereafter built, no joists of any floor, or rafters of any roof, or quarters of any partition, shall be hereafter fixed or framed more than Twelve Inches apart; and that no joist of any floor shall have a longer bearing than Fifteen Feet, nor any rafter or purlin of any roof than Eleven Feet; and that no beams or girders of any floor shall be so laid that the joists bearing thereon shall have a longer bearing than Twelve Feet; and that no trimming joist of any floor, the bearing of which shall exceed Five Feet, shall be morticed or cut for any other purpose than for the framing thereof of other trimmings joists, except trimmings joists for staircases and skylights, the scantlings of which shall be at least One-half more than those herein directed; and that the heads and sills, posts, braces and quarters of every partition shall be properly morticed and tenoned together, and be properly framed with heads and sills, and braced; and no timber, after it has been felled in its place, shall be reduced in scantling without the consent of the District Surveyor.

And be it Enacted, That in every house or building which shall be hereafter built, and in every addition or alteration to any house or building already built, or which shall be hereafter built, no joist, trimming joist, beam or girder of any floor shall be of less scantling, according to the several bearings thereof than the following; (that is to say)

Joists, with a bearing of—			
6 feet to 8 feet, shall be at least	6 1/2 in. deep, and	2 in. thick.	
8 " 10 " "	" 8 " "	" 2 " "	
10 " 12 " "	" 9 " "	" 2 1/2 " "	
12 " 15 " "	" 10 " "	" 3 " "	
Trimming joists with a bearing of—			
6 feet to 8 feet, shall be at least	6 " "	3 " "	
8 " 10 " "	" 8 " "	3 " "	
10 " 12 " "	" 9 " "	3 1/2 " "	
12 " 15 " "	" 10 " "	4 " "	
Beams and girders, with a bearing of—			
9 feet to 12 feet, shall be at least	9 " "	6 " "	
12 " 15 " "	" 10 " "	7 " "	
15 " 18 " "	" 11 " "	8 " "	
18 " 21 " "	" 12 " "	9 " "	
21 " 24 " "	{ shall be cut, re-versed, and bolted, and at least - - - }		13 " - 10 " "

And be it Enacted, That in the roof of every house or building which shall be hereafter built, or of any addition or alteration to every house or building already built, or which shall be hereafter built, there shall—

Not be any pur-	lin - - -	less than 5 inch. deep and 4 inch. thick.
Nor any - pole	plate - - -	" 4 " - - - 4 " "
Nor any - curb	plate - - -	" 4 " - - - 4 " "
Nor any - com-	mon rafter at	the foot - - - " 4 " - - - 2 1/2 " "
Nor any - com-	mon rafter at	the head - - - " 3 " - - - 2 1/2 " "

And be it Enacted, That in every house or building which shall be hereafter built, and in every addition or alteration to any house or building already built, or which shall be hereafter built, there shall not be any partition, the timbers of which shall be of less scantling, according to their several heights, than the following; (that is to say) partitions—

Under 11 feet high,—			
shall have heads and sills - not less than	4 inch.		
Doitto - posts and door heads	" 4 " "		
Doitto - quarters - - - -	" 4 " "	2 1/2 " "	
Doitto - braces - - - -	" 4 " "	3 " "	
From 11 to 13 feet high,—			
shall have heads and sills - not less than	5 " "		
Doitto - posts and door heads	" 5 " "		
Doitto - quarters - - - -	" 5 " "	3 " "	
Doitto - braces - - - -	" 5 " "	3 1/2 " "	
Above 13 feet high,—			
shall have heads and sills - not less than	6 " "		
Doitto - posts and door heads	" 6 " "		
Doitto - quarters - - - -	" 6 " "	2 1/2 " "	
Doitto - braces - - - -	" 6 " "	3 1/2 " "	

And be it Enacted, That the end of every girder or bressumer which shall be hereafter fixed to carry any wall of any house or building which shall have a bearing upon a party wall, shall be laid upon an iron or upon a stone template or templates not less than Six Inches thick, and tailed all through such party wall; and the end of every such girder or bressumer shall not be fixed into and shall not have its bearing solely on such party wall, but shall be supported by a sufficient brick or stone pier, or iron column, or iron or timber story-post, fixed on a solid foundation; and if any such girder or bressumer shall have its bearing at both ends upon a party wall, then the same shall be supported by at least Two sufficient brick or stone piers, or iron columns, or iron or timber story-posts, fixed on solid foundations; and every such girder or bressumer shall be of such scantlings, and fixed and supported in such manner as shall be satisfactory to the Surveyor; and the ends of every girder or bressumer which shall have its bearing on any other wall than a party wall shall bear thereon at least Nine Inches.

And be it Enacted, That all outer walls of houses and other buildings now built or which shall be hereafter built

wholly upon the ground of the owner of such houses or buildings, and not intended to be party walls, shall be and are hereby declared to be external walls within the meaning of this Act, whether the same shall adjoin or not to other outer or party walls.

And be it Enacted, That every external wall which shall hereafter be built for any house or building of the First, Second and Third Rates, shall be built upon a footing the width of which shall be at the least Nine Inches more than the thickness of the wall immediately above the same, and the height of which above the foundation shall be at the least *One Foot*, and at the least of Four courses of bricks or stone, laid in Two double courses, diminishing equally on each side *Four Inches* and a *Half* to the top thereof, and the top of such footing shall be at the least Six Inches below the surface of the lowest ground or area adjoining thereto, and at the least Twelve Inches below the surface of the lowest or first floor of such house or building.

And be it Enacted, That every such external wall for the First Rate of building, from the top of such footing to the underside of the second floor, shall be at the least of the thickness of *One Foot Ten Inches* and a *Half*; from thence up to the underside of the fourth floor, shall be at the least of the thickness of *One Foot Five Inches*; and from thence up to the underside of the plate under the gutter of such house or building, shall be at the least of the thickness of *Thirteen Inches*; and from thence up to the top of such external wall, shall be at the least of the thickness of *Eight Inches* and a *Half*.

And be it Enacted, That every such external wall for the Second Rate of building, from the top of such footing to the underside of the second floor, shall be at the least of the thickness of *One Foot Five Inches*; from thence up to the underside of the plate under the gutter of such house or building, shall be at the least of the thickness of *Thirteen Inches*; and from thence up to the top of such external wall, shall be at the least of the thickness of *Eight Inches* and a *Half*.

And be it Enacted, That every such external wall in the Third Rate of building, from the top of such footing to the underside of the second floor, shall be at the least of the thickness of *One Foot Five Inches*; from thence up to the underside of the gutter plate, shall be at the least of the thickness of *Thirteen Inches*; and from thence up to the top of such external wall, shall be at the least of the thickness of *Eight Inches* and a *Half*.

And be it Enacted, That every external wall in the Fourth Rate of building, shall be built upon a footing, the width of which shall be at the least Nine Inches more than the wall is thick immediately above the same, and the height of which above the foundation shall be at the least Nine inches, and at the least of Three courses of bricks or stone, laid in *One double* and *One single* course, diminishing equally on each side *Four Inches* and a *Half* to the top thereof; and the top of such footing shall be at the least Six Inches below the surface of the lowest ground or area adjoining thereto, and at the least Twelve Inches below the surface of the lowest or first floor of such house or building; and every such external wall, from the top of such footing to the underside of the gutter plate, shall be at the least of the thickness of *Thirteen Inches*; and from thence up to the top of such external wall, shall be at the least of the thickness of *Eight Inches* and a *Half*.

And be it Enacted, That every external wall in the Fifth Rate of building, shall be built upon a footing, the width of which shall be at the least Nine Inches more than the wall is thick immediately above the same; and the height of which above the foundation shall be at the least Six Inches, and at the least of Two courses of bricks or stone, laid in *Two single* courses, diminishing equally on each side *Four Inches* and a *Half* to the top thereof, and the top of such footing shall be at the least Six Inches below the surface of the lowest ground, or area adjoining thereto; and every such external wall, from the top of such footing to the top of such external wall, shall be at the least of the thickness of *Eight Inches* and a *Half*.

And be it Enacted, That every external wall shall be carried up and remain *One Foot Six Inches* at the least above the highest part of the gutter adjoining thereto, excepting where the roof of the house or building to which such wall shall belong shall overhang the same; in which case the wall shall be carried up of its full thickness to the underside of the plate of the roof; and the water from the roof shall be carried off as hereinafter directed, for preventing the drip of water.

And be it Enacted, That every external wall which shall hereafter be built for any house or building shall be built solid, of good, sound, well-burnt bricks, or good, sound stone, properly bonded, and set in good and well-compounded mortar or cement, and may, if thought fit by the party building, be faced, in addition to its thickness, with a good coating of cement, except such iron work as may be required for bonds and corbels; and except the ends of girders and bressumers, all of which shall be fixed at a distance of *Four Inches* at the least from the external face of such wall; and it may be lawful to insert, in openings left in such wall, the tiers of floor-boards of warehouses, provided the same be fixed at the distance of *Four Inches* at the least from the face of such wall; also, the frames of doors and windows, provided the same be fixed in reveals, and recessed at least *Four Inches* from the face of such wall; also, such wood and iron work in the lowest or first floor, and in the ground floor, as may be required for bressumers, girders, and story-posts, provided the same be fixed at least *Two Inches* from the face of such wall; and also, shop fronts, in such manner as hereinafter permitted.

And be it Enacted, That no external wall of any house or building already built, or which shall be hereafter built, shall ever be used as a party wall, unless the same shall have such footings and be of such heights and thicknesses, and be built in such

manner and of such materials as are herein directed for party walls of buildings of the highest Rate to which such wall shall adjoin; and if such external footings, nor be of such heights and thicknesses, nor be built in such manner and of such materials as aforesaid, then any house or building built adjoining thereto, not being such attached building or office as is hereinbefore described, shall have a distinct external wall, built as herein described for external walls of the Rate to which it shall belong.

And be it Enacted, That every external wall or other external inclosure of any house or building already built, and not built of the materials required by this Act for external walls hereafter to be built, or other external inclosures hereafter to be built, may be at all times hereafter repaired with materials of the same sort or sorts as those of which such external wall or other external inclosure has been already built (except the inclosures of roofs, which, with the flats, gutters, dormers, turrets, lantern-lights or other erections thereon, shall be repaired with the materials hereinafter directed for the same); but in case any such external wall or other external inclosure shall be at any time hereafter taken down or otherwise demolished for the height of *One story*, or for a space equal to *One-fourth* the surface thereof, then every party thereof not built in the manner and of the several materials hereinbefore directed for external walls shall be taken down, and the same shall be rebuilt in such manner and of such materials and in all respects as is herein directed for external walls hereafter to be built, according to the Rate of the house or building to which such external wall or other external inclosure shall belong.

And be it Enacted, That no part of any house or building which shall be hereafter built or rebuilt, nor any projection therefrom, nor any steps, cellar doors or area inclosures, shall overhang or encroach upon any public way, or upon ground belonging to any other owner, without the consent in writing of such owner; but the walls of such house or building shall be set back, so that all projections therefrom shall only overhang the ground of the owner of such house or building; nevertheless, it shall be lawful (notwithstanding any Act heretofore passed to the contrary) to build the portico of any church, chapel or other public building, over the foot pavement of any street or alley, provided such street or alley shall be *Fifty Feet* wide at the least, and provided the building of the same shall be previously sanctioned by any Two or more of the Justices of the Peace; and it shall be competent to any such Justices to determine what shall be considered as a public building.

And be it Enacted, That no bow-window nor other projection of any sort or kind, shall be built over or added to any house or building already built, or which shall be hereafter built, on the face or faces thereof, in any street or alley, so as to extend beyond such line as shall be deemed the general line of the fronts of the houses in such street or alley by the Surveyor or by the Official Referees, except overhanging roofs, copings, cornices, canopies, pilasters and entablatures, facias, door and window dressings and other architectural decorations, verandahs of light open iron-work, balconies, porticoes, shop fronts, open inclosures to open areas, steps and waterpipes; but it may be lawful to build bow-windows and other projections from all other external walls, provided the same shall not overhang or encroach upon any public way, or upon ground belonging to any other owner: Provided nevertheless, That all such projections from any house or building on the face or faces thereof in any street or alley, or from any other external wall thereof, shall be built so as not to obstruct the light and air, or be otherwise injurious to the owners or occupiers of any side houses or buildings adjoining thereto, on any side thereof; and if any doubt shall arise as to what shall be deemed the general line, then any owner or occupier of any house in any such street or alley may have the question referred to the Official Referees, whose decision shall be final, and the party requiring such reference shall pay all costs and fees relating thereto.

And be it Enacted, That all cornices to overhanging roofs, parapets, blocking courses, copings, cornices, columns, pilasters and entablatures, facias, door and window dressings, and other architectural decorations projecting from external walls, shall be built and may be faced in the manner and of the several materials hereinbefore directed for building and facing external walls; and that such balconies, porticoes, inclosures to open areas and steps, and all other projections from external walls, shall be built of brick, stone, artificial stone, slate, cement, or metal, except such wood-work as may be necessary for shop fronts and for the frames and sashes of windows and for doors; and excepting always houses and buildings which shall be at least *Twenty Feet* from any public way, and at least *Twenty Feet* from any other house or building not in the same occupation, the projections from which may be made of any material whatever.

And be it Enacted, That it may be lawful to build with or add to any house or building, in any street or alley of the width of *Thirty Feet* or more (ascertained as hereinbefore directed), a shop front of which no part shall be higher than *Fifteen Feet* above the level of the public foot-pavement in front of the door thereof, and of which no part, except the cornice, shall project more than *Ten Inches*, and of which the cornice shall not project more than *Eighteen Inches* from the vertical line of the front brickwork of such house or building; and also that it may be lawful to build with or add to any house or building, in any street or alley from *Fifteen Feet* to *Thirty Feet* wide (ascertained as hereinbefore directed), a shop front of

which no part shall be higher than *Fifteen Feet* above the level of the public foot-pavement in front of the door thereof, and of which no part, except the cornice, shall project more than *Five Inches*, and of which the cornice shall not project more than *Thirteen Inches* from the vertical line of the front brickwork of such house or building; and all shop fronts may be built of any materials whatever; but no wood-work of any shop front shall be fixed nearer than *Four Inches* and a *Half* to the centre line of any party wall, nor shall any part of any sign or notice be fixed on or against, or upon any part of any house or building above *Three Feet* from the top of the shop front, if any shop front there shall be, and if more than above *Eighteen Feet* from the level of the street or alley.

And be it Enacted, That in every warehouse which shall be hereafter built or new roofed, there shall not be laid or formed any gutter against any party wall belonging to such warehouse parallel thereto, but the roof thereof shall be made to pitch up against every such party wall, and such party wall shall be at least *Five Feet* high above the end of any gutter which shall abut against it, and no part of the roof shall rise above the top of the party wall.

And be it Enacted, That all the external parts of every roof, flat and gutter of every house and building, and of every projection therefrom, which shall be hereafter built, striped, painted, unpainted, and that every turret, dormer, lantern, light and other erection which shall be hereafter built or uncovered on the roof or flat of any house or building, shall be covered with slate, tiles, metal, glass, artificial stone or cement, except such wood as may be necessary for the door-frames and doors, window-frames and sashes of such turrets, dormers, lanterns, lights or other erections; and that the water which shall come from the roof, flat, and gutter of every house or building, and from the roof, flat and gutter of every projection therefrom, and from balconies, verandahs and shop fronts, shall not be allowed to drip, but shall be conveyed from thence into cisterns, tanks or buckets, drains and metal gutters and pipes, and such gutters and pipes shall be laid below the pavement wherever it may be necessary to cross any public way.

And be it Enacted, That every chimney and chimney-stack which shall be hereafter built, shall be built on foundations and footings similar to those of the wall in or adjoining to which such chimney or chimney-stack shall be; and that the brickwork of every such stack shall be built on the foundation of every such wall, and the foundation of the third floor of every such stack shall be built on the foundation of the full thickness required for such flue, so that the brickwork of such flue shall not in any party thereof overhang or overhang any part of such party wall; and that whenever any Two or more flues shall be built in one stack, every such stack shall be built from the foundation to the top thereof without any galling or corbeling over, whereby any upper part of the brickwork of such stack shall overhang or overhang any lower part of the brickwork of the same, either on the front or sides thereof: Provided nevertheless, That it shall be lawful to build above the ceiling of the fifth floor of every house and building of the First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth, Fifteenth, Sixteenth, Seventeenth, Eighteenth, Nineteenth, Twentieth, Twenty-first, Twenty-second, Twenty-third, Twenty-fourth, Twenty-fifth, Twenty-sixth, Twenty-seventh, Twenty-eighth, Twenty-ninth, Thirtieth, Thirty-first, Thirty-second, Thirty-third, Thirty-fourth, Thirty-fifth, Thirty-sixth, Thirty-seventh, Thirty-eighth, Thirty-ninth, Fortieth, Forty-first, Forty-second, Forty-third, Forty-fourth, Forty-fifth, Forty-sixth, Forty-seventh, Forty-eighth, Forty-ninth, Fiftieth, Fifty-first, Fifty-second, Fifty-third, Fifty-fourth, Fifty-fifth, Fifty-sixth, Fifty-seventh, Fifty-eighth, Fifty-ninth, Sixtieth, Sixty-first, Sixty-second, Sixty-third, Sixty-fourth, Sixty-fifth, Sixty-sixth, Sixty-seventh, Sixty-eighth, Sixty-ninth, Seventieth, Seventy-first, Seventy-second, Seventy-third, Seventy-fourth, Seventy-fifth, Seventy-sixth, Seventy-seventh, Seventy-eighth, Seventy-ninth, Eightieth, Eighty-first, Eighty-second, Eighty-third, Eighty-fourth, Eighty-fifth, Eighty-sixth, Eighty-seventh, Eighty-eighth, Eighty-ninth, Ninetieth, Ninety-first, Ninety-second, Ninety-third, Ninety-fourth, Ninety-fifth, Ninety-sixth, Ninety-seventh, Ninety-eighth, Ninety-ninth, and the joints of the work filled in with good mortar or cement, and all the insides thereof rendered or parge-tted.

And be it Enacted, That the jambs of every chimney opening which shall be hereafter built, shall not be less than *Eight Inches* and a *Half* wide on each side of such opening, and that no timber whatever shall be placed over any such opening, for supporting the breast thereof, but there shall be an arch of brick or stone and an iron bar or bars over the opening of every such chimney to support the breast thereof, such bars to be built into the jambs at least *Four Inches* on each side, and every opening of every such chimney in the first or lowest floor, exceeding in width *Three Feet Ten Inches*, shall have iron-framed cradle-bars over the same, built into the jambs at least *Nine Inches* on each side, and no timber or wood-work whatever shall be laid nearer than *Nine Inches* to the opening of any chimney, nor to the inside of any flue, and no timber or wood-work whatever shall hereafter be affixed to the front of any jamb or mantle, or to the front or back of any chimney or flue, except such timber or wood-work be affixed by iron nails or holdfasts or other iron fastenings, such iron nails, iron holdfasts or other iron fastenings not to lie or be driven more than *Three Inches* above the wall against any chimney or flue, or nearer than *Four Inches* to the inside of the opening of any chimney or flue.

And be it Enacted, That every chimney which shall be hereafter built, shall have a slab or slabs of brick, tile, stone, slate, marble or iron laid before the opening, and at least *One Foot* longer than such opening when finished, and *Eighteen Inches* in front of the arch over the same; and such slab or slabs shall be laid wholly on brick, stone, slate, marble, or iron, or at any one end, on brick, stone, slate, marble, or iron, and at the other end, on brick, stone, slate, marble, or iron, or on a brick fender, or bedded on the solid ground.

And be it Enacted, That the back of every chimney opening which shall be hereafter built in any house or

building, either being or not being in a party wall, shall be the lowest or first floor at least *Thirteen Inches* thick from the hearth to the height of *Eighteen Inches* above the mantle, and shall be at least *Eight Inches* and a *Half* thick in every other floor; nevertheless, in the lowest or first floor of buildings of the Third, Fourth and Fifth Rate of Buildings, the backs of such chimney openings may be at the least *Eight Inches* and a *Half* thick; and nevertheless, the back of, or the chimney opening, not being in a party wall, may be *Four Inches* and a *Half* less than the several thicknesses above described when built against an adjoining wall.

And be it Enacted, That in all chimney openings which shall be hereafter built back to back, the thickness between the same shall be at the least of the thickness hereinbefore described for the back of one chimney opening.

And be it Enacted, That no flue shall be hereafter built with any angle which shall be less than *One hundred and thirty-five Degrees*, unless the same be provided with proper openings not less than *Nine Inches* square, and proper close iron doors and frames inserted in such openings, whereby such flue may be swept by machinery; and every salient or projecting angle within such flue shall be rounded off *Four Inches* at the least, and shall be protected by a rounded iron bar.

And be it Enacted, That it shall not be lawful to build or fix any oven or furnace used for manufacture, or any coker or closed fire within a distance of *One Foot* of any party wall, nor upon nor within a distance of *Two Feet* of any timber or wood-work; and the floor on or above which such oven, furnace, coker or cove shall be built or fixed, shall be formed and paved under said floor of *Two Feet* all round the same with stone, brick, tile, or iron.

And be it Enacted, That every flue in every party wall already built which shall be raised or repaired, and in every party wall which shall be hereafter built, shall be carried up in brick or stone-work to a height of not less than *Three Feet* above the highest part of such portion of the roof as shall adjoin thereto at the point of junction; and that the brick or stone-work around every flue above the party or other walls shall be at least *Nine Inches* thick all round from *Nine Inches* above the slope, flat or gutter of the roof where it adjoins thereto; and that no brick or stone-work of any such flue or chimney-shaft be built higher than *Ten Feet* above the slope, flat or gutter of the roof where it adjoins thereto, unless the same be secured by iron shaft, to the satisfaction in both cases, of the Surveyor; excepting always the chimney-shaft for any steam-engine, brewery, distillery or manufactory, which may be erected of any height without iron stays, provided they shall be of such additional strength and dimensions, and be built in such manner as shall be satisfactory to the Surveyor.

And be it Enacted, That no earthen or metal chimney-pot, tube, funnel or cowl of any description whatever, be fixed, the top of which shall be higher than *Six Feet* above the brick or stone-work of the flue on which the same shall be placed; and every such earthen or metal chimney-pot, tube or funnel shall be let down and fixed at least *Two Feet* into the brick or stone-work of the flue on which the same shall be placed.

And be it Enacted, That no metal or other pipe or funnel for conveying smoke or steam shall at any time hereafter be fixed against or in front of any face of any house or building, in any street or alley, nor on the inside of any house or building nearer than *Fourteen Inches* to any timber or other combustible material whatever.

And be it Enacted, That when the owner or occupier of any piece of vacant ground shall have obtained the consent of the owner or occupier of the adjoining ground to the building of a party wall as herein directed, he shall give *One Month's* notice at the least to the owner or occupier of such adjoining ground, previously to beginning to build such party wall; and on receiving instructions in due time in writing, or by a plan from the owner or occupier of such adjoining ground, he shall construct, if practicable, such and so many chimney-jambs, breasts and flues of chimneys, in all parts of such party wall as shall be by such instructions required; and shall also leave such recesses in every such wall as may be so required, provided the same accord with the directions herein-after contained for building party walls and chimneys: And provided always, That the person building such party wall shall be entitled to recover from the owner or occupier of such adjacent ground all expenses of constructing any such chimney-jambs, breasts and flues of chimneys and recesses in any such party wall, for the benefit of such owner or occupier, in the like manner and with and subject to the like powers and remedies as are hereafter provided for the recovering of the expenses of constructing party walls.

And be it Enacted, That no chimney-shaft, jamb, breast or flue already built, or which shall be hereafter built, shall be cut into for any purpose other than the repair thereof, except in the case herein directed for cutting away such portion of the breasts and chimney-shafts of an old sound party wall, as may be required for the purpose of building an external wall against the same.

And be it Enacted, That every wall which shall be intended as a separation of one house or building from another house or building, or which shall be built upon, or shall stand upon ground not wholly belonging to or held by the same person, shall be and is hereby declared to be a party wall within the meaning of this Act.

And be it Enacted, That every party wall which shall hereafter be built for any house or building of the First, Second or Third Rate, shall be built upon a footing, the width of which shall be at the least *Nine Inches* more than the wall is thick immediately above the same, and the height of which above the foundation shall be at the least *One Foot*, and at the least of Four courses of bricks or stone, laid in *Two* double courses, diminishing equally on each side *Four Inches* and a *Half* to the top thereof; and the top of such footing shall be at the least *Six Inches* below the surface of the lowest ground or area adjoining thereto, and at the least *Three Inches* below the surface of the lowest or first floor of such house or building adjoining or intended to adjoin thereto; and every such party wall which shall be built for any house or building of the First or Second Rate, from the top of such footing to the underside of the second floor, shall be at the least of the thickness of *One Foot Ten Inches* and a *Half*, and from thence up to the top of such party wall shall be at the least of the thickness of *One Foot Five Inches*; and every such party wall which shall be built for any house or building of the Third Rate, from the top of such footing to the underside of the fourth floor, shall be at the least of the thickness of *One Foot Five Inches*, and from thence up to the top of such party wall shall be at the least of the thickness of *Thirteen Inches*.

And be it Enacted, That every party wall which shall hereafter be built for any house or building of the Fourth and Fifth Rates shall be built upon a footing, the width of which shall be at the least *Nine Inches* more than the wall is thick immediately above the same, and the height of which above the foundation shall be at the least *One Foot*, and at the least of Three courses of bricks or stone laid in *One* double and *One* single course, diminishing equally on each side *Four Inches* and a *Half* to the top thereof, and the top of such footing shall be at the least *Six Inches* below the surface of the lowest ground or area adjoining thereto, and at least *Three Inches* below the surface of the lowest or first floor of such house or building, or of any house or building adjoining or intended to adjoin thereto; and every such party wall from the top of such footing to the top of such party wall shall be at the least of the thickness of *Thirteen Inches*, except in a warehouse of the Fourth Rate, where the same shall be at the least of the thickness of *One Foot and Five Inches*, up to the ceiling of the lowest or first floor.

And be it Enacted, That every party wall which shall hereafter be built for any house or building, and every addition or enlargement of every such party wall, or of every party wall already built, shall be carried up and remain *One Foot Six Inches* at the least above any roof which shall gable against or adjoin to such party wall, measuring from where they adjoin, or from and at a right angle with the back of the rafters of such roof, and *Two Feet* at the least above any turret, dormer, lantern, light, or other erection is or shall be fixed in or upon the flat or roof of any house or building within *Five Feet* of any party wall, then every such party wall shall be carried up against every such turret, dormer, lantern, light, or other erection, and shall extend *One Foot Six Inches* higher and *One Foot Six Inches* wider than any such erection.

And be it Enacted, That every party wall which shall hereafter be built for any house or building shall be built solid of good, sound, well-burnt bricks, or good, sound stone, properly bonded, and set in good and well-compounded mortar or cement, except the flues, and except such iron-work as may be required to carry the ends of girders, bressumers, timbers, joists, and principal timbers of roofs; and the ends of all such girders, bressumers and other timbers shall be carried upon iron shoes or stone corbels, built into the wall stone, and shall be of the thickness thereof, to receive them, as shall also all trimming joists lying against such party wall; and every such party wall shall be finished at top with a stone coping or a tile creasing, and *One* course of sound stock bricks set on edge with good cement.

And be it Enacted, That every house or building which shall be hereafter built adjoining to any other house or building, and any part of every house or building, which shall be hereafter built adjoining to any part of any other house or building, shall be divided from such other house or building, and every part thereof by a party wall, built *One-half* of the ground of one owner, or appertaining or belonging to the one of such houses or buildings, and *One-half* on the ground of the other owner, or appertaining or belonging to the other of such houses or buildings, and also built in the manner and of the materials, and of the several heights and thicknesses herein directed for party walls of the highest rate of building to which such party wall shall adjoin, whether of such houses or buildings shall be completed, and to extend to the outer surfaces of the external walls of each adjoining house or building, except such other house or building, or part thereof, shall have a sound party wall, not of the thicknesses required by this Act, or as an external wall; in either of which cases every house or building or part thereof so to be built shall have an external wall built entirely on the ground of the owner thereof, or appertaining or belonging to such house or building, and against such other sound party wall or external wall of the other house or building, in manner herein directed for external walls.

And be it Enacted, That when the owner or occupier of any piece of vacant ground, or ground not hitherto built upon, shall be desirous to build any house or building adjoining to another piece of vacant ground,

or ground not hitherto built upon, or to build a fence wall for such piece of ground, he shall give to the owner or occupier of such adjoining vacant ground notice in writing of such his desire, *One Month* at least before commencing to build, and also a like notice in writing, should he desire to build a party wall or party fence wall, describing therein the thicknesses and dimensions of such desired party wall or party fence wall; and if the owner or occupier of such adjoining vacant ground shall signify his consent in writing to the building of such party wall or party fence wall, then *One-half* the same shall be built on the ground of one of the said owners or occupiers, and the other half on the ground of the other owner or occupier, which other half shall be paid for as is herein-after directed by such other owner or occupier; but if he shall not signify in writing his consent to the building of such party wall or party fence wall, then the owner or occupier desirous to build shall build an external wall for such house or building, and fence wall for such ground, entirely upon his own ground, in manner herein directed for external walls and fence walls.

And be it Enacted, That when any houses or buildings already built, having rooms or floors the property of different owners, which lie intermixed without being separated by any party wall or party arch, or stone floor, shall be altogether or in any part rebuilt, such intermixed properties shall be separated from each other where they adjoin vertically by a party wall built in the manner, and of the materials, and of the several heights and thicknesses hereinbefore described for party walls of the highest rate of the building to which such party wall shall adjoin, and where they adjoin horizontally they shall be separated by the floor formed of iron girders and brick arches or stone landings, or by a party arch or party arches of brick or stone of the thickness of *Thirteen Inches* at the least; and such floor or party arch or party arches shall be built with such abutments and in such manner as shall be approved of by the Surveyor.

And be it Enacted, That when such part of any house or building as extends over any public way shall be rebuilt, the same shall be separated from such public way by a floor formed of iron girders and brick arches, or stone landings, or by an arch formed of brick or stone of the thickness of *Thirteen Inches* at the least; and such floor or arch with its abutments shall be built in such manner as shall be approved of by the Surveyor; and in no case shall there be formed over any public way a ceiling of lath and plaster, or of lath and cement.

And be it enacted, That no recess or cavity shall be left in any party wall or party arch, or in any addition to or enlargement thereof, which shall hereafter be built for any house or building, so as to reduce such wall or arch in any part thereof to a less thickness than is herein directed for party walls or party arches, except such as may be necessary for chimney openings, flues, stone or iron shoes or corbels, and iron story-posts; and no chase or recess or toothing shall be left in any party wall to receive the end of any other wall or pier, but instead thereof, a tongue or projection at least *Four Inches* by *Four Inches* shall be formed and built with such party wall, or added thereto with cement.

And be it Enacted, That it shall not be lawful to make or cut any opening, for the purposes of light or otherwise, in any external wall of any house or building which shall abut upon the ground of any other owner; nor to make or cut any opening, for the purposes of light or otherwise, in such portion of any party wall as shall rise higher than the house or building which it may adjoin, without the consent in writing of the owner of the ground, or house or building adjoining to such external wall or party wall; and if any such opening shall be made in any such external wall or party wall without the consent of the owner of the adjoining ground; house or building as aforesaid, then it shall be lawful for such owner to require in writing that the same shall be stopped up with brick-work, and if the same shall not be done within one *One Month* after such notice, then it shall be lawful for such owner, by himself or his workmen, to enter on the premises at all reasonable times, and to cause such opening to be stopped as aforesaid, and to recover the costs thereof (such costs to be settled by the Official Referees, by their certificate) against the owner or occupier in any of Her Majesty's Courts of Record at Westminster.

And be it Enacted, That no party wall nor party arch shall be cut into except for the repair thereof, and except for the cutting off the footings, chimney-jambs and breasts, as herein may be allowed for building external walls; against the same, and except for the insertion of chimney-jambs, with flues, iron story-posts, templates, landings, stone steps, corbels and iron shoes; but no party wall nor party arch shall be cut into for any of the purposes aforesaid if the cutting thereof will, in the opinion of the Surveyor in whose district the same shall be, injure or endanger the same, or any of the chimneys or flues attached to or inserted therein; and whenever any party wall or party arch shall have been cut into for any of the purposes aforesaid, or in any defect or damage shall have occurred therefrom, the same shall be immediately restored, and well and carefully repaired and made good, and pinned up with brick, stone, slate and tile, or any of them, bedded in cement, by or at the cost of the person so cutting into the same.

And be it Enacted, That no old sound party wall, or party wall which shall not have been found decayed and ruinous, shall be condemned for insufficiency of thickness, but when either of the houses or buildings to which such party wall belongs shall be rebuilt, the owner of the house or buildings so to be rebuilt shall build a wall against such party wall, in the manner

and of the materials and of the several heights and thicknesses hereinbefore directed for external walls of the rate to which such house or building shall belong; and such owner may for that purpose cut off the footings of such party wall on the side next the wall so to be built; and the owner of such house or building shall give *One Month's* notice in writing to the owner or occupier of the adjoining house or building, or to the intention to rebuild his house or building, and to build a wall against such party wall, and of his desire to cut away such portion of the footings, and of the breasts and chimney-shafts belonging to the house or building about to be rebuilt, as shall project beyond the perpendicular face of such party wall in the lowest foot thereof; and from and after the expiration of such notice it shall be lawful for the owner of the house or building to be rebuilt, to cut away such portion of the footings, breasts and chimney-shafts aforesaid, provided the same be done, and the brickwork where cut be made good again in cement, under the superintendence and to the satisfaction of the Surveyor; and in case such party wall shall be so damaged and injured by such cutting away, as in the opinion of the Surveyor or of the owner or occupier of either of the houses or buildings adjoining thereto, to be ruinous or dangerous, then the same shall be surveyed, and if condemned shall be pulled down and rebuilt as a party wall, in manner herein directed with respect to the condemning ruinous and defective party walls; but if such damage or injury shall have been occasioned, in the opinion of the Surveyor and Official Referees surveying the same, by the neglect of, or the want of proper care or of proper shoring by the owner or occupier of the house to be rebuilt, then and in such case, all the costs and expenses attendant on such survey, and on the pulling down and rebuilding of such party wall, and on the reinstating and making good all the internal finishing and decorations damaged thereby, shall be borne and paid by such owner or occupier; and if such owner or occupier shall not proceed with all due despatch to pull down and rebuild such party wall, and to reinstate and make good all the internal finishings and decorations, and to pay the costs and charges and expenses of the survey, then it shall be lawful for the owner or occupier of the adjoining house or building to do so, and to recover all the costs and expenses arising therefrom, from such owner or occupier, his heirs, executors, administrators or assigns, in manner hereinafter directed for recovering the expenses of party walls.

And be it Enacted, That when any house or building shall have been rebuilt with an external wall against a party wall which shall not have been found ruinous and decayed, and shall not have been condemned for insufficiency of thickness, such wall shall be deemed to remain as a party wall until the adjoining house or building shall be pulled down or rebuilt (if such party wall shall so long continue sound), and when such party wall shall be pulled down, the owner of such adjoining house shall not be entitled to more than *One-half* the materials thereof, nor to more than *One-half* the ground on which such party wall was built, nor shall be built on more than the *One-half* of the said ground, unless he shall have agreed with and satisfied the owner of the house or building so previously rebuilt for his half thereof; and in case the said owners cannot agree concerning the division of such materials or ground or the building thereon, or the reimbursement of the party first rebuilding as aforesaid, the price and all matters in difference shall be settled by a reference to the Official Referees, whose decision shall be final.

And be it Enacted, That every notice by this Act required to be given to the owner of any house, building or ground, shall, if such owner be a married female, be given to the husband of such married female; or if such owner shall be an infant, idiot or lunatic, then to the guardian, trustee or committee of such infant, idiot or lunatic; or if such owner, husband, trustee, guardian or committee is not known or cannot be found, then to the occupier of such house, fence, building or ground, or if such house, building or ground be unoccupied, then shall be affixed to some conspicuous part of such house, building, fence or ground at a height of not more than *Nine Feet* from the ground; and every such notice when so given to such persons respectively as aforesaid, or left at the usual or last place of their respective abodes, or when so affixed as aforesaid, shall have the same effects and consequences to all intents and purposes as if given to the actual owner, and any notice hereby required to be given to any of the parties aforesaid may be left at their usual or last place of abode.

And be it Enacted, That when any party wall, party arch or external wall of any house or building used wholly or in part as a party fence wall shall be defective or so far out of repair as to render it necessary to pull down and rebuild the same, or some part or parts thereof, as well when neither of the adjoining houses or buildings may require to be rebuilt, as when the said houses or buildings, or one of them, may be required to be rebuilt, then any owner or occupier of any house or building, or of any ground adjoining any house or building, or who shall think it necessary to such defective wall, to repair, pull down or rebuild the same, or any part thereof, shall, (in case the owner or owners of the adjoining house or building or ground will not, or by reason of any legal disability or otherwise cannot agree touching the repairing or pulling down or rebuilding the same), give *Six Weeks'* notice in writing to the owner or occupier of such adjoining house or building or ground, of such his intention to repair or pull down such party wall or party arch or external wall, or any part thereof, which notice shall state the fact of such party or external wall or party arch, or some part thereof, being so far out of repair as to

render it necessary to repair or pull down and rebuild the same, or some part thereof, and that the party giving such notice desires that the same shall be referred to the Official Referees, and thereupon the same shall be referred to such Referees, who shall within *Seven Days* proceed to view such of the said *Six Weeks'* party arch or external wall, and certify the state and condition thereof; and in case they shall certify in writing under their hands that the party wall or party arch or external wall described in such notice, or any part thereof, is decayed and ruinous, or is not sufficiently secured against fire, and that the same ought to be repaired or pulled down, then a copy of such certificate signed by the said Referees within *Three Days* next after such certificate being signed shall be delivered to the owner or occupier or owners or occupiers of, or left at such adjoining house or building or ground, or fixed on the door or other conspicuous part thereof as herein directed for the first notice; and such certificate shall be immediately filed with the Clerk of the Peace; and every such certificate shall be binding and conclusive in all respects, and shall have the same effect and confer the same powers, to be enforced by the same penalties, and be exercised, subject to the same restrictions, and in the same manner in all respects as hereinbefore directed concerning certificates to be made in matters of intermixed properties; and such wall shall be built in the manner hereinbefore described for party walls, party arches and external walls of the highest rate of building to which such wall shall adjoin, such party walls to be built *One-half* on the ground of one owner and *One-half* on the ground of the other owner. Provided that nothing in this Act contained shall render it lawful for the party who shall think it necessary to repair or pull down or rebuild such party wall, party arch or external wall, to commence such pulling down, repairing or rebuilding, or to enter into or upon the adjoining house or building for that purpose, without the consent of the owner thereof, until the expiration of *Six calendar Months* after the date of the notice hereinbefore directed to be given.

And be it enacted, That where any house or building shall have a good and sound timber partition between the same and any other house or building, such timber partition may remain until one of the said houses or buildings shall be rebuilt, or shall have one of either of its fronts taken down to the level of the floor, or for a space equal to one-fourth of such front from the level of the second-floor upwards, or until such timber partition shall be condemned pursuant to the directions herein contained concerning ruinous or defective walls and party partitions; but if the owner of either of the houses or buildings divided by such timber partition shall be desirous to pull down and remove the same, and build a party wall in the place thereof, it shall be lawful for him to do so, provided that he shall give *Six Months'* previous notice in writing to the owner of the adjoining house or building of his intention to pull down such timber partition, and instead thereof to build a party wall agreeably to this Act; and from and after the end of *Six Months* from the date of such notice, it shall be lawful for the owner of such house or building to pull down the said timber partition, and the wall under or over the same, if any such there be, and to have and exercise the like power of entry into and upon the said adjoining house or building and ground, or of breaking open the same, in the presence of some person officiating on the same, if he is unoccupied or is refused to be opened, and of removing any wainscot, shelves, furniture or other things, and of shoring up the said adjoining house or building as by this Act is given and allowed to the owners of intermixed properties, and shall and may in the place of such timber partition and of the wall under or over the same, if any such there be, build a new party wall in the manner, and of the materials, and of the several heights and thicknesses hereinbefore described for party walls of the highest rate of building to which such party wall shall adjoin, with such right of recovering one-half the cost thereof as is herein directed in respect of party walls.

And be it Enacted, That no fence or party fence, of any material whatever, between the ground of different owners shall exceed a height of *Nine Feet* above the ground on either side thereof without the consent of all such different owners; and that no party fence wall shall be less than *Eight inches* and a *Half* thick; and it shall be lawful for the owner of the ground on either side of a party fence or party fence wall to raise or pull down and rebuild the same at his own proper cost and expense, to any height not exceeding *Nine Feet* above the ground on either side thereof.

And be it Enacted, That no party fence wall shall be used as a party wall unless the same shall be built in the manner, and of the materials, and of the several heights and thicknesses hereinbefore described for party walls, of the rate of the building to be erected against the same; and in case such wall shall be so built, or that there shall be only a wooden party fence, then the owner or occupier of either of the adjoining tenements shall be at liberty, at his own expense, to take down such wall or fence and erect a new party wall in lieu thereof, making good every damage that may accrue to the adjoining premises by such rebuilding, so nevertheless that such party wall shall have its centre upon the old centre line of wall shall have its centre upon the old centre line of wall shall be built or party fence; but no owner or occupier of such adjoining premises shall make use of such party wall otherwise than as a party fence wall, unless he pay a proportionate share of the whole expense of erecting such parts of such wall, according to the use he shall make of the same at the rates aforesaid: Provided also, That in case any party wall shall extend further upon the ground of the

owners building the same than the party fence or party fence wall did, yet the party rebuilding the same shall not thereby lose any part of the soil whereon such party wall shall be built, but shall the owner of the other part of such party wall claim to be entitled by reason of such rebuilding to any right of soil more than what he was before entitled to.

And be it Enacted, That every owner or occupier who shall think it necessary for any fence, party fence or party fence wall, or any part thereof adjoining to his ground, or between his ground and the ground of another owner, to be repaired, pulled down, rebuilt or refixed, shall (in case the owner or occupier of such adjoining ground will not, or by reason of any legal disability or otherwise cannot, agree touching the same), give *One Month's* notice in writing to the Surveyor and to the owner of such adjoining ground, in manner before provided, of his desire to have such fence, party fence, or party fence wall repaired, pulled down, rebuilt or refixed, by delivering a copy of such notice to such Surveyor and to such owner; and every such owner, if he is known and can be met with, or in case such owner be under disability as aforesaid, then such person or persons as aforesaid to whom such notice shall be given, and such Surveyor, shall meet at the time and place appointed in such notice, and shall view such fence, party fence, or party fence wall, and in case the owner of such adjoining ground, or such other persons as aforesaid, having notice as aforesaid, shall refuse or neglect to attend according to such notice, or shall not be known, then the Surveyor, by himself, shall view the said fence, party fence or party fence wall desired to be repaired, pulled down, rebuilt or refixed; and in case such fence, party fence, or party fence wall, or any part thereof, is in such state of disrepair, or in such condition of such fence, party fence or party fence wall, and whether the same or any part thereof ought to be repaired or pulled down, or rebuilt or refixed; and in case the Surveyor shall certify in writing, under his hand, that the fence, party fence or party fence wall described in such notice, or any part thereof, ought to be repaired or pulled down, rebuilt or refixed, then within *Three Days* next after such certificate made by such Surveyor as aforesaid, a notice thereof shall be delivered to the owner or occupier of such adjoining ground, or left at his or their last usual place of abode, or fixed on the door or other conspicuous part thereof, as herein directed for the first notice, and in every such case, and not otherwise, it shall be lawful for the owner or occupier desiring to have such fence, party fence or party fence wall, repaired or pulled down, rebuilt or refixed as aforesaid, to cause such fence, party fence or party fence wall, or any part thereof to be repaired or pulled down, or rebuilt or refixed; and that the person authorized by such certificate, his heirs, executors and administrators, servants or workmen, and also his builders and their workmen, shall have and exercise all the like powers within the like period, and sanctioned by the same penalties, and in all respects in the same manner as hereinbefore directed concerning intermixed properties after verdict or judgment given: Provided always, That the expenses of such repair, pulling down, rebuilding or refixing (including Surveyor's fees) shall not be recoverable, except as herein after directed, for the reimbursement of the expenses of party walls.

And be it Enacted, That when a party wall or party arch cannot be built upon proper foundations between houses and buildings or buildings and other public ways, or between rooms or floors, the property of different persons, lying intermixed, without pulling down such houses or buildings and laying parts of each to the others, and that the owner or owners thereof or some one of them will not (or cannot, by reason of some legal disability or otherwise) build a proper party wall or party arch, or in pulling down such houses and laying parts of each to the other, or in case differences shall arise amongst them, so that the rebuilding the same, and of the party wall or party arch thereof, be thereby prevented and delayed to the injury or inconvenience of such owner or owners as are desirous of rebuilding; then such owner or owners shall be desirous of rebuilding such house or other building shall give notice in writing to the owner of such adjoining house or other building, or of the other parts of such intermixed house or building, that the person so intending to rebuild will apply to the Official Referees, in order to obtain advice touching the rebuilding such house or other building, or of the other parts of such intermixed house or building, and for ascertaining the site of a party wall or party arch to be built according to the directions and restrictions in this Act contained; and in every case it shall and may be lawful for the said Official Referees, and they shall inquire and determine whether the premises in any of the cases aforesaid ought to be rebuilt or not, and if the same ought to be rebuilt, shall determine the site of a party wall, and also what party arches may be necessary over or under any rooms of such house or houses or other buildings so intended to be rebuilt, or shall ascertain the quantity of the soil or ground, or other parts of the premises (if any) necessary to be laid out for the rebuilding of such house or other building, or of the other parts of such intermixed house or building, and shall ascertain what (if any) compensation should be made and paid by either of any of the said owners in difference to the other of others of them in lieu of the lessening either of the said buildings by such party wall or party arch, or of the satisfaction for the same, or of the party arch or party wall so hereby, to any of the said parties; and shall also ascertain what proportion of the expense of building such party wall or party arch shall, when the same are so built, be repaid by either or any

the parties in difference to the person so rebuilding as aforesaid; and the said Official Referees shall and may (if they see fit) award to either of the parties such costs as they shall deem reasonable; which award, in writing, shall be binding and conclusive against all and every person and persons, bodies politic or corporate, the Queen's Majesty, her heirs and successors, claiming any estate, right, title, trust, use or interest in, to or out of the said premises, or any part thereof, either in possession, reversion, remainder or expectancy, and against all other persons whomsoever; and a copy of such award, under the hands of the said Referees shall be delivered to any party requiring it, paying therefor; and such copy of such award shall and may be taken and read as evidence in all courts of law and equity whatever; and after the expiration of *Fourteen Days* from and after the obtaining such award, and payment or tender, in manner herein after directed, of the sum or sums of money (if any) thereby assessed or awarded, or where no such sum of money shall be so assessed or awarded, after the expiration of *Fourteen Days* from and after the obtaining such award, the person who shall have applied for and obtained such award, his heirs, executors or administrators, servants or workmen, shall and may pull down his own house or other building and rebuild the same in the manner so ascertained by such award (except as hereinafter provided), and to that end shall and may, in the presence of a constable or headborough, or other officer of the peace, enter upon the site of the ground so ascertained for a party wall or party arch, and into the building (if any) adjoining to the building or party wall or party arch intended to be rebuilt, at any time between the hours of *Six* in the morning and *Seven* in the afternoon (Sundays excepted); and if the outer door of such house or building be shut, and the person therein refuse to open the same, being thereunto required, or if such house or other building be empty and unoccupied, shall and may break open such outer door and remove to some other part of the same premises, or in case there be no room on the premises sufficient for that purpose, may remove to any other place any goods, furniture or other thing obstructing the building of such intended party wall or party arch, or the pulling down any wall, partition or other thing necessary to be pulled down and removed in order to the building such intended party wall or party arch, and from and after such entry as aforesaid, and at all usual times of working, it shall be lawful for the builder employed to erect such intended party wall or party arch, and his servants and all others employed by him, to enter into and upon the premises and abide therein the usual times of working for the shoring up of the said house or other building so broke into and entered upon, and for taking down and removing any party wall, partition, wainscot or other thing necessary to be taken down and removed for the purpose aforesaid, and to build such intended party wall or party arch; and if any such owner or occupier or other person shall in any manner hinder or obstruct any workman employed for any of the purposes aforesaid, or wilfully damage or injure the said works, every such person so offending shall for every such offence forfeit and pay not exceeding the sum of *Ten Pounds* to be levied, recovered and applied as the several penalties of *Ten Pounds* hereinafter mentioned are directed to be levied, recovered and applied: Provided, That nothing herein contained shall render it lawful for the owner desirous of rebuilding, to commence such pulling down and rebuilding, or to enter into or upon the other house or building adjoining thereto for that purpose, without the consent of the owner thereof, until the expiration of *Six* calendar Months after the date of the first notice, or before the expiration of *Fourteen Days* from the dates of such award.

And be it Enacted, That it shall be lawful to raise any house or building, provided the party and external walls and chimneys thereof when so raised shall be of the materials, and of the several heights and thicknesses hereinbefore described for party and external walls and chimneys of the rate such house or building shall be of when so raised; nevertheless it shall be lawful to raise for a height, not exceeding *Ten Feet*, any house or building already built in accordance with the said Act of the fourteenth year of the reign of his late Majesty King George the Third, provided the party and all other walls of such house or building shall be, in the opinion of the Surveyor, of sufficient strength to allow of such raising.

And be it enacted, That if any house or building shall be raised, the owner of such house or building shall build up, at his own expense, the party walls of any adjoining house or building, and all flues and chimneys belonging thereto; but if the owner of any such adjoining house or building shall at any time make use of any portion of the party wall of such party wall, he shall repay to the owner who built the same the cost of the portion he shall so use, together with such parts of the chimney stacks as belong thereto: Provided nevertheless, That the owner of any such adjoining house or building shall have the full use of all the flues raised which he had before without being liable for any portion of the cost of raising such party wall, flues and chimney stacks.

And be it Enacted, That if the owner or occupier of any ground, house or building shall excavate or dig out the ground adjoining to or against any wall, whether of a house or building or otherwise, or against any part thereof, deeper than the foundation of such wall, then the owner or occupier who shall excavate such ground shall, at his own costs, shore up and support such wall or part thereof, for its full thickness and to the full depth of such excavation, with good sound stock bricks and tiles, or slates bedded in cement, such underpinning to be done in a

workmanlike and substantial manner, and to the satisfaction of the Surveyor.

And be it Enacted, That the owner or occupier of any house or building, intending to pull down the same in part or altogether, shall give *One Month's* notice in writing of such his intention to the owner or occupier of any other house or building separated from his own by a party wall (if such party wall shall not be ruinous and defective); and in such case such owner or occupier intending to pull down in part or altogether shall, at his own costs, cause such adjoining house or building to be properly and effectually shored up and protected inside and outside as shall be found necessary, and shall make good every injury and damage which shall be done to such adjoining house or building by such pulling down in part or altogether, and that the amount of such injury and damage shall be claimed and recovered in all respects as herein directed concerning the reimbursement of the expenses of building party walls.

And be it Enacted, That if any house, building or wall, or any part thereof, shall be in a ruinous condition, so as to endanger the lives and limbs of the inhabitants thereof, or the passengers, it shall be the duty of the Surveyor and of the Overseers for the time being of the parish or place in which the same shall be, and he and they shall and are hereby required to cause a survey to be made thereof forthwith by such Surveyor and the aforesaid Official Referees; and if upon such survey it shall be certified by any such Surveyor and the Official Referees, that the said house, building or wall is in a ruinous condition and dangerous, it shall be lawful for the Court of Mayor and Aldermen in respect of any such house, building or wall within the city of London and the liberties thereof, or for the Overseers of the poor for the time being of the parish or place in which such house, building or wall shall be situated, not being in the city of London, or the liberties thereof; and the said Court, and every such Overseer of the Poor is and are hereby required, on notice of any such certificate being made, and a copy thereof being laid before them or him respectively, to cause with all convenient speed a proper and sufficient house to be put up for the safety of all passengers, and to cause notice in writing to be given to the owner or occupier thereof, to repair or pull down such house, building or wall, or any part thereof, as the case may require, within *Fourteen Days* then next ensuing; and if such owner or occupier of any such house, building or wall shall not begin to repair or pull down the same or such part thereof within the said *Fourteen Days* after such notice so given or affixed as aforesaid, and complete such repairs or pulling down as soon as the nature of the case will admit, then on oath being made before the said Mayor or Justice of the Peace for the said city, county or liberty wherein the said ruinous house or building shall be situated, of such notice having been so given, which oath every of them the said Mayor and Justices is hereby empowered and required to administer, the said Court of Mayor and Aldermen, by and out of the cash in the Chamber of London, and the deputies thereof, and also every such Overseer of the Poor, as regards all other places, by and out of the money in his hands, are hereby severally authorized and required, with all convenient speed, to order and cause such house, building or wall, or such part thereof so certified to be in a ruinous condition and dangerous, as the said Court or the said Overseers of the Poor find necessary for the safety of the passengers, to be repaired, or pulled down or secured, in such manner as shall from time to time be requisite; and to sell and dispose of such of the materials as the said Court of Mayor and Aldermen, or the said Overseers of the Poor, shall judge necessary, and out of the monies arising from the sale thereof to reimburse, repay and satisfy to themselves, to the Surveyors and Official Referees, and to every other person by them respectively employed for the purposes aforesaid, all the charges of the survey and of putting up every such board, and of repairing, pulling down and securing as aforesaid, and of selling the said materials as aforesaid, or so much thereof as the monies arising by such sale will extend to pay, and shall account for and pay the surplus of the monies arising by such sale (if any) to the owner of every such house, building or wall, upon demand thereof made by such owner; and if no such demand made, then such surplus shall, as regards places within the city of London and the liberties thereof, be paid to the Chamberlain of the City; and as regards all other places, the same shall be added to the rates made for the relief of the poor of the said parish, and accounted for as such. Provided nevertheless, That any such owner, his executors or administrators, shall and may, at any time or times within the term of *Six Years* then afterwards, be entitled to have and receive such surplus; and every Overseer, as regards places not within the said city or liberties thereof, is hereby required to pay the same accordingly out of any monies raised or to be raised by any rate or rates for the relief of the poor; and if the monies arising from such sales shall be insufficient to repay all such fees and charges, then such deficiency shall from time to time be paid by the owner of every such house or building, if known; and if such owner, on demand thereof, neglect or refuse to pay the same, then such deficiency may be levied by warrant under the hand and seal of the Mayor of the said city of London for the time being, if such ruinous building in question shall be within the city of London or the liberties thereof, or under the hands and seals of Two or more Justices of the Peace, by distress and sale of the goods and chattels of such owner, if any such can be found; and if no such owner can be met with, or being met with shall not on demand pay the said deficiency, and no

sufficient distress of his, her or their goods and chattels can be found, then the person who shall at any time thereafter occupy any such house or building, or the ground where the same stood, is hereby required and authorized to pay and deduct the same out of the rent thereof, or if he neglect or refuse to pay such deficiency of charges, then the same shall, by warrant under the hand and seal of the said Mayor of the said city, or under the hands and seals of Two or more Justices of the Peace as aforesaid, be levied by distress and sale of the goods and chattels of any occupier of the premises, together with the costs of every such distress and sale; and all money received or recovered on the account aforesaid, for or in respect of any such house, building or wall or part thereof, within the city of London, or the liberties thereof, shall be paid to the Chamberlain of the said city, and be by him from time to time placed to the credit of the cash of the said city of London, and all money on account aforesaid, from time to time received or recovered for or in respect of any such house, building or wall or part thereof, in any part of the limits aforesaid, other than the said city of London and the liberties thereof, shall be paid to the Overseers of the poor for the time being of the parish where the same shall be situated, and shall be placed to the account of the said parish, in aid of such or a like rate or fund out of which the expenses and charges so received or recovered were originally disbursed.

And be it Enacted, That if the chimney-shaft, chimney-pot or other thing thereon, or eaves, parapet, or coping, or slates, or tiles on roof, or projection in front of walls of any house or building shall be deemed by the Surveyor to be in imminent danger of falling, it shall be the duty of such Surveyor, and he is hereby required to give notice thereof under his hand to the occupier of such house or building, or personally or by leaving the same at or affixed to some conspicuous part of the said house or building, requiring such occupier, or the owner, if known, and there shall be no occupier, forthwith to take down, repair, rebuild or otherwise secure the same to the satisfaction of such Surveyor; and if such occupier or some other person interested in such house or building shall not begin to take down, repair, rebuild or secure the same within the space of *Thirteen* or *Six Hours* after such notice as aforesaid shall have been given, left or affixed, and complete such taking down, repairing, rebuilding or otherwise securing the same, to the satisfaction of such Surveyor, as soon as the nature of the case will admit, such Surveyor shall give information thereof to any Justice of the Peace, who shall proceed thereupon to cause such chimney-shaft, chimney-pot, or other thing thereon, or parapet, or coping, or slates or tiles on roof, or projection in front of wall of such house or building as shall be considered by such Surveyor in imminent danger, to be forthwith taken down, repaired, rebuilt or otherwise secured; and in case the occupier, or some other person interested in such house or building, shall not have taken down, repaired, rebuilt or otherwise secured the same within the time limited as aforesaid, the occupier of such house or building, or the owner, if there shall be no occupier, shall forfeit and pay the sum of *Five Pounds* for every day during which the same shall so remain unrepaired or not sufficiently secured, such penalty to be levied, recovered and applied in the same manner as any other penalty is by this Act directed to be levied, recovered and applied; and the occupier or owner of such house or building shall, over and above the aforesaid penalty, pay the Surveyor's fees and all other costs, charges and expenses attendant upon any such taking down, repairing, rebuilding or otherwise securing such matters and things as aforesaid, and all such Surveyor's fees and other costs, charges and expenses may be recovered and levied in the same manner as such penalty: Provided always, That in all cases in which the occupier of such house or building shall, by the virtue of the lease or other instrument under which he occupies the same, be bound to repair, reinstate or secure such matters or things as aforesaid, such occupier shall have the like right to retain out of the rent payable in respect of the same premises, all such penalties, costs, charges and expenses attendant upon or arising out of the taking down, repairing, rebuilding or otherwise securing the same as herein before given, and no costs or expenses shall be recoverable until the same shall be certified by the said Official Referees to be correct, and their decision shall be final.

And be it Enacted, That if any injury or damage shall at any time be caused to any house or building, or to the internal decorations and furniture thereof, by the falling down of any chimney-shaft, chimney-pot, parapet, coping or other thing, from any other house or building, such injury or damage shall be made good at the cost of the owner or occupier of the house or building from which the same shall fall, in like manner as herein directed concerning the reimbursement of the expenses of party walls, provided, nevertheless, the same shall not be any such part of a party wall as shall belong to and be used by the owners or occupiers of both houses or buildings; and such costs shall be recoverable in the manner hereinafter directed for the recovering of all other costs and expenses.

And be it Enacted, That every of the owners of every party wall shall keep in substantial repair such portion of such party wall, and of the chimney-stacks, chimney-pots, flues and other things in or attached thereto as shall belong to him; and in case any of the owners of a party wall shall neglect to keep all such portions as aforesaid in substantial repair which may be above the roofs of the adjoining house or building, so as to endanger the same, it shall be lawful for the owner or occupier of such adjoining house or building, by and with the consent of the Surveyor,

the said Surveyors, shall give notice of his intention at the office of the Surveyor of the district.

And be it Enacted, That every drain, timber building, chimney and flue, party wall, party fence wall, external wall and projection, and every other part of every house or building of every rate which shall be hereafter built or altered within the limits of this Act, shall be built or altered in the manner and of the materials and in every other respect according to and in conformity with the several rules, regulations and directions which are in this Act particularly specified; and if any person or persons shall build or begin to build, or cause the building or beginning to build, or shall alter or cause to be altered, or use or cause to be used any part of any ground, house or building, projection, drain or other thing contrary thereto, and as the same shall appear by the certificate of the Official Referees aforesaid, then the said house or building, projection, drain or other thing, or such part thereof so irregularly built or begun to be built, or so irregularly altered or begun to be altered or so used, shall be deemed a common nuisance, and the builder and the owner and the occupier thereof, or any one of them, shall be summoned by the Surveyor before any Two Justices of the Peace, and such one of them as such Justices shall require, shall enter into a recognizance in such sum as the said Justices shall appoint for abating and demolishing the same, within such convenient time as the said Justices shall respectively appoint, or otherwise to amend the same according to such rules and regulations and directions as are herein contained, as well as for the payment of the costs, charges and expenses attending the laying the information and obtaining the conviction; and in default of entering into such recognizance, the person or persons so making default shall be committed to the common gaol of the city, county or liberty where the offence shall be committed, there to remain without bail or mainprize until he shall have abated or demolished or otherwise amended the same, or until such irregular house or building shall be abated or demolished by order of such Justices respectively (which order the said Justices are hereby empowered to make), and until the costs, charges and expenses aforesaid have been paid.

And be it Enacted, That it shall be lawful for any Two or more Justices of the Peace to order every such house or building, or projection or such part thereof so irregularly built or begun to be built, or so irregularly altered or begun to be altered as is by this Act declared to be a common nuisance, to be abated or taken down, and to order the person authorized by them to abate or take down the same to sell and dispose of the materials thereof, and out of the monies arising by the sale thereof to pay to themselves and all persons who have employed for the purposes aforesaid, the reasonable charges for abating or taking down such nuisance, and also the costs and expenses attending the laying of the information and of obtaining the conviction thereupon, and to pay the surplus monies arising by such sale (if any) to the owner or owners of such materials, and if the monies arising by such sale be not sufficient to pay such charges, the deficiency shall be made good by such surveyor, and may be levied in like manner as herebefore directed concerning the expense of taking down ruinous buildings and putting up hoards for the safety of passengers.

And be it Enacted, That every workman, labourer, servant or other person employed in any building, or in the alteration, fitting up or decoration of any building, who shall wilfully, carelessly, or negligently, with or without the direction, privity or consent of the person causing such building or wall to be erected, do therein or in or about such building contrary to the directions of this Act, upon conviction thereof before any Two Justices of the Peace, upon the oath of One or more credible witness or witnesses (which oath the said and every such Justice is hereby empowered and required to administer), or upon his own confession, shall for every such offence forfeit a sum not exceeding Fifty Shillings; and if any such forfeiture be not paid upon and immediately after such conviction, then the offenders shall by warrant under the hand and seal of such Justice be committed to the common gaol for any term not exceeding at the discretion of such Justices.

And be it Enacted, That every person who shall intend to build or take down any house or building, or cause the same to be taken down, or who shall alter or repair the outward part of any house or building, or cause the same to be done, shall cause to be put up a proper and sufficient board or fence, in all cases in which the footway shall be thereby obstructed or rendered inconvenient with a convenient platform and handrail, if there shall be room enough for the same, to serve as a footway for passengers outside of such board or fence, and shall continue such board or fence in such cases as aforesaid, with such platform and handrail as aforesaid, standing in good condition, during such time as may be necessary for the public safety or convenience; and shall in all cases in which the same shall be necessary to prevent accidents, cause the same to be well lighted during the night; and every such person who shall refuse or neglect to set up any such fence, or board, or platform, with such handrail as aforesaid, or to continue the same respectively standing and in good condition during the time aforesaid, or who shall not, whilst the said board or fence is standing, keep the same well lighted in the night, shall for every such offence, on conviction thereof before any Two Justices of the Peace, forfeit a sum not exceeding Five Pounds: Provided always, That nothing herein contained shall be deemed to interfere with the rights, bye-laws, regulations and control of the Commissioners of Paving for the Metro-

politan of the City of London, shall and may, at any time after this Act shall come into operation, nominate and appoint such and so many discreet persons, properly educated, skilled in the art and practice of building, as they the said Lord Mayor and Aldermen shall think fit to be, during their will and pleasure, the Surveyors, to see all the rules, regulations and directions of this Act well and truly observed in and throughout the said City of London and the liberties thereof, and shall assign to such Surveyors such districts as they shall think fit to be under the charge of such Surveyors respectively as aforesaid; and they shall thereupon be the Surveyors of such districts; and the said Lord Mayor and Aldermen, immediately after this Act shall come into operation, and from time to time thereafter, shall and may appoint, unite, enlarge, diminish or alter the several districts which shall be under the charge of such Surveyors respectively; and the Justices of the Peace for the County of Middlesex, the County of Surrey, the County of Kent, the City and Liberty of Westminster, and the Liberty of Her Majesty's Tower of London, in their General Quarter Sessions respectively, shall and may, at any such time as aforesaid, nominate and appoint such and so many discreet persons, properly educated and skilled in the art and practice of building, as they the said Justices shall think fit to be, during their will and pleasure, the Surveyors, to see all the rules, regulations and directions of this Act well and truly observed in and throughout the said City and Liberty of Westminster, and all the parishes, precincts and places within the limits of this Act, under the jurisdiction of the respective Quarter Sessions by whom such Surveyors shall be so appointed; and the said Justices of the Peace from time to time, in their General Quarter Sessions respectively, shall and may from time to time appoint, unite, enlarge, diminish or alter the several districts which shall be under the charge of such Surveyors or Supervisors respectively; nevertheless, it shall not be lawful for any person to be one of such Surveyors or one of such Deputies as after mentioned until he shall have attained the full age of Thirty Years: nor shall it be lawful for any person to hold the office of a Surveyor, or of Deputy Surveyor, under this Act during the time that he shall act as a Justice of the Peace for the county in which such district shall be situated: Provided nevertheless, That no person shall be appointed the Surveyor of a district, nor shall any such district be appointed, enlarged, diminished or altered, except with the consent of Her Majesty's Principal Secretary of State acting for the Home Department.

And be it Enacted, That the Surveyors who at the time of this Act coming into operation shall have been appointed under the said Act of the fourteenth year of the reign of King George the Third, shall continue to be the Surveyors for the purposes of this Act, and for the districts assigned to them at the time this Act shall come into operation, until removed, and in all respects as if they had been appointed under this Act, and the several provisions in this Act applicable to District Surveyors had been made to apply to them; but nothing herebefore contained shall prevent the removal of such Surveyors, or the uniting, altering, or enlarging or diminishing of the districts formed before this Act shall come into operation.

And be it Enacted, That it shall be lawful for the said Lord Mayor and Aldermen, in the Court of Aldermen, and for the said Justices of the Peace in their respective General Quarter Sessions, and they are hereby required to administer to each and every one of the said Surveyors, upon his appointment, an oath for the true and impartial execution of his office in that behalf, which oath shall be in the form or to the effect following; (that is to say)

"I, A. B., being one of the Surveyors appointed in pursuance of an Act of Parliament passed in the do swear, that I will diligently, faithfully and impartially perform the duties of my office, and to the utmost of my power, skill and ability endeavour to cause the several provisions of the said Act to be strictly observed, and that without favour or affection, prejudice or malice to any person whomsoever.

"So help me GOD."

And be it Enacted, That every Surveyor shall have an office at his own expense, in some central part of the district to which he shall be appointed, approved by the Lord Mayor and Aldermen, or by any Two of the Justices of the Peace, as the case may be, within whose jurisdiction he shall act; and such Surveyor or some person on his behalf, shall be in constant attendance at such office every day (Sundays, Christmas-day and Good Friday excepted), from Ten of the clock in the morning till Four of the clock in the afternoon; and such Surveyor shall leave his name and place of abode, and the place where such office shall be, with the Clerk of the Peace, and with the Overseers of the poor, for every parish and place within his district; and such Surveyor shall cause a book for the entering of such notices, informations and complaints, to be at all times kept at such office, and he shall and is hereby required to enter in such book every notice, information or complaint which shall be delivered or made to him.

And be it Enacted, That in any case any Surveyor shall be prevented by illness, or any other unavoidable circumstance, from attending to the duties of his office by the Lord Mayor and Aldermen, or by any Two of the Justices of the Peace, as the case may be, with the consent and approval of One of the Justices of the Peace having jurisdiction in his district, appoint some other Surveyor as his deputy, to perform all such duties, for so long a time as such prevention

shall continue; and such Deputy Surveyor shall thereupon, during such time as aforesaid, perform all the duties of such Surveyor, and in all respects as if he were the Surveyor appointed or confirmed under this Act, and shall be entitled to the like fees; and in case of the death of any Surveyor, the Lord Mayor and Aldermen, or the Justices of the Peace, shall within One Month appoint a successor as herein directed.

And be it Enacted, That when Two clear days at least before any house or building shall be built, or be built, or before any addition or alteration shall be made to any house or building, or before any party wall, external wall, chimney back or flue, shall be begun to be built, pulled down or rebuilt, cut into or altered, or before any opening shall be made in any party wall, or before any other matter or thing shall be done which by this Act shall have been placed under the supervision of the Surveyor, notice thereof shall have been left at the office of any Surveyor as hereinbefore directed; or when, from ignorance or neglect, or from any other circumstance, such notice shall not have been so left, yet the progress of any such work shall have been observed by or made known to the Surveyor, then and in both cases, the Surveyor in whose district such work shall be intended to be done or shall have been commenced shall proceed from time to time to inspect the same, and to cause all the rules, regulations and directions of this Act to be strictly observed, according to the oath taken by him to that effect; and it shall also be the duty of such Surveyor, at all times when it shall be needful, to inspect private drains, ruinous buildings and projections in imminent danger, and to take all such measures thereupon, and to attend to and to perform every thing required of him by this Act, whether with or without notice.

And be it Enacted, That in case the owner, the master builder or workman, or any other person who shall be employed, shall build, pull down, demolish, cut into or alter any part of any house or building, or party wall or external wall, or chimney back or flue, or any other thing contrary to the rules and directions of this Act, or shall not conform to all such rules and directions, the Surveyor shall forthwith give Forty-eight Hours' notice to the owner or the master builder, to amend any such irregularity which he may apprehend to have been committed; and after the expiration of such notice, such Surveyor shall proceed to inspect the work; and if he shall be refused admittance from time to time, at any reasonable hour, to make such inspection, he is hereby empowered, by and with the aid of a Peace Officer, to enter upon the ground, house, building and premises where the same may be, for that purpose; and if it shall prove that the work is so far advanced that such Surveyor cannot ascertain whether the irregularity has been committed or not, or exists or not, he is hereby empowered to order any work to be cut into, laid open or pulled down, which shall in his opinion prevent his ascertaining whether any such irregularity exists or not; and in case the owner or master builder to whom any such notice shall have been given, shall refuse or omit or neglect to amend any irregular work after Forty-eight Hours, or any owner or master builder, in case he shall refuse, when ordered by the Surveyor, to cut into, lay open or pull down any work which shall in his opinion prevent his ascertaining whether any such irregular work exists or not, such Surveyor shall, as soon as conveniently may be, give information thereof to Two or more Justices of the Peace, who shall proceed thereupon to hear the matter, and if any breach of the rules, regulations and directions of this Act shall be found to have been committed, or if there shall appear good reason to surmise and apprehend any such breach has been committed and is concealed, then the said Justices shall proceed to cause such house, building, party wall, external wall, chimney back, flue or other thing, or such part thereof as they shall deem necessary, to be amended, removed, pulled down, laid open or demolished, in manner herebefore directed.

And be it Enacted, That every Surveyor shall be entitled to receive, and shall be paid for his time and trouble and expenses, in causing all the rules, regulations and directions of this Act to be observed, the several fees hereinafter directed; and in case no notice shall have been given as hereinbefore directed, he shall be entitled to receive and shall be paid Three times the amount of such fees; and whenever any fee shall become payable to any Surveyor, he shall deliver an account thereof to the owner or occupier of the house or building, and when such fee shall be paid, he shall give to such owner a receipt, signed by him, in which he shall state the amount, and state thereon the amount paid for the work done for which such fee shall have become payable; and no fee shall be paid without such receipt being tendered for the same; but if any owner or occupier who shall become liable to pay any such fee shall refuse to pay the same on tender of such receipt, the same shall be recoverable by application to any Justice of the Peace in whose jurisdiction the house or building shall be, in like manner in which any poor's rates are by law recoverable; and also Treble the amount of the same when no notice shall have been given as hereinbefore directed.

And be it Enacted, That it shall not be lawful for any Surveyor to receive any fee unless the work upon which the same shall become payable shall have been done in every respect agreeably to the directions of this Act; and every Surveyor shall, within Fourteen Days after every quarter day in every year, after the First day of January, One thousand eight hundred and Forty-four, make a return to the Clerk of the Peace for his district, enumerating therein the number and nature of all the several works executed within the

previous quarter under his supervision, and the fees paid to him for the same; and such return shall be signed by such Surveyor; and the correctness thereof shall be sworn to by him before any Two Justices of the Peace; and such return, so sworn to, shall be deemed to be a certificate that all the works enumerated therein have been done in all respects agreeably to this Act, according to the best of his knowledge and belief; but such return shall not be any protection from or hindrance of any future proceeding for irregular works according to the provisions of this Act, though the same may have been done before the making of such return; and such return shall be at all reasonable times open for inspection on the payment of One Shilling.

And be it enacted, That if any Surveyor shall receive any higher fee than he shall be entitled to under this Act, or if at any time he shall wilfully neglect his duty, or behave himself negligently or unlawfully in the discharge thereof, or shall become incapable to discharge the same, and if the same shall upon complaint thereof be made to appear to the Mayor and Aldermen of the said City of London, or to the Court of Session having jurisdiction over the district in which he shall act for the time being, such Surveyor shall, by the said Mayor and Aldermen, or by the said Court of Session, not exceeding Fifty Pounds, as they shall think fit, or shall be discharged forthwith from his said office, and shall for ever afterwards be incapable of being again appointed a Surveyor for the purposes of this Act.

And be it enacted, That whenever any house or building shall have been built on old or new foundations, the fee payable by the owner thereof to the Surveyor in whose district the same shall be, according to this Act, shall become due and shall be paid within Fourteen Days after the roof thereof shall have been covered in, and all the walls thereof shall have been built to their full heights, and the principal timbers of the partitions and floors shall have been fixed in their places; and such Surveyor shall be paid—

For every Building of the First Rate	£ s. d.
Second	7 7 0
Third	5 5 0
Fourth	4 4 0
Fifth	2 2 0
Sixth	6 6 0
Seventh	0 10 0

And whenever any public building of the Eighth Rate shall have been certified, as hereinbefore directed, to have been built in a satisfactory manner, and according to the regulations of this Act, the Surveyor and the Official Referees who shall sign such certificate shall be paid by the owner thereof the several fees following; (that is to say)

To the Surveyor, in addition to a	£ s. d.
First Rate fee	10 10 0
To each of the Referees who shall have assisted in the supervision, and signed the certificate	10 10 0

And whenever the offices of any house or building attached thereto shall be distinctly rated, and shall be built according to the regulations for a lower rate of building than such house or building, the fee for such offices shall be paid in addition to the fee for the house or building, and according to the rate they shall be of.

And whenever any addition or alteration shall be made to any house or building, the fee payable by the owner thereof to the Surveyor, according to this Act, shall become due and shall be paid within Fourteen Days after the completion of the works connected with such alteration; and such fee shall be according to this Act under the supervision of such Surveyor, and such fee shall be payable on every alteration or addition made to any house or building which shall involve the execution of works subject to the regulations of this Act, and the fees payable thereon shall be as follows; (that is to say)

For every Building of the First Rate	£ s. d.
Second	3 3 0
Third	2 12 6
Fourth	2 2 0
Fifth	1 1 0
Sixth	3 3 0

And whenever any addition or alteration shall be made to any public building, there shall be paid to the Surveyor in whose district the same shall be, and to the Official Referees, such fees as the Secretary of State for the Home Department for the time being shall consider proper, and in proportion to the fees payable for a new public building.

And whenever any Surveyor shall have been required and shall have performed any special duties according to the enactments herein contained, he shall be paid for the same the several fees hereinbefore mentioned, according to the service performed; (that is to say)

For surveying and certifying as to ruinous buildings	£ s. d.
For assisting to survey and certify as to ruinous buildings	2 2 0
For attending to the cutting away of chimney-breasts for external wall	1 1 0
For supervision of the building or rebuilding of lofty chimneys or towers for steam-engines, in addition to the First Rate fee	2 2 0
For condemning party fence walls	5 5 0
For the inspection and removal of projections, &c., in imminent danger	1 1 0
	2 2 0

And whenever any service shall be performed by any Surveyor which is contemplated by this Act, but not included and comprehended under any of the foregoing heads, there shall be paid for such service by the person to whom it may be rendered such fee as any Two Justices of the Peace shall, by writing under their hands, order and appoint; and all such fees as aforesaid, and all the fees for special services heretofore enumerated, shall become due and be payable within Fourteen Days after each several service shall have been performed.

And be it enacted, That the Official Referees aforesaid shall, in addition to the fees before mentioned, have and be entitled to the following fees:

For every survey directed to be made by them, the sum of pounds each.

For every certificate signed by them, in pursuance of the directions of this Act, the sum of pounds each.

For every award to be made, in pursuance of the directions of this Act, the sum of pounds each.

And be it enacted, That every Clerk of the Peace shall be entitled to a fee of One Shilling for every matter directed to be filed with him, and the sum of per folio of One hundred words for every quarterly Surveyor's accounts directed to be filed, such payment to be made by the party filing the same.

Provided always, and be it enacted, That all the powers and authorities by this Act vested in the Mayor and Aldermen of the City of London, may be lawfully exercised by the Court of Mayor and Aldermen of the said City, to be held in the Outer Chamber of the Guildhall of the said City, according to the custom of the said City.

And be it enacted, That when any distress shall be made for any sum or sums of money to be recovered by virtue of this Act, the distress itself shall not be deemed unlawful, nor shall the party or parties making the same be deemed a trespasser or trespassers, on account of any defect of form in any proceedings relating thereto; nor shall the party or parties be deemed a trespasser or trespassers ab initio, on account of any irregularity done by him or them; but the person or persons aggrieved by such distress may recover full satisfaction for the special damage only by action on the case, and not by any other action whatsoever.

Provided always, and be it enacted, That no plaintiff shall recover in any action for any such irregularity or other proceedings, if tender of sufficient amends be made, by or on the behalf of the party or parties who committed, or caused to be committed, any such irregularity or wrongful proceeding before such action be brought; and in case no such tender shall have been made, it shall and may be lawful for the defendant in any such action, by the leave of the court where such action shall depend, at any time before issue joined, to pay into the court such sums of money as he or they shall see fit, whereupon such proceedings or order and judgment shall be had, made or given in and by such court as in other actions where the defendant is allowed to pay money into court.

And be it enacted, That no order which shall be made by virtue of or under this Act, or any other proceeding to be had, touching the conviction of any offender or offenders against this Act, shall be removed or removable by certiorari, or any other writ or process whatsoever, into any of Her Majesty's Courts of Record at Westminster.

And be it enacted, That the parishioners and inhabitants of the parish, precinct or place where any offence against this Act shall be committed, shall be allowed to be competent witnesses on the trial, or otherwise, in any action, bill, or in any of the said Courts of Record, or at or upon the hearing and determination of any matter before the Mayor of London or other Justice of the Peace, for or concerning any offence or offences against this present Act, notwithstanding his, her or their being a parishioner or parishioners, inhabitant or inhabitants, in such parish, precinct or place: Provided always, That no action or prosecution shall be brought or commenced against any person or persons for any penalty or forfeiture inflicted or incurred by this Act, unless the same shall be commenced within Six calendar Months next after such forfeiture shall have been incurred; and all penalties hereby inflicted and not specifically appropriated, shall be recovered and received, suing for the same, on giving information under the provisions of this Act.

And be it enacted, That no action or suit shall be commenced against any person or persons, for any thing done in pursuance of this Act, until Twenty Days after notice of such action or suit shall be brought, nor after the expiration of Three calendar months next after the fact committed, and every such action or suit, the cause whereof shall arise within the said City of London, or the County of Middlesex, shall be laid and tried in the said City of London, and not elsewhere; and every such action or suit, the cause whereof shall arise in any part of the limits aforesaid out of the said City of London and liberties thereof, shall be laid and tried in the County of Middlesex, and not elsewhere; and the defendant or defendants in every such action or suit shall be bound to appear at any trial or trials to be had in pursuance of this Act, and to give evidence in such action or suit as to the matter or thing for which such action or suit is brought was done in pursuance and by the authority of this Act; and if the said matter or thing appear to have been so done, or if it

appear that such action or suit was brought before the expiration of Twenty-one Days after such notice given as aforesaid, or that sufficient satisfaction was made or tendered before such action was brought, or if any such action or suit be not commenced within the time herein for that purpose limited, or be laid in any other county or place than as aforesaid, then the Jury in every such action or suit shall find for the defendant or defendants therein; and if a verdict be found for the defendant or defendants, or if the plaintiff or plaintiffs in any such action or suit become nonsuited, or discontinued, or suffer a discontinuance, or if any such action or suit, judgment be given for the defendant or defendants therein, on demurrer, or by default, or otherwise, then and in any of the cases aforesaid the defendant or defendants shall have judgment according to the provisions of this Act, and the work as stipulated for in such agreement, if the parties thereto shall disagree about the same, shall and may be submitted by either party (notice being given in writing to the other) to the Surveyor, who shall determine the same, and whose determination shall be final and binding on all the parties, and in all respects as if his determination had formed part of the contract; and such Surveyor shall have power to direct either party to pay the costs of the Referees, and shall for his certificate be entitled to a fee of Pounds.

And be it enacted, That any occupier of any building who shall pay any costs, charges or expenses for the taking down, repairing, rebuilding and effectually securing any chimney, or roof, or parapet or other wall, or any building or part of any building, or any other costs, charges and expenses which the owner of such building would be liable to pay under the provisions of this Act, or upon whose goods and chattels such costs, charges and expenses may be levied in pursuance of this Act, may deduct the amount of such costs, charges and expenses, and the costs, charges and expenses of any distress and sale, out of the rent due to his landlord or lessor, unless there shall be some express agreement to the contrary between the parties; and the receipt for such payment shall be a sufficient discharge to any occupier for so much money as he shall have so paid, or which shall have been so levied on his goods and chattels in pursuance of this Act, and shall be allowed by such lessor or landlord in part or full payment, as the case may be, of the rent due to him by such occupier as aforesaid; or otherwise the same shall be repaid to such occupier by such lessor or landlord, and in default thereof may be recovered by such occupier from such lessor or landlord by execution or suit in any of her Majesty's courts of law, unless in any case there shall be an express agreement between the parties to the contrary.

And be it enacted, That no Stamp Duty shall be payable on any certificate or award to be signed by any Surveyor or Official Referees in pursuance of this Act.

And be it enacted, That if any house, building, matter or thing, subject to the provisions of this Act, shall be part in one district and part in another, then the Official Referees shall determine in which district for the purposes of this Act the same shall be, and such determination shall be final; and the party requiring the decision of such Referees shall pay the sum of Pounds to each for his fee.

And be it enacted, That in case any difference shall arise between any parties with respect to any matter or thing done or to be done in pursuance of this Act, or otherwise as to the provisions of this Act, or as to the mode in which the provisions and directions of this Act are or ought to be carried into effect, then if any parties interested in the matter shall require it, such point in difference shall be referred to the award of the said Official Referees, and the award of them, or of any Two of them, in writing, on all or any of the points in difference, shall be binding on all parties; and as regards such award and every other award to be made by such Referees in pursuance of the provisions of this Act, the same shall have the same effect as if the same had been made under an order of reference made by her Majesty's Court of Queen's Bench at Westminster; and such Referees shall have all such powers, as arbitrators, as they would have had in case they had been appointed under the order of the said Court; and their award shall be enforced by the said Court in all respects as if made under an order of such Court.

And be it enacted, That this Act may be amended or repealed by any Act to be passed in this present Session of Parliament.

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THE BUILDER,

NO. XIII.

SATURDAY, MAY 6, 1843.

We have to-day given considerable space to the report which Mr. Barry has presented in reference to the decorative accessories to the New Houses of Parliament. We cannot sufficiently enlarge upon the importance of the theme, or by any thing we can say magnify its consequences in the fair estimation of our readers.

Architecture, sculpture, and painting are at length once more to be allied, and that which we have been contending for ever since we could reason, or at any rate ever since the bias of art was made manifest within us, is now recognized by the many, and propounded valiantly by one, whose position in the ranks of art entitle his opinions to the utmost deference and respect.

Mr. Barry has laid hold of this great occasion, this extraordinary era of a career in building, with which his name is to be identified, to give a marked character to the point of progress to which we have attained. Henceforth we have our backs turned upon that cold monotony of style, that frigidity of texture, that poverty and baldness, that purely mechanical and trading, that bucksterning spirit, which characterized the age through which we have just completed our toil of servitude. Emancipation is the order of the day. Art is emancipated, and its professors strike joyously, and now and then somewhat boisterously, if not indecorously, the note of gratulation. However, we have no such reproach to load our reporter with; he has permitted us to name steadily, with a modest glow of heat, that passion for his art which had a rich reward in the occasion this great commission threw upon him. Mr. Barry has turned to good account certain of his opportunities, and whether he willed it or no, he now stands the creature of every favouring circumstance, and holds in his hands as it were the power of creating a new public mind; he may rivet the attention of the patrons off-art, both to the art itself and to its practitioners, and secure for both from this time forward a first place in the consideration and respect of an enlightened people. Let us hope he will follow up, and be well enabled to do it, every opportunity that is now so generously afforded him.

NEW PRISON, LEEDS.

It is our intention against the next week, if possible, to enter largely into the question of the requisites and characteristics of prison designs with a view to promote the better accomplishment of the work called for by the authorities of the borough of Leeds. We could say much upon this subject to excite and awaken not only the profession but the whole public; and to convince the former that a great matter lies in their hands, not merely in the sense usually attached to architectural designing, but in reference to the whole subject of prison economy, we shall give as much as we are able of the late plans and instructions of Government, and accompany them by such matter of general inference and reflection on our own part, and by such instruction as we may venture upon, so as to be

of service to the competitors. We shall also presume to superintend this competition with a watchful eye, for the sake of our class. Any information that can be forwarded us, or any co-operation, will be greatly esteemed.

PROPOSED NEW BUILDING ACT.

We are glad to find that our pains have been approved of by our friends, and that the cheap reprint of the Bill contained in our last number has been considered as a fair pledge, or the carrying out of the pledge, on our part, to avail ourselves of every occasion of promoting the interest of our class.

HENSON'S AERIAL MACHINE.

A FEW pounds, and the good will of one of the railway companies, would test the principal qualifications of this machine. Let a common railway truck be placed upon one of the long embankments of the London and Birmingham Railroad, with the great frame-work wings lying on and secured to the top of it, at the necessary angle; in advance of this place a locomotive engine, connected by a length of rope, just as you would proceed in the relative case of "running up" a kite, then let the full speed of the engine be put on, and if the railway truck be lifted off the rails, the first question as to the ascendancy power is determined. After that it might be tried as to the power of a rapidly-revolving horizontal sail (since a pair of vertical ones of sufficient size might be more difficult to fix); placing this horizontal sail—if you like, a common windmill sail of four arms—upon the truck, let motion be given to it by a strap and drum in connection with the travelling axis of the truck wheels, but let the motion be one contrary to progress, and if, when the truck advances under the draught of the engine as before, the revolution of the sails be sufficient to stop its progress, and overcome the power of the engine, you will then have determined something as regards the power to advance a machine in the air, by sails so revolving, under the influence of an accompanying engine. These experiments are simple, and may be easily tried, and would be better than all the speculations of mathematicians. It is due to that part of the public, too, who may be tempted to risk their money in the adventure; let half-a-dozen individuals put down a few pounds each to hire the wood and canvas and pay for the damage (the sails they may hire from any millwright in the fen districts), and half the mystery and doubt on the subject will be removed. Our opinion is that the railway truck, well loaded too, would be found to ascend (a second or tail truck might be attached to prevent too much of an ascent), and our opinion is that in the other case the revolving sails would overcome the power of the engine. These points determined, the rest would easily follow.

The attention lately excited by Mr. Henson's aerial machine has recalled to our recollection a novel called "The Mummy," the scene of which is laid in the year 2200, when balloons are supposed to have become the common mode of conveyance in England. The novel was written by Mrs. Loudon in the year 1826. The following passage describes a scene which appears now likely to be realized.

"The air was thronged with balloons, and the crowd increased every moment; these aerial machines, laden with spectators till they were in danger of breaking down, glittered in the sun, and presented every possible variety of shape and colour. In fact, every balloon in London or the vicinity had been put in requisition, and enormous sums paid, in some cases merely for the privilege of hanging to the cords which attached the cars, whilst the innumerable multitudes that thus loaded the air, amused themselves by scattering flowers upon the heads of those who rode beneath.

"Besides balloons, a variety of other modes of conveyance fluttered in the sky. Some dandies bestrode aerial horses, inflated with inflammable gas, whilst others floated upon wings, or glided gently along, reclining gracefully upon aerial sledges, the last being contrived so as to cover a sufficient column of air for their support. As the procession approached the river, the scene became still more animated; innumerable barges of every kind

and description shot swiftly along, or glided smoothly over the sparkling water. Some floated with the tide in large boat-like shoes; whilst others reclining on couch-shaped cars, formed of mother-of-pearl, were drawn forward by inflated figures representing the deities or monsters of the deep.

"The ovation had now nearly reached the bridge, at the entrance to which a triumphal arch had been erected. The moment the queen and her heroic general passed under it, a small figure of Fame was contrived to descend from the entablature, and, hovering over the hero, to drop a laurel crown upon his head. Shouts of applause followed this well-executed device; and the passengers in the balloons wondering at the noise, all pressed forward at the same moment to ascertain the cause of such continued acclamations. The throng of balloons became thus every instant more dense, whilst some young city apprentices having hired each a pair of wings for the day, and not exactly knowing how to manage them, a dreadful tumult ensued; and the balloons became entangled with the winged heroes and each other in inextricable confusion.

"The noise now became tremendous; the conductors of the balloons swearing at each other the most refined oaths, and the ladies screaming in concert. Several balloons were rent in the scuffle, and fell with tremendous force upon the earth; whilst some cars were torn from their supporting ropes, and others roughly overset. Luckily, however, the whole of England was at this time so completely excavated, that falling upon the surface of the earth was like tumbling upon the parchment of an immense drum, and consequently only a deep hollow sound was returned as cargo after cargo of the demolished balloons struck upon it, though some of them rebounded several yards with the violence of the shock."

REWARD AND SERVICE.

WHEN it lights upon a worthy nature there is nothing procures a more faithful service than the master's liberality; nor is there any thing makes that appear more than true fidelity. They are of each other alternate parents, begetting and begotten. Certainly if these were practised, great men need not so often change their followers, nor would patrons be abandoned by their old attendants. To servants that be good and wise, rewards are not given, but paid; worth will never fail to give desert her bays.* Believe it, a diligent and discreet servant is one of the best friends a man can be blest withal; he will do whatsoever a friend may, and will be commanded with less hazard of losing; nay, he may, in a kind, challenge a glory above his master; for, though it be harder to play a king's part well, than 'tis to act a subject's, yet nature's inclination is much more bent to rule than to obey, service being a condition which is not found in any creatures of one kind but man. Now, if the question be, when men meet in these relations, who shall the first begin, the lot will surely fall upon the servant, for he is bound in duty to be diligent; the master is tied but by his honour, which is voluntary, and not compulsive; liberality being a free adjection, and not a tie in his bargain. 'Tis good sometimes for a master to use a servant like a friend, but 'tis always fit for a servant to pay him the respect due to a master. Pride becomes neither the commander nor the commanded. Every family is but a several plume of feathers, the meanest is of the selfsame stuff; only he that made the plume was pleased to set the master highest. The power of commanding is rather political than from equal nature. The service of man to man followed not the creation, but the fall of man; since that curse there is no absolute freedom to be found below; even kings are but more splendid servants for the common body, but there is a mutuality between masters and servants; the master serves them of necessities, and they him in his pleasures and conveniences. Virtue is the truest liberty, nor is he free who stoops to passions, nor he in bondage who serves a noble-minded master; the distance in their fortunes is not so great as their nearness in being men—no fate can fright away that likeness. Let not, then, the master abuse his servant, for 'tis possible he may fall below him; let not the servant neglect his master, for he may be cast to a still meaner condition. Let the servant deserve, and the master recompense, and if they would both be noble, the best way is for those that be subject to forget their services, and for those that are commanders to remember them.—*Feltham, A.D., 1631.*

* Laurois.

THE NEW METROPOLITAN BUILDING ACT.

TO THE EDITOR OF THE BUILDER.

SIR,—It must be highly gratifying to all classes of persons connected with building pursuits, that the legislature have determined to bring in a new Building Act for the metropolis; an opportunity now offers enabling parties to suggest such improvements as experience and practice must enable many to point out. The new Bill contains many excellent provisions, and will be a great benefit to the inhabitants of crowded neighbourhoods.

Inclosed I send you a copy of my petition, stating facts which occurred in my practice; and as, owing to defects in the old Building Act, parties have been put to enormous costs by litigation, my object is to obtain a clause to prevent a similar waste of money for the future.

Wishing every success to your really useful publication, I am, Sir, your obedient servant,

EDWARD W. GARRETT.

COPY OF LETTER TO MR. DUNCOMBE.

London, 26th April, 1843.

SIR,—I shall esteem it a great favour if you will present the inclosed petition on the Building Act to the House of Commons. The Bill appears to me very defective in many important particulars, and cannot fail, if passed in its present state, of leading to constant litigation. As I did not obtain a copy of the Bill till to-day, of course my petition is hastily drawn up.

I have taken this liberty in consequence of having much business in the Borough of Finsbury, and lately becoming a resident in this neighbourhood.

I have the honour to be, Sir, your obedient servant,
EDWARD W. GARRETT.
To T. S. Duncombe, Esq., M.P., &c. &c.

MR. DUNCOMBE'S ANSWER.

The Albany, April 29th, 1843.

SIR,—I beg leave to inform you that I presented to the House of Commons yesterday evening the petition which you did me the honour to transmit to me for that purpose.

I have the honour to be, Sir, your obedient servant,
THOS. S. DUNCOMBE.
E. W. Garrett, Esq.

(Copy.)

TO THE HONOURABLE THE COMMONS OF THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND IN PARLIAMENT ASSEMBLED.

The humble Petition of Edward William Garrett, Architect.

Sheweth:—That your petitioner finds it provided in the Bill "For the better regulating Buildings of the Metropolitan Districts, and to provide for the Drainage thereof;" that drains shall be built and made good into the common sewer of any one within one hundred feet, for every house or other building before the walls thereof shall be carried higher than ten feet.

That in houses and buildings in the districts comprised within the scope of the said bill, it often happens that drains, in running to the nearest common sewer, pass through and under the houses, buildings, or land of other persons, and frequently become obstructed or out of repair in such other persons' premises; or drains might readily be made to communicate with drains of the premises of such other persons whose drains do communicate with a common sewer; but inasmuch as no power now exists for a person to enter the premises or lands of another, the owners thereof frequently refuse to cleanse and repair their drains, or to allow adjoining owners to enter upon their premises to cleanse, repair, or to make and construct new ones, your petitioner is of opinion that if some compulsory measures were to be provided by the said bill for enforcing the same, it would tend greatly to facilitate the better drainage of the said districts.

That in the city of London there are numerous old party-walls, built under the 18th and 19th, and 22nd and 23rd of Charles the Second (after the great fire of London), half built on the land of each adjoining owner, of the proper thickness of party-walls, but with windows in the same, overlooking and abutting the premises of other persons, as was allowed by the said Acts, and that for the want of the origin of the same being understood, all such walls are treated by surveyors of the present day as external walls belonging to the party whose premises such windows serve to light, and on rebuilding any such walls, such parties claim the right of reinstating such windows as ancient lights, and rebuilding the same as external walls.

That disputes frequently arise in building and rebuilding houses and premises respecting the same and for want of the due setting out of the site for party walls, party fence walls, and external walls, and it was provided by the said Acts of

Charles the Second that district surveyors should attend to the due setting out of such sites, the half on the land of each party, and for the compelling parties to build party walls, the one-half on the land of each party, to be raised by the first beginner; and for want of such provisions in the Building Act now in force, disputes also between adjoining owners now constantly arise.

Your petitioner therefore humbly prays that it may be enacted, that persons may enter the lands, houses, and premises of adjoining property to cleanse, repair old, or to make new drains, to communicate with the nearest common sewer; that between house and other buildings or lands there shall be party walls built, half on the lands of each party, to be raised by the first builder, as provided for by the said Acts, and if desired by the adjoining owner, chimneys built therein, or in the adjoining side, to be set up by the surveyor of the district.

That no window or other openings may be made in any newly-erected party wall, party fence, or external wall, and that all windows in party walls, party fence, or external walls abutting on the lands of another which have not existed for six years may be stopped up (except they were made with the consent in writing of the adjoining freeholder); that all ancient windows in party, party fence, or external walls may be hooded up with metal so as not to prevent the light descending through the same, but so as to prevent the overlooking or the commission of nuisances to adjoining premises, and for the better security against fire.

And your petitioner will ever pray, &c.

EDWARD WILLIAM GARRETT.

ST. ANDREW'S CHURCH.

This church is now very nearly completed, so that a judgment may fairly be passed upon it as a whole. And we deeply regret that so miserable and meagre a specimen of modern church building should ever have been substituted for an ancient parish church in the very heart of our University. The inside could hardly have been worse, if the object of the architect and unchurchlike as he possibly could. The walls enclose a nearly square space, and are occupied on three sides by prodigious tiers of deal galleries, intercepting the windows of the aisles midway, and causing those at the east end to be partly blocked with bricks. There are very lofty pillars and very flat arches, exactly reversing the ancient rules of architecture; and behind these pseudo-piers (for they are of cast-iron) stand small parasitical props of the same material, supporting the beams of the galleries. The roof is criled, but has some deal planks (they are not timbers), in the shape of ties and collars, exposed. The pagan mural tablets, taken from the old church, have already been stuck up like so many marble blisters all over the interior of the new one. With all the worst features and details of a cheap church, this building has some attempts at external ornaments in the shape of a few disproportioned gargoyles and pinnacles. All the windows have the inexcusable fault, indeed the positive architectural solecism, of not being foliated under the transoms; and the mullions and tracery stand so nearly flush with the wall, that they have a most poor and unsatisfactory effect. In the northern face of the western tower is a huge four-centered doorway, or rather portal, which we need hardly say, is totally without authority. The same may be said of the doors near the eastern end. We had some hopes, while this church was half-built, that it might prove, in some degree, worthy of the name; but the internal arrangements are so repulsive, that it has lost almost all claim to the title. It is really distressing to think that so much money has recently been spent in erecting, in Cambridge, three of the worst new churches, perhaps, anywhere to be seen, when architects could easily have been found who, with the same funds, would have erected correct and churchlike designs of equal size.—*The Ecclesiologist.*

The foregoing species of criticism is of that arbitrary character that enables the reader to determine nothing, but that the church does not square with some standard which the writer sets up—a standard of copyism as well as of criticism. We dare say the great fault is, that the architect (whom we believe to be Mr. Poynder) has given occasion to be tried by this standard, by making his work amenable to it; neither venturing boldly, on the one hand, to translate freely, nor, on the other hand, being subservient enough to make a slavish copy. We think the criticism very illogical; but we have no time for a special notice of the subject, and shall have our views to propound in the whole treatment of the question of architectural propriety. By the way, we should

like to put two questions to the Camden Societies; first, what do they think the medieval architects would have done with cast-iron had they been masters, like ourselves, in the art of its manufacture? And second, as we have heard so much of the appropriateness of steep pitched roofs for our northern climate, and so much sticking for propriety, we should like to know what sort of roof and what style the Camden Society and their architect have fixed on as appropriate to Jerusalem, as we understand they have prepared designs for the proposed new Protestant church there?

FRESCO PAINTING.

THE noble style of adorning churches, halls, and palaces, called "fresco," which is now about to be again naturalised in England under the auspices of her Majesty Queen Victoria, Prince Albert, and the Government, was not unknown in the days of the Plantagenets and the Tudors, down to the eighth Henry, in the latter part of whose reign a total stop was put to this mode of decorating ecclesiastical edifices, and, in its stead, lime-wash was introduced, together with the mop and pail, to purify the walls of churches and chapels from the presence of the saints, kings, and queens, and scriptural paintings with which they were adorned; and extensively did the sweeping activity of those three practical agents obliterate the productions of the pencil, guided as it had been by intellectual power in various degrees. Some remnants of those works of early English genius and good taste did however escape, to give evidence of the barbarous spirit by which their fellows had been wantonly consigned to oblivion. "The Painted Chamber," Council Chamber, and St. Stephen's Chapel Royal of the ancient Palace of Westminster, did not suffer the penalty of the mop and pail—their pictorial riches were merely covered with wainscot-board, which kept the obnoxious paintings sufficiently out of sight for a couple of centuries; but in 1818 and six following years, great alteration being found requisite for the convenience of parliamentary business, the hidden treasures of the graphic art were discovered by Mr. Adam Lee, who was clerk of works for that department under the Board of Public Works. Mr. Lee made this discovery known, and the Antiquarian Society employed the late Mr. Stothard, R.A., to copy several of them, which were published in the transactions of that society. Mr. Lee made copies of all of them, which we believe he still has in his possession, and they afford undeniable evidence of the style of fresco painting which had been largely employed in the old palace nearly 500 years ago. Westminster Hall, however, which was completed by Richard II., never was painted (except the statues of the kings and queens that adorn the niches); the surface of the wall was only trowelled in the ordinary manner, without being coated with stucco. That great hall was hung with tapestry; the subjects were chiefly taken from the descriptions of the crusades, and particularly from "The Siege of Antioch." When removed from the hall, preparatory to the trial of Charles I., these "arras" were put up in the rooms then remaining of the ancient palace; long after which they were taken down, rolled up, and put into the cellars under the House of Lords, where they remained until the coronation of George IV., when they were found, taken out, unrolled, and displayed great freshness of colour and durability of texture. A servant, we believe, of Lord Gwydyr (then Lord Chamberlain) took a fancy to some of it, and was taken before a magistrate, with the *manner* in possession. The rest of the magnificent remains were again consigned to the cellars; but some time before the conflagration of the houses, were disinterred and sold by some nobody for 10*l.* to the theatres.

A splendid hotel is in the course of erection at the terminus at Colchester, and will be opened in about two months. It is designed in the pure Italian style, by Mr. Lewis Cubitt, and the builders are Messrs. Grissell and Peto. Tastefully laid out gardens will be attached, which, with the hotel, will cover about an acre and a half of ground. Mr. Osborne, the brewer, of Colchester, is, we understand, the proprietor; but we are not positively informed by whom the hotel will be occupied.

ON THE FITTINGS AND FURNITURE OF PARISH AND UNION WORKHOUSES, WITH PLANS AND SPECIFICATIONS.

BY A YOUNG PROVINCIAL ARCHITECT.

Introduction.

THOUGH much has been said and written, and a good deal to the purpose too, by London and others, on fittings and furniture in general, there are still remaining many branches even in this department as yet entirely untouched upon, and of these are the fittings and furniture of parish and union workhouses. Indeed it is observable as being somewhat singular, that London, in these excellent and elaborate portions in his works dedicated to furniture, &c., should have entirely omitted them, more especially as the other branches are entered into so fully. It will, therefore, be my object in this, and a course of sequent papers on the same subject, to suggest and illustrate the best mode of filling up and remedying this great gap in a very important branch in the art and economy of fitting up and furnishing, of each of which I shall give a specimen, as existing and executed under eminent plans and superintendence: and it will, moreover, give me great gratification and pleasure, to find my suggestions fol-

lowed up, and to see notices from your correspondents of any thing novel, economical, or tending to the convenience and comfort of the poor wretches who may, through misfortune or otherwise, have been thrown to seek refuge from misery and destitution in our parish workhouses and bastilles.

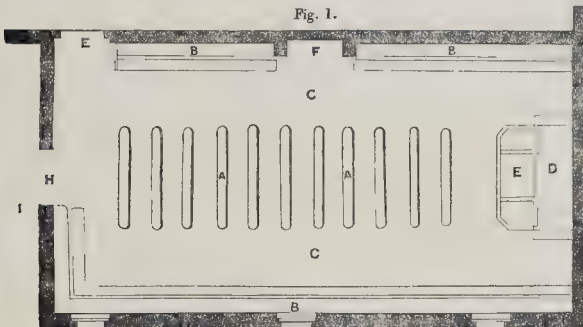
Indeed I consider that a very useful, well-timed, and instructive article may be written on this subject, and that the time and labour bestowed by architects upon it will not be lost to them. For, however little attention it may hitherto have claimed to their consideration, I do not consequently see why it should not now lay claim to their earnest study and attention; more especially of those architects who are extensively employed in the erection and fitting up of poorhouses. These things are, it is true, less studied by them than they otherwise would be, were it not that the clerk and governor are practised in and can understand and give directions concerning them. The reports published by the Poor Law Commissioners in no one instance descend to these particulars, but merely furnish plans of general interest and information. Indeed, I have examined all the documents to which I had access, but I could discover nothing at all bearing on the matter.

It is notorious that of all descriptions of buildings those erected and devoted to the habitation of the pauper require the most careful attention to the four great desiderata of cleanliness, classification, ventilation, and ready conveniences; and to this last belong our fittings. During the existence of the old poor-law, it is impossible to conceive the bad planning and construction exhibited in many of our parish workhouses, and their consequent filth and unhealthiness; though a partial remedy for this is discoverable in the operation of the new poor-law, which is, in more respects than one, a very judicious measure, inasmuch as it affords greater opportunity of cleanliness as well as classification. Those who are intimately connected and conversant with these things will at once own the justice of my remarks. With these few observations, then, let us turn our attention to

No. 1.—The Schools.

As the merit of these matters depends much on their arrangement on the plan, and as they will be best understood when the plan is given to illustrate them, I shall furnish it, together with the necessary sections and specifications, which formed or accompanied the contracts under which they were executed.

Fig. 1.



Plan.

Specifications.

Joiner's Work.—The master's desk to be formed of 1½ inch ovolo and bead and butt framing, 4 feet high, on a platform raised 1 foot above the floor. The platform to have red deal joists 3½ x 3, boarded with inch wrought red deal boards, and to be finished on the outside with nosing, and ¾ inch red deal fascia board; also to have inch steps and risers at each end. The desk to have 1½ inch clamped falls at each end, and the centre part to have fast tops with a drawer, 6 inches deep, underneath: the drawer having inch front, ¾ inch sides, and ¾ inch bottom with proper runners. The sides and ends to the cupboard (except the fronts) to be of inch pine, channelled for two shelves in each. That part of the desk top which is to have fall, must have lockers formed with ¾ inch bottoms let into the sides. The doors and falls to be hung with strong wrought-iron butt-hinges, and each cupboard, locker, and drawer to have a best lock fixed with screws, and the doors to the centre cupboard, which are to be hung folding, to have a hasp and staple inside.

A fence rail, 4 inches high, to be fixed on the top of the desk.

The writing desks to have 1½ inch pine tops, 11 inches wide on the slope, and 4 inches fixed level, with screws, on cast-iron brackets to oak plugs fixed in the wall. The edge of the desk to be protected by a slip of sheet iron fixed with screws, projecting ¼ inch above the desk.

The forms to the desks to have 1½ inch red deal supports every 6 feet in length, 1½ inch rounded tops, inch beaded rails, and to be blocked underneath.

A pin-rail 2½ x 1, to be fixed under the desks against the walls, with thirty-seven wrought-iron hat pins in it.

The benches in the middle to be as above described, and to have a hat pin to every 14 inches in length, screwed to the back rail on the inside.

A plain elbow of 1½ inch pine, to be fixed at the end of the desk next the door, firmly secured to the wall and floor, and rounded on the edges.

Iron Founder.—Provide cast-iron brackets to fix the desks on, as per drawing, to have a

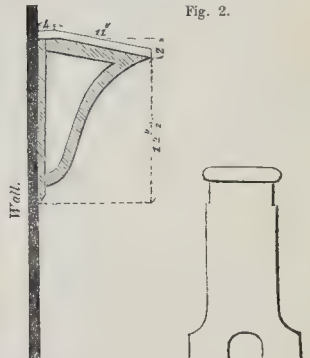


Fig. 2.

Cast Iron Bracket.

Moveable Form.

bracket to every 5 feet in length, and each bracket to have five holes drilled in it, and to be counter-sunk for fixing it by.

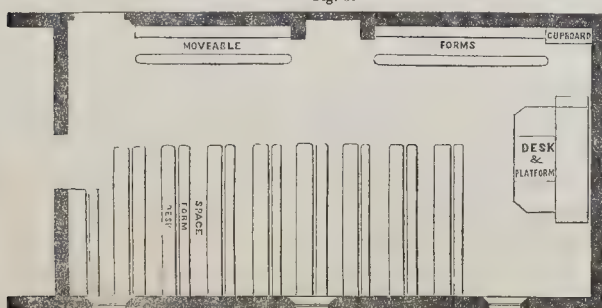
Fig. 1 shows the ground-plan of the boys' school room to the Stoke-upon-Trent Spittles Workhouse (to which the girls' end is an exact counterpart), drawn to a scale of 8 feet to an inch, and in which *a a* are moveable forms; *b b*, the forms and desks shown in the section; *c c*, aisles; *d*, platform; and *e*, master's desk, more minutely described in the specifications annexed; *f*, fire-place; *g*, door into outer yard; *h*, door into day-room, &c.

Fig. 2 shows the section of the forms and desks fixed against the wall, with their relative positions figured on, and drawn to a scale of one inch to a foot.

These are exact copies (reduced) of the plans approved by the Board of Guardians, and signed, sealed, and approved by the Poor Law Commissioners, and executed accordingly; and will accommodate, in desks and forms, 37 boys, and in moveable forms 55, making a total of accommodation for 92 boys.

My reason for giving these sketches at all is

Fig. 3.



Plan.

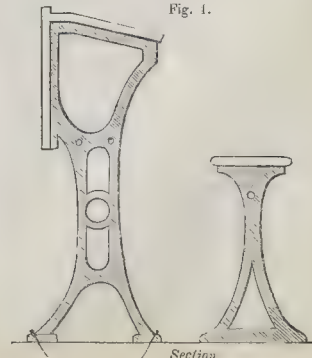


Fig. 4.

Section.

their great recommendation of cheapness, at the same time possessing all the advantages of firmness and convenience, and in having given great satisfaction when done.

Figs. 3 and 4 are the plan and section of the same room, fitted up in a different manner, that is, with the desks and forms standing independent of the walls. The difference of this from the other consists in the forms and desks both having cut metal brackets from the floor; also in the cost being more and the accommodation less, it being calculated at, desks and forms for 52 boys, and moveable forms for 28; total, 80 boys. The Board therefore chose the other plan.

These fittings belong to the above-named workhouse, in which some very extensive additions and improvements have recently been made, from the designs and under the directions of Mr. Henry Ward, an eminent practical architect; and as the establishment is now in most respects considered quite a model, I will, if agreeable to you, at some future time send you the principal plans, and elevations, from which these minor plans of the fittings will be better understood. My next subject will be the dining-hall and chapel, which I will forward to you as soon as my professional engagements will permit.

THE AERIAL MACHINE.

THERE is a very clever hoax on foot just now, in the shape of a circumstantial account of an ascent of the aerial machine from Glasgow, by which the conductors of the *Atlas* have been deceived, and through them other papers, such as the *Times* and the *Herald*, to so far as giving currency to the report. A Professor Goells—which we read as a corruption of God-wills, so omnipotent a personage did we deem him to be on first scanning the account—was said to have started from some elevated "Dumb Cliff"—which we suppose is typical of the dumb clef in which the account was calculated to make many persons sing—and to have risen at his first observation to some 950 feet, just it was said as his previous calculations had led him to conclude would be the case at this identical point of progress, that he pushed on, rising rapidly, and after some minutiae of account, found himself at an altitude of nearly three miles, and feeling a little uncomfortable from the rarity and keenness of the atmosphere—his steam engine also became uncomfortable, and for want of its manager's sympathetic attentions to the safety-valve, three pipes of the tubular boiler gave tokens of uneasiness by bursting. This, however, with the succession of explosions from other of the tubes did not, according to our traveller's account, disconcert him greatly, for, under the management of the "fan-tail," he had taken measures for a leisure descent to the earth, but unfortunately, and just as day was breaking—for it should be stated that he took the precaution of a sound experimentalist, to start at a secret hour, about half-past three in the morning—from the *Dumb Cliff*, so that there were no babbling speculators and betting men, clamouring to disconcert or waiting to laugh at his failure—just as day was breaking, one of the exploding pipes struck a part of the frame-work of the wings, and so "winged" the quarry; upon which the noble bird came toppling and curvetting down, and our professor's consciousness of events departed until he found himself in bed, under care of nurse and doctor; the machine was gone to "day's locker," that is, it was sunk in the sea, where our professor was picked up by some considerate captain, and so was nicely disposed of for all the purposes of the narrative; but our professor, nothing daunted, was made to wind up the tale by avowing his perfect readiness to make another attempt. We doubt it not, and that he is not the first of the clever and adventurous craft who are disposed to aim at "shooting the moon" after this fashion.

All this is very amusing, but we can imagine that it is not a little provoking to the conductors of so respectable a journal as the *Atlas* to have been so grossly duped and boxed. We hear, by the way, that Mr. Henson is in a condition to put out to the air, if necessary, in three weeks' time. For this we have good authority.

TO THE ARTIFICERS OF YORK, ESPECIALLY THOSE EMPLOYED IN BUILDING.

"FELLOW CITIZENS!"

"PERMIT me to address a few words to you respecting the *School of Design*, which, through the liberality of government and of the inhabitants of this city and vicinity, has been established among you.

"Of the success of the institution I never entertained any doubt, but while the attendance of pupils since its commencement has been very gratifying, I cannot refrain from expressing my surprise and regret that scarcely any artificers connected with the various branches of building have availed themselves of its advantages. This is more to be regretted, as it is doubtful whether there is any class of persons to whom the school would be more practically beneficial.

"York has long been regarded as a good training school for several kinds of workmen, and I am anxious that by the assistance of this new institution it should maintain its claim to that honourable distinction.

"During forty years of my architectural experience (thirty of them spent in York) I have had numerous opportunities of noticing the very great superiority of workmen acquainted with the principles of geometry, drawing, and especially of modelling, over those who were ignorant in these respects. This superiority has been manifested not only by the readiness with which they have understood the plans from which they worked, in the saving of time by the avoidance of vexatious mistakes, and the ability and despatch with which they commenced and completed their work, but also in the advances they have made in society, and the respect they have gained from all their employers. As skilful workmen always obtain the best work and wages, so they are the last a master will part with during a deficiency of employment.

"The scarcity of workmen skilled in the execution of ornamental masonry, plastering, wood carving, and painting, and the consequent difficulty and expense of getting them properly performed, have constantly tended to prevent their introduction in buildings, and to lower the public taste.

"For this reason I consider the modelling department of the School of Design as one of its most valuable objects. A workman of any kind, who can form a lump of clay into a model of an intricate piece of workmanship, will be able to master almost any difficulty. Some years ago I shewed a working drawing of an iron roof with ribs, by no means complicated, to a master iron founder in a neighbouring town; on examining it, he expressed his inability to undertake it, adding with great complacency, 'Give me a model and I will do it; I can cast the devil, if you will give me a model of him.' If that man had habituated himself to model, however roughly, instead of depending on others, he would not have had the disgrace of confessing his incompetency to perform a plain piece of work, and of letting it pass into other hands.

"In mentioning the advantages of an acquaintance with the scientific parts of your business, it would be unpardonable to omit the moral benefit usually derived therefrom. It induces habits of thinking, reading, and observation, furnishes occupation for leisure hours, and by substituting rational and social enjoyments renders low associations and habits, the fruitful sources of misery and ruin, distasteful.

"Could I lay before you the sad history both of masters and their men, whose downward course I have witnessed with the deepest regret, you would not wonder at my earnestness on this point, nor consider as intrusive the suggestion, 'to pass through things temporal so as finally not to lose those which are eternal.'

"Consider carefully these few lines, which I have penned with the most friendly intentions; look around and you will find ample confirmation of them in the history of your acquaintance. Visit the school—witness what is going on there, and if it should stimulate you to go and do likewise, you will never, I am sure, have cause to regret the advice given you by, Your sincere friend,

"J. P. PATCHETT.

"Lendal, April 3rd, 1843.

"P.S.—As some of you may not have seen the notices sent out by the committee, it may be well to mention that the school, which is situated in Little Blake-street, is open every evening in the week (Saturdays and Sundays excepted) from seven to nine o'clock; that the weekly payment is only sixpence; and that the master, Mr. Patterson, will be ready at any time to shew you the school, and to give you every information respecting it."

The foregoing address is by a clever and experienced architect, and is felicitously applicable in every case where Schools of Design are instituted. The building artificers ought to be ashamed if they do not seize the great advantages within their reach.

COMPETITION IN BUILDING.

TO THE EDITOR OF THE BUILDER.

SIR,—The present ruinous competition amongst builders appears to me to involve such an immense amount of evil, that I am desirous through the medium of the columns of *THE BUILDER* to call the attention of its readers to the subject. The consequences that inevitably ensue from such a system remain no longer problematical, but rest upon the evidence of facts; and the evils fall in an increasing ratio on the dependent classes, so that in many cases it may be literally said, that we "grind the faces" of our artisans and workmen. The reader will observe that these remarks only apply to the system of competition as it already obtains. I should rejoice if any modification it could be adopted, that would effectually curb the spirit that is panting after inordinate profit, and (to effect that object) betraying the sacred trust of honest dealing reposed by the employer in the employed; that would on the other hand secure the builder an equitable compensation, and rescue him from the mean artifices too often had recourse to, in order to drive him into an unjust and vexatious arrangement as the only alternative he has to prevent the work from being given to another. I repeat that I should rejoice at it and hail the event as a special blessing conferred on the community. I am conscious that it is much easier to discover that the disease exists, than to trace it to its true origin, or to effect its eradication, and an investigation of all the bearings of the case and the contending interests concerned, would unavoidably extend these remarks beyond a proper limit. The object I have in view, is to call the reader's attention to certain abuses that have come to my knowledge to which builders are exposed, and to reprobate the conduct of those who are the agents in it; I allude to estimates being obtained for work whilst there is a secret reservation on behalf of some favoured candidate, as in this case; the time of the other builders (comparable to their capital or stock in trade) is shamefully trespassed on without their receiving any equivalent in return. I also protest against the duplicity of those who, under a false pretext of competition, obtain from a builder a tender for work—such conduct is undoubtedly a breach of good faith and a direct violation of honest dealing and the golden rule of "doing as you would be done by." I intend the foregoing remarks as cautionary as well as condemnatory, and whilst our blows are aimed at practices and not persons, there is nothing to fear, our enemies having no "local habitation." One great evil attending competition undoubtedly reverts back upon the employer; I allude to the temptation, often too strong to be resisted, which is put in the way of the builder to make use of inferior materials and to employ incompetent workmen, and also to increase the extras as much as possible in order to get a living profit out of the work. I would submit that if it were possible, by the united exertion of competent persons, under certain regulations, to put builders generally in possession of what ought to be the prime cost price of work, as a standard to which reference could be made, one step would be obtained in furtherance of the desired object. DELTA.

The subject brought before our notice by Delta is perhaps the most momentous of any that can engage our attention. The question of competition, contracts, and piece-work is one that requires a vigorous handling, and some moral courage; but we shall not shrink from it. We aver that we abominate it, more than we do monopoly. "Measure and value" and "day-work" is, in our mind, the only system that squares with the notions of honesty and confidence. Competition begets suspicion and fraud. It is based upon broad assumptions of fraudulent purpose—and we are determined in every practical way to grapple with it. Every honourable mind recognizes the principle that steers between the extremes of competition and monopoly. But we have no hope of any effectual change without the incorporation of the trades; give us that and trade councils, and we should hear and see less of immorality in all ranks of business. What has made our traders and manufacturers a by-word and a reproach, but the rage of competition? We are pledged to prove our case—to prove loss to the whole community—loss in every point of view from it. Incorporation of the trades, however, would regulate every detail. The major involves the minor, therefore we plead the major.—ED.

A church, from the designs of Mr. Alexander, was built at Penrhos, in the county of Carnarvon, last year, to contain eighty sittings. Cost 205*l*. 1 built of stone; covered with slate; dressings of gilet stone.

NEW PATENTS SEALED IN ENGLAND.

SIX MONTHS FOR ENROLMENT.

John Heathcote and Ambrose Erewin, of Tiverton, lace manufacturers, for certain improvements in the manufacture of ornamented net or lace.—Sealed February 28.

Gottlieb Boccini, of the New-road, Shepherd's Bush, Gent., for certain improved arrangements and apparatus for the production and distribution of light.—Sealed February 28.

George Bell, of Dublin, merchant, for certain improvements in machines for drying wheat, malt, corn, and seeds; and for bolting, dressing, and separating flour, meal, and other like substances.—Sealed March 1.

John Frearson, of Birmingham, machinist, for improvements in fastenings for wearing apparel.—Sealed March 2.

Thomas Simpson, of Birmingham, for a certain improvement in buckles.—Sealed March 2.

Masta Jocelin Cooke, of Gray's-Inn-square, solicitor, for certain improvements in the manufacture of artificial fuel.—Sealed March 2.

John Keely, the younger, of Nottingham, dyer, and Alexander Allott, of Lenton, bleacher, for certain improvements in machinery or apparatus for drying or freeing from liquid or moisture, woollen, cotton, silk, and different fibrous materials, and other substances; and also for stretching certain fibrous materials: being a communication.—Sealed March 2.

William Walker, of George-yard, Crown-street, Soho, coachmith, for certain improvements in the manufacture of springs and axles for carriages.—Sealed March 2.

Charles White, of Noel-street, Islington, engineer, for certain improvements in machinery for raising and forcing fluids.—Sealed March 2.

Robert Stirling Newall, of Gateshead, Durham, wire rope manufacturer, for improvements in the manufacture of wire ropes, and in the apparatus and arrangements for the manufacture of the same.—Sealed March 6.

William Newton, of the Office for Patents, 66, Chancery-lane, civil engineer, for certain improvements in machinery or apparatus for making pins: being a communication.—Sealed March 7.

James Pilbrow, of Tottenham, engineer, for certain improvements in the application of steam, air, and other vapours, and gaseous agents, to the production of motive power, and in the machinery and apparatus by which the same are effected.—Sealed March 7.

William Betts, of Ashford, in the county of Kent, railway contractor, and William Taylor, of the same place, plumber, for improvements in the manufacture of bricks and tiles.—Sealed March 8.

William Kenworthy, of Blackburn, in the county of Lancaster, cotton-spinner, for certain improvements in machinery or apparatus called "beaming or warping machines."—Sealed March 11.

Charles Chilton, of Gloucester-street, Curtain-road, and Frederick Braithwaite, of the New-road, engineer, for improvements in machinery for cutting or splitting wood for fuel or other purposes.—Sealed March 12.

Arthur Chilyer Tupper, of New Burlington-street, Middlesex, for improvements in the means of applying carpets and other coverings to stairs and steps, and in the construction of stairs and steps.—Sealed March 16.

Alexander Angus Croll, superintendent of the gas-works, Brick-lane, and William Richards, of the same works, mechanical inspector, for improvements in the manufacture of gas, for the purposes of illumination, and in apparatus used when transmitting and measuring gas or other fluids.—Sealed March 16.

Angier March Perkins, of Great Coram-street, engineer, for improvements in the manufacture and melting of iron, which improvements are applicable for evaporating fluids and disinfecting oils.—Sealed March 16.

John Thomas Betts, of Smithfield-bars, Gent., for improvements in the manufacture of metal covers for bottles and certain other vessels, and in the manufacture of sheet metal for such purposes: being a communication.—Sealed March 16.

Frederick Cook Matchett, of Birmingham, manufacturer, for certain improvements in the manufacture of hinges.—Sealed March 16.

Martyn John Roberts, of Brynycaran, Carmarthenshire, Gent., for improvements in the composition of ink, blacking, and black paint.—Sealed March 16.

James Malam, of Huntingdon, gas engineer, for improvements in the manufacture of gas retorts, and in the modes of setting gas retorts.—Sealed March 16.

William Laycock, of Liverpool, merchant, for improvements in constructing houses and such like buildings.—Sealed March 16.

Wakfield Pim, of the borough of Kingston-upon-Hull, engineer, for certain improvements in the construction and formation of buoys and other water-marks.—Sealed March 18.

Alexander Simon Wolcott, of City-terrace, City-road, machinist, and John Johnson, of Manchester, machinist, for improvements in photography, and in the application of the same to the arts.—Sealed March 18.

William Barker, of Manchester, millwright, for certain improvements in metallic pistons.—Sealed March 20.

Solomon Robinson, of Dudley, Worcestershire, roll turner, for certain improvements in the manufacture of shot.—Sealed March 20.

Joseph Needham Taylor, of Chelsea, captain in her Majesty's Navy, and William Henry Smith, of Fitzroy-square, civil engineer, for certain improvements in breakwaters, beacons, and sound alarms; also in landing or transmitting persons and goods over or through strata or obstructions of any nature, all of which may be used either separately or in combination.—Sealed March 21.

Andrew Barclay, of Kilmarnock, Scotland, brass founder, for certain improvements in lusters, chandeliers, pendants, and apparatus connected therewith, to be used with gas, oil, and other substances; which invention is also applicable to other purposes.—Sealed March 24.

Gregory Searle Walters, of Coleman-street, merchant, for improvements in the manufacture of chlorine and chlorides, and in obtaining the oxides and peroxides of Manganese, in the residuary liquids of such manufacture: being a communication.—Sealed March 24.

Alfred Hooper Nevill, of Chichester-place, Gray's-Inn-road, corn dealer, for improvements in preparing lentils and other matters for food.—Sealed March 24.

Nicolas Henri Jean François Comte De Crouy, of the Edgeware-road, for certain improvements in rotary pumps and rotary engines.—Sealed March 25.

Robert Faraday, of Wardour-street, Soho, Gas fitter, for improvements in ventilating gas burners, and burners for consuming oil, tallow, or other matters: being a communication.—Sealed March 25.

Sir Samuel Brown, Knt., commander in her Majesty's Royal Navy, of Blackheath, for improvements in the construction of breakwaters, and in constructing and erecting lighthouses and beacons, fixed and floating, and in apparatus connected therewith; and also in anchors for mooring the same, which are applicable to ships or vessels.—Sealed March 27.

John Sylvester, of Great Russell-street, Middlesex, engineer, for certain improvements in producing ornamental surfaces, on or with iron, applicable in the manufacture of stoves and other uses; and for improvements in modifying the transmission of heat.—Sealed March 28.

Arthur Dunn, of Rotherhithe, soap-boiler, for improvements in treating, purifying, and bleaching fatty matters.—Sealed March 28.

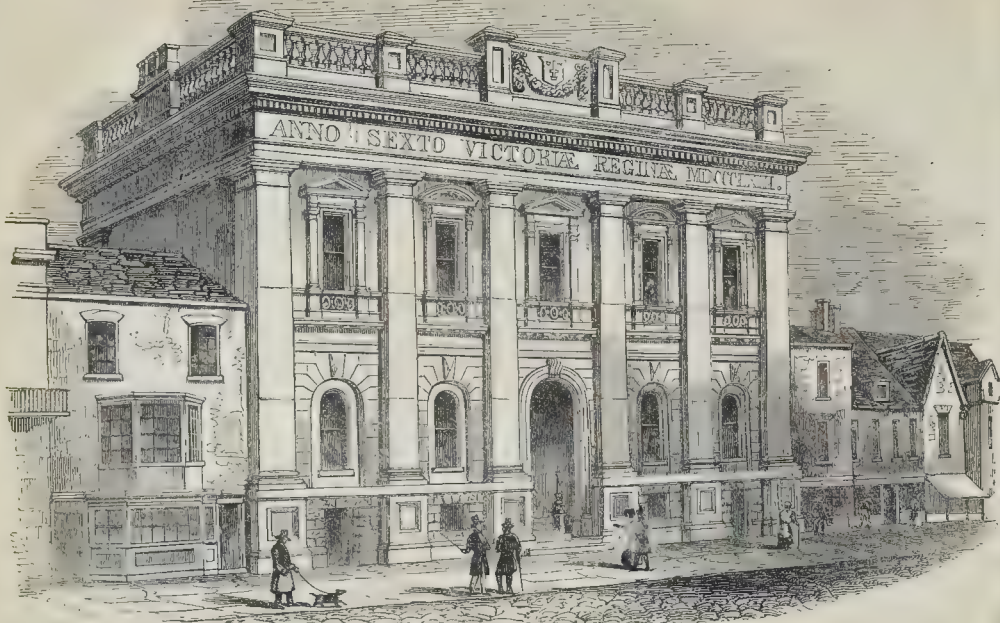
EAST COWES PARK.

THE following case, which was tried in the Vice-Chancellor's Court on Thursday last, involving the right of certain individuals to make bricks in such situations where the nuisance (if any) could only prove of a temporary nature, will doubtless possess much interest for many of our readers:—

BARWELL V. BROOKS.—The Solicitor-General (with Mr. Stuart and Mr. Shebbeare) moved, on behalf of the defendant, Mr. George Eyre Brooks, formerly an auctioneer in London, to dissolve an injunction granted *ex parte* on the 7th inst. whereby he was restrained from burning any bricks on a piece of land called Shambles Farm, which was within the space of 1,500 feet from any part of the boundary hedge separating it from the lawn of East Cowes Castle. The injunction was asked to be dissolved on the ground of misrepresentation and concealment of the real facts of the case when the application was made to the court *ex parte*. The affidavit of the plaintiff in support of his motion had simply stated that he was the owner of Cowes Castle, and that the defendant, who had purchased some adjoining land on a building speculation, to be called East Cowes Park, commenced burning bricks during the summer of last year on a part of the farm that was situate at the greatest distance from the Castle, and did not threaten to burn them at a nearer point than about half a mile from the Castle, but that he had then lately commenced burning his bricks within ten feet of the hedge, and not more

than 292 yards from the principal windows of the Castle, which looked towards the south, and as the lawn, which was on a gradual declivity towards the hedge, was all that intervened between the Castle and the brick kiln, there was nothing to intercept the noisome effluvia, which found its way into the drawing-room, conservatories, and all the best portions of the building, and that the defendant had refused, upon notice, to make any abatement of the nuisance. The answer of Mr. Brooks now disclosed the additional facts, that on the 27th of June, 1841, shortly after he had made the purchase, he communicated by letter to the Earl of Shannon, who was then the proprietor of East Cowes Castle, the purpose for which he had bought the estate, and his intention to burn bricks thereon. He also caused to be drawn up, printed, and circulated plans, prospectuses, and statements, shewing how the estate was intended to be laid out in roads, pleasure gardens, and grounds for building purposes, and setting forth the advantage of getting bricks thereon; and in March last entered into an agreement with Messrs. Cheeseman, builders, of Brighton, for the purpose of digging for brick-earth for making bricks to be used in the erection of the houses to be built by them on the estate, but the purposes were merely temporary, and it was not intended the land should be used as a permanent brickfield. The defendant also stated by his answer that he frequently saw the plaintiff in London about the time of his purchase of Cowes Castle, when he showed him plans of building which were all then laid out, and told him that several houses were in the course of erection, and that he intended to let the adjoining portion of the land to a Brighton builder for the purpose of making bricks, which would be immediately made, and that the plaintiff offered no objection whatever. It was also shewn that the intervening land, which was stated to be a lawn, was in fact pasture fields, and besides, to the hedge there was a cow-shed thirty feet long, rick and wood yards, and a great many lofty trees and thick plantations upon it, of which no mention had been made by the plaintiff. In addition to this concealment and misrepresentation, it was argued that it was not such a case of irreparable injury as to justify the Court interfering *ex parte*, but on the contrary, being only at most a temporary nuisance, the Court would not interfere at all. Sir C. Wetherell, Mr. Bethell, and Mr. Giffard were heard in support of the injunction, and insisted there had been no misrepresentation or suppression of any material fact on the part of the plaintiff, and that the case on which the Court had declared the plaintiff entitled to an injunction to abate a most intolerable nuisance had not been displaced by either the answer or the arguments of the defendant. The Vice-Chancellor said he should certainly dissolve the injunction. He then read those passages from the defendant's answer in which he stated that he communicated his intention to employ the land for building purposes, and to make bricks, to the Earl of Shannon, and afterwards to the plaintiff himself, and observed that not one word of this statement was to be found either in the plaintiff's bill or affidavit. It was obvious that the plaintiff must necessarily long before the filing of the bill have known what the defendant intended to do, and therefore it was utterly indefensible in him to file his bill and take no notice of these circumstances, which had then been stated to the Court, the injunction would never have been granted *ex parte*. That alone was a sufficient reason for dissolving the injunction. If, however, it could be shewn that the defendant had also acted unfairly, the Court might be asked to set off one misconduct against the other. His Honour, however, so far from thinking so, proceeded to point out some other matters of misrepresentation on the side of the plaintiff, and said that all he could do with the case was to dissolve the injunction with costs. Sir C. Wetherell—I am very sorry your Honour, considering the pains you have taken, should be troubled with a second case. I hope Mr. Auldjo will proceed. The Vice-Chancellor—Oh! I am willing to hear him; but whether Mr. Auldjo may have equal pleasure in bringing the case before me, is another point!

The inhabitants of Cheltenham have hit upon an excellent plan of relieving the distress of the poor, and particularly the privations which masons, bricklayers, and labourers experience in the winter season. The money collected as a relief fund is made to contribute to the improvement of the town and the comfort of the inhabitants by being applied to the repair and completion of the foot pavements. It is a strange thing, however, that charity should be required to suggest that which we have long thought common sense would have dictated the necessity of, namely, a provision for the employment of the class of building artificers mentioned above, in sheds and workshops during winter and bad weather. There is a great deal of work done out of doors, and in the fine season, that might well be postponed or prepared as we have suggested.



NEW TOWN HALL, COLCHESTER.

We present our readers with an engraving of the street front of the intended New Town Hall. It is formed of a Roman Doric Pilastrade of six pilasters, with rusticated basement between the pedestals, forming the gaoler's and police departments. The chief entrance is by a bold central archway, and wide flight of steps, leading to the principal floor: it is flanked on either side by semi-circular windows, giving light to the Magistrates' Room and Council Chamber; above these are a range of five Doric windows, with triangular and curved pediments alternate. The whole is surmounted by a bold Doric cornice and balustrade, with a raised central compartment, in which is carved the arms of the Borough of Colchester, with a sculptured ornament. The building consists on the ground-floor (level with the street) of the various apartments appropriated to the purposes of the police and gaoler, fire-proof Record Room, &c. The principal floor consists of entrance hall, vestibule, and grand staircase, the council chamber, magistrates' room, rooms for the judge, counsel and solicitors, jury, &c., and a spacious Judicial Court, approached from the vestibule. The upper floor consists of the large room for public meetings, extending the whole length of the building, and 26 feet wide, with an orchestral gallery: two ante-rooms are also provided on this floor. The plan is by Mr. Raphael Brandon and Mr. John Blore, both of Brompton, who are associated in this work.—*Essex Standard*.

[The artist, it will be observed, has made a mistake in the Latin inscription in front of the building, making it appear that it was erected in 1863 instead of 1843.—Ed.]

ON THE PRESERVATION OF TIMBER.

REPORT TO THE TREASURER OF THE BRIGHTON SUSPENSION CHAIN PIER COMPANY, UPON THE PRESERVATION OF TIMBER FROM DECAY, AND FROM THE ACTION OF SEA WORMS. BY WILLIAM B. PRICHARD, ESQ., C.E.

SIR,—Agreeably to your request, I have to report to your Directors on the existing mode of preserving the timber and piles at the chain pier, and the method that ought in future to be used in preventing the decay and destruction of the timber, &c.

A certain method of preserving timber from decay, from the ravages of the *Teredo navalis* and other sea worms, is of the utmost importance to the stability of such works as the chain pier, owing to its very foundation being composed of timber piles.

I will first notice the existing modes and means made use of. Stockholm tar has been used, and proved to be of little service; this tar is objectionable, owing to its high price, and also from its being manufactured from vegetable substances. All tars containing vegetable productions must be detrimental to the preservation of timber, especially when used in, and exposed to, salt-water: this tar does not penetrate into the wood, and in a very few weeks the salt acid of the sea will eat it all away.

Common gas or coal tar has been used to a great extent, and its effects are apparent to all. It does a very great deal of harm, forms a hard and brittle crust or coat on the wood, and completely excludes the damp and unnatural heat from the possibility of escape, owing to its containing ammonia, which burns the timber, and in a few years turns brown and crumbles into dust. Indeed, timber prepared with this tar will be completely destroyed on this coast and pier by the ravages of the *Teredo navalis* and the *Limnoria terebrans* in five or six years.

Also Kyan's patent, *corrosive sublimate*, or the *bichloride of mercury* has been used; but has proved equally useless. I inclose you a printed letter on this subject, and I have only to add, that the sleepers kyanised five years ago, and in use at the West India Dock Warehouses, have been discovered to decay rapidly; and the wooden tanks at the Anti-Dry-Rot Company's principal yard are decayed.

Secondly. I would recommend you for the future to use "*Oil of Tar and Pyrolignite of Iron*." This process will, without a doubt, succeed; I have proved in hydraulic works on this coast, that it will fully prevent the decay in timber piles, destroy sea worms, and supersede the necessity of coating the piles with iron nails. In Shoreham harbour, for instance, there is a piece of red pine accidentally infused with pyrolignite of iron, which, after being in use twelve years, is perfectly sound. There is another waling piece, the very heart of English oak, kyanised, and in use only four years, which is like a honey-comb or net-work, completely eaten away by the *Teredo navalis* and other sea worms. I have fully proved the efficiency of this method at different harbours and docks. Sixteen years ago I had timber prepared with it, and in use on the shores of the Dee, and it is at the present moment perfectly sound. Mr. Renwick, C.E., of New York, has used oil of tar with perfect success for many years.

The pyrolignite of iron must be used of very pure quality—and the timber must be dry—afterwards the oil of tar must be applied, and not on any account must it contain a particle of ammonia.

I am given to understand that John Bethell, Esq., of Vauxhall tar works, London, has taken a patent for preparing the oil of tar; therefore you can procure it from his works without going to the trouble of having it prepared.

The immense destruction, by the sea worms on this coast, of timber, and the important fact, that at the chain pier there are not twenty of the original piles remaining at the present time, is of itself sufficient to awaken anxiety in your minds respecting the best mode of saving your valuable property. The subject will have my best consideration.

I am, Sir, your obedient servant,
WILLIAM B. PRICHARD.

Shoreham, July 26, 1842.

[N.B.—There is a slight mistake in the above Report: Mr. Bethell's patent is for "preparing wood by impregnating it with either the oil of mineral tar, or with pyrolignite of iron, or both." The oil of tar can be purchased at his tar works, and parties purchasing it are licensed to prepare the wood themselves. Mr. Renwick, of New York, has followed Mr. Bethell in the use of the oil of tar, Mr. R.'s patent in America being dated many months after Mr. Bethell's patent in England.—*Editor of "Architect and Civil Engineer."*]

The following is the letter referred to above: it was inserted in the *Brighton Guardian* of May, 1842.

"The phenomenon of dry rot in timber has often been lamented, though almost invariably misunderstood. Certain harmless plants, such as *Merulius destructor* and *Merulius lacrymans* (so called from the quantity of fluid which replenishes the hymenium), the latter a misnomer when connected with dry rot, are held up to public execration as the delinquents chargeable with the work of destruction. They stand, however, fully acquitted in the eye of science, as the deed is done before they make their rudiments are already there in seeds. Like the worm of corruption, they riot in decay. It is the matrix wherein they germinate; but this disintegration of the organized structure has been already consummated. It is

assumed by Mr. Kyan, that the cause of dry rot is to be sought for in the decomposition of the albumen of the sap; and thus forming a substance indecomposable by the usual agencies of decay, it constitutes the principle of his patent. Doubtless, albumen may be arrested in its tendency to decay by chloride of mercury, or by corrosive sublimate; but it is sheer assumption and rank folly to say that dry rot has to do with the albumen of the sap. To say so may sound very well in useless theories, but it will not avail in practice.

"Sir William Barnett, in his counter patent, employs, I have been given to understand, a salt of zinc.

"The great price of mercury is an obstacle to Kyan's plan, provided it were useful to the public; and it seems that great success does not follow the process. I heard that Sir H. Davy had selected chloride of mercury for a similar purpose, but afterwards abandoned it. I opposed it on the same ground, that in tropical climes it would be as poisonous as the quicksilver mines of Illyria. Independently of their appearance even in embryo, although its ready decomposition by the contact of iron or an alkali, there is, unhappily for the cause of truth and the advance of genuine knowledge, much favoritism in a name, and party spirit runs as high in the coteries of science as in the upper regions of politics. Sir John Barrow, in his "Life of Lord Anson," has entirely impugned Kyan's process. The Duke of

Portland has done the same thing in 1838, and to the same effect are the conclusions of Lord Manners, and a host of other scientific men.

"Dr. Moore in his experiments at Plymouth has shewn that kyanized wood is not proof against the ravages of the *Teredo navalis*, or sea worm; it was honeycombed like the rest; and of this fact I have a proof before my eyes daily.

"The experiments made at Welbeck in the mushroom house are very instructive and important, and appear entirely conclusive. Good Baltic timber in these trials lasted longer than the best kyanized oak. In other places it has been tried, and invariably found, kyanized or not, to decay, especially when exposed to the sea or salt water. On the other hand, pyrolignite of iron will resist decay longer than any timber prepared by patentees. I may here add, that I wrote on this subject ten years ago, and recommended pyrolignite of iron. I have also experimentally proved that pyrolignite of iron, or chloride of copper, will coagulate albumen, and therefore this property does not exclusively pertain to corrosive sublimate.

"I am satisfied to leave the profession to judge whether pyrolignite of iron, &c. has not in point of practice superseded all the patents. Look at the chain pier at Brighton, and you will see an attempt to use a substitute for it, by covering the piles with iron nails, which is an expensive process compared with the real remedy."

THE NEW BUILDING ACT.

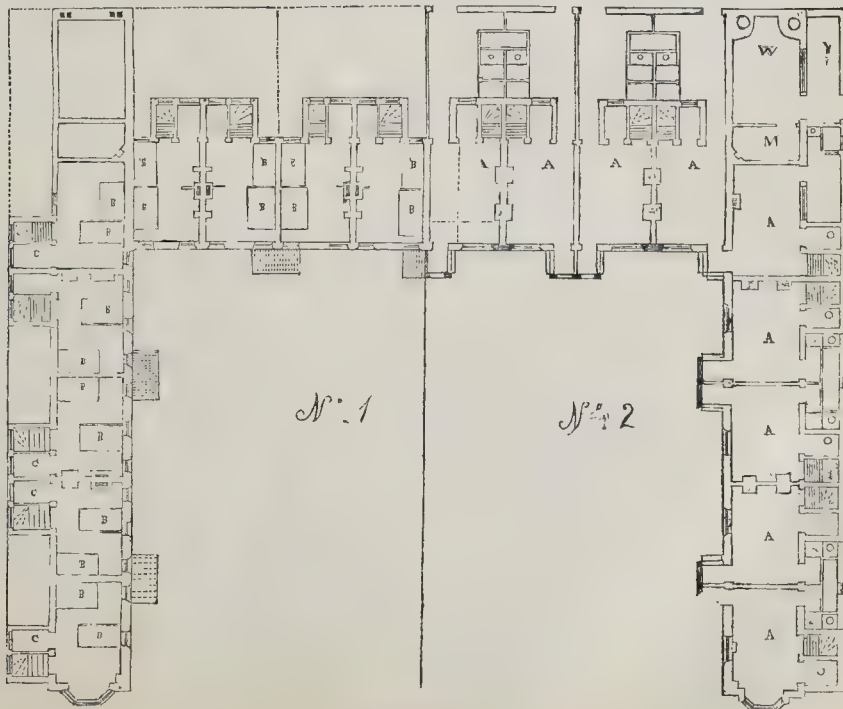
A COMMITTEE of the Master Carpenters' Society met on Tuesday last, at the Freemasons' Tavern, to take into consideration the several clauses in the intended New Building Act; Mr. H. Biers, the president, in the chair. After a most mature consideration, which lasted ten hours, it was decided to recommend to the Society to petition Parliament to appoint a Select Committee to take evidence upon the Bill, some of its provisions being extremely prejudicial to the community at large, and tending most materially to increase the expense in every new building, and, consequently, the rental of those houses; and as to some of the clauses being quite unnecessary, and with trifling alterations in others.

It was the unanimous opinion of the members of the committee, that with judicious alteration of the Bill in a committee of the House of Commons, the intended Act will be a great improvement upon the 14 of Geo. III., which the present Act repeals.

The Bill evidently appears to have been drawn by THEORETICAL instead of PRACTICAL men. The whole of the district will lay under much obligation for the determined and business-like way in which the Society of Master Carpenters have taken up this very important matter.



Approved Design for the Spalding Almshouses, Lincolnshire, W. Todd, Esq., Architect.



No. 1. Chamber Plan.
B. Beds. C. Closets.

REFERENCE.

A. Living Rooms.

No. 2. Ground Plan.
M. Mangle House.

Y. Yard.

THE NEW HOUSES OF PARLIAMENT.

THE Commissioners on the fine arts, of which Prince Albert is the head, having called upon Mr. Barry, as architect, to furnish them with a report as to his views relating to the "internal decorations, additions to building, and local improvements," that gentleman transmitted his report to his Royal Highness and the commission last month. Judging the subject as likely to interest our readers, especially as many of the suggestions offered by Mr. Barry will undoubtedly be carried out, we place the following particulars of the proposed decorations, &c. before our readers, for which we are indebted to the *Morning Herald*—

"As presiding over her Majesty's commissioners for encouraging the fine arts in connection with the rebuilding of the new Houses of Parliament, I venture to address your Royal Highness, and, in compliance with the instructions of the commission, to offer the following suggestions relative to the internal finishings and decorations of the new Houses of Parliament, the completion of the exterior and local improvements, which are, in my opinion, necessary to give full effect to the new building; and by way of illustration of the remarks I have to make on this subject, I beg to transmit the accompanying plan of the principal floor of the new building, a general plan of part of Westminster, in which the new building is shown in connection with various improvements proposed to be made in its locality, and two drawings relating to the Westminster-bridge.

THE DECORATIONS.

"With reference to the interior of the new Houses of Parliament generally, I would suggest that the walls of the several halls, galleries, and corridors of approach, as well as the various public apartments throughout the building, should be decorated with paintings having reference to events in the history of the country; and that those paintings should be placed in compartments formed by such a suitable arrangement of the architectural designs of the interior as will best promote their effective union with the arts of sculpture and architecture. With this view, I should consider it to be of the utmost importance that the paintings should be wholly free from gloss on the surface, that they may be perfectly seen and fully understood from all points of view. That all other portions of the plain surfaces of the walls should be covered with suitable architectonic decoration, or diapered enrichment in colour, occasionally enlivened with gold, and blended with armorial bearings, badges, cognisances, and other heraldic insignia, emblazoned in their proper colours. That such of the halls as are groined should have their vaults decorated in a similar manner, with the addition occasionally of subjects or works of art so interwoven with the diapered ground as not to disturb the harmony or the effect of the architectural composition. That such of the ceilings as are flat should be formed into compartments by mouldered ribs, enriched with carved heraldic and Tudor decorations. That those ceilings should be relieved by positive colour and gilding, and occasionally by gold grounds with diaper enrichments, legends, and heraldic devices in colour. That the screens, pillars, corbels, niches, dressings of the windows, and other architectural decorations, should be painted to harmonise with the paintings and diapered decorations of the walls generally, and be occasionally relieved with positive colour and gilding. That the door-jambs and fire-places should be constructed of British marbles of suitable quality and colour, highly polished, and occasionally relieved by colour and gilding in their mouldings and sculptural enrichments.

"That the floors of the several halls, galleries, and corridors should be formed of encaustic tiles, bearing heraldic decorations and other enrichments in colours, laid in margins and compartments, in combination with polished British marbles; and that the same description of marbles should also be employed for the steps of the several staircases.

"That the walls, to the height of from eight to ten feet, should be lined with oak framing, containing shields with armorial bearings emblazoned in their proper colours, and an oak seat should in all cases be placed against such framing. That the windows of the several

halls, galleries, and corridors should be glazed doubly, for the purpose of tempering the light and preventing the direct rays of the sun from interfering with the effect of the internal decorations generally. For this purpose the outer glazing is proposed to be of ground glass, in single plates, and the inner glazing of an ornamental design in metal, filled with stained glass, bearing arms and other heraldic insignia in their proper colours; but so arranged as that the ground, which I should recommend to be of a warm yellowish tint, covered with a running foliage or diaper, and occasionally relieved by legends in black letter, should predominate, in order that so much light only may be excluded as may be thought desirable to do away with either a garish or cold effect upon the paintings and decorations generally. Practically, I consider that the double glazing will be of essential service in carrying out the system of warming and ventilating proposed to be adopted in the building generally; which system renders it unnecessary that the windows in those portions of the building above referred to should be made to open, so that all prejudicial effects upon the paintings and other decorations, which might be caused by the dampness and impurity of the atmosphere, and much practical inconvenience, and probably unsightliness in the means that would be necessary to adopt for opening and shutting casements, would be avoided.

"That in order to promote the art of sculpture, and its effective union with painting and architecture, I would propose that in the halls, galleries, and corridors, statues might be employed for the purpose of dividing the paintings on the walls. By this arrangement a rich effect of perspective, and a due subordination of the several arts to each other would be obtained. The statues suggested should, in my opinion, be of marble, of the colour of polished alabaster, and be raised upon lofty and suitable pedestals, placed close to the wall, in niches, surmounted by enriched canopies; but the niches should be shallow, so that the statues may be as well seen laterally as in front.

"The architectural decorations of these niches might be painted of such colours as will give the best effect to the adjoining paintings, being relieved in parts by positive colour and gilding; and the backs of them might be painted in dark colours, such as chocolate, crimson, or blue, or they might be of gold, for the purpose of giving effect to the statues.

"Having thus described the views I entertain as to the character of the decorations of the interior generally, I now proceed to notice in detail the special decorations and arrangements which I would propose for the several halls, galleries, and principal apartments.

WESTMINSTER HALL.

"I would propose that Westminster Hall, which is 239 feet long, 68 feet wide, and 90 feet high, should be made the depository, as in former times, for all trophies obtained in war with foreign nations. These trophies might be so arranged above the paintings on the walls and in the roof as to have a very striking and interesting effect.

"I would further suggest that pedestals, 20 in number, answering to the position of the principal ribs of the roof, should be placed so as to form a central avenue, 30 feet wide, from the north entrance door to St. Stephen's porch, for statues of the most celebrated British statesmen, whose public services have been commemorated by monuments erected at the public expense, as well as for present and future statesmen whose services may be considered by Parliament to merit a similar tribute to their memories.

"The statues (26 in number) which have already been proposed to be placed against the walls, between the pictures, I would suggest should be those of naval and military commanders.

"The subjects of the paintings on the walls, 28 in number, 16 feet in length and 10 feet in height, might relate to the most splendid warlike achievements of English history, both by sea and by land, which, as well as the statues that are proposed to divide them, might be arranged chronologically.

"To give due effect to those suggested decorations, it is proposed that the light should be considerably increased by an enlargement of the dormer windows in the roof, by which

also that extraordinary and beautiful piece of decorative carpentry of the 14th century may be seen to much greater advantage than has ever yet been the case.

"This noble hall, certainly the most splendid in its style in the world, thus decorated by the union of painting, sculpture, and architecture, and aided by the arts of decoration as suggested, it is presumed would present a most striking appearance, and be an object of great national interest.

ST. STEPHEN'S HALL.

"I would suggest that this hall, which will be 90 feet long, 30 feet wide, and 50 feet high, and have a stone-groined ceiling, should be appropriated to the reception of paintings, commemorative of great domestic events in British history, and statues of celebrated statesmen in past, present, and future times. The paintings may be 10 in number, 15 feet long and 10 feet high, and 12 statues would be required as a frame to them. In the upper part of the hall, 30 niches will be provided for statues of eminent men of the naval, military, and civil services of the country.

THE CENTRAL HALL.

"This hall will be an octagon of 60 feet in diameter, and 50 feet high, covered with a groined ceiling in stone. As each side will be wholly occupied with windows, and arched openings of access, paintings cannot form any part of its decoration. It may, however, with good effect, be extensively decorated with sculpture. In the centre of the pavement might be placed a statue of her present Most Gracious Majesty, upon a rich pedestal of British marble, highly polished, and relieved in parts by gold and colour. The niches in the walls and screens might be filled with statues of her Majesty's ancestors, in chronological order, even up to the period of the Heptarchy. In front of the eight clustered pillars in the angles of the hall, might be placed, with good effect, seated statues of some of the great lawgivers of antiquity.

THE VICTORIA GALLERY.

"This gallery will be 130 feet long, 45 feet wide, and 50 feet high, with a flat ceiling, and will admit of both paintings and sculpture. The subjects of the painting on the walls, 16 in number, which may be 12 feet long and 10 feet high, might relate to some of the most remarkable royal pageants of British history or other appropriate subjects. Statues of her present Most Gracious Majesty might fill the central niches at the ends of the hall, and the other niches, as well as the pedestals between the paintings, might be occupied by statues of her Majesty's ancestors. These statues might, with good effect, be of bronze, either partially or wholly gilt.

CORRIDORS OF ACCESS THROUGHOUT THE BUILDING.

"The principal corridors of access to the various apartments of the building will be 12 feet wide, their ceilings will be flat, and they will be generally lighted from windows near the ceiling. The walls may be decorated with portraits as well as paintings, illustrative of some of the most remarkable events in the history of the country, or in the lives of its most eminent personages. For this purpose about 2,600 feet in length of wall, by a height of about seven feet, may be appropriated on the principal floor: 900 feet in length, by a height of about seven feet on the one-pair floor; and about 400 feet, by the same height, on the two-pair floor. These paintings may be divided into subjects at pleasure, by margins or borders of architectonic decoration in accordance with the style of the building.

THE HOUSE OF LORDS.

"This house will be 93 feet long, 45 feet wide, and 50 feet high, and will have a flat ceiling in panels. As the fittings for the accommodation required for the business of the house, together with the windows which are necessary for duly lighting it, leave little space of plain wall, paintings cannot, with good effect, form any part of its decoration. Niches, however, will be provided, which might be filled with statues of royal personages. The architectural details of the ceiling may be enriched and relieved with gold and colour, and the windows filled with stained glass as before described. The whole of the fittings are proposed to be of oak, with appropriate carvings. The throne will be highly enriched and relieved by colour

and gilding, and the back lined with cloth of gold, containing the royal arms emblazoned in colours.

THE HOUSE OF COMMONS.

"This house will be 83 feet long, 46 feet wide, and 50 feet high, and will have a flat ceiling. It is proposed to be finished in the same style as the House of Lords, but with less enrichment, and less of colour and gold in its decorations. The nature of its designs, and the extent of its fittings for the accommodations required, will not admit of either painting or sculpture.

THE QUEEN'S ROBING ROOM.

"This room will be 38 feet long, 35 feet wide, and 20 feet high, and have a flat ceiling in panels, richly moulded and carved, and relieved with gold and colour. The ground of the panels of the ceiling is proposed to be of gold, covered with a diaper enrichment, and blended with legends, genealogical devices, badges, cognisances, and other heraldic insignia, and in colour.

"The wall-fittings of the room are proposed to be of oak, richly carved and moulded, and enriched with heraldic and other decorations in positive colour, relieved with gold. Compartments will be formed in the wall-framing, which might be filled with paintings referring to events in British history in which the Sovereign has personally taken a conspicuous part, or with other appropriate subjects.

THE ANTEROOM, OR GUARD-ROOM.

"This room, which adjoins the Queen's robing-room, will be 38 feet by 38 feet, and 20 feet high. The ceiling will be of oak, with characteristic decorations. Oak framing, eight feet high, with heraldic decorations, and a seat at the foot of it, will line the room. The walls are proposed to be covered with representations of battle-scenes, and pageants of English history, in which an opportunity would be afforded of displaying the warlike costumes of its several periods.

THE CONFERENCE HALL.

"This hall, which is in the centre of the front towards the river, will be 54 feet long, 28 feet wide, and 20 feet high, and will have a flat ceiling. The walls are proposed to be lined with oak framing to the height of about six feet, above which they might be covered with paintings representing celebrated state trials, and extraordinary sittings of Parliament, conferences, &c.

AS TO THE APARTMENTS APPROPRIATED TO THE PRIVATE AND PUBLIC USES OF EACH HOUSE.

"These rooms consist of libraries, refreshment rooms, robing rooms, state officers' rooms, and committee rooms.

"Nine rooms are appropriated to libraries, six of which are fifty feet long, and 28 feet wide; two are 33 feet long, and 28 feet wide; and one is 32 feet long, and 23 feet wide. The refreshment rooms are four in number, of which one is 60 feet long and 18 feet wide; two of which are 28 feet long and 18 feet wide; and one is 34 feet long and 18 feet wide. The robing rooms for the archbishops and bishops are three in number, of the respective sizes of 30 feet by 20 feet, 20 feet square and 16 feet square. The robing and other rooms for state officers are seventeen in number, averaging in size about 24 feet by 18 feet. The committee rooms are thirty-five in number. On the principal floor, five of them will be 37 feet long by 28 feet wide; two 35 feet by 26 feet; and one 32 feet by 23 feet. On the one-pair floor, two will be 42 feet long and 33 feet wide; one 54 feet by 28 feet; four 36 feet by 28 feet; ten 34 feet by 28 feet; and two 34 feet by 22 feet; and on the two-pair floor the number will be eight, averaging in size 28 feet by 20 feet. The whole of these rooms are about 20 feet in height, with the exception of those on the two-pair floor, which will be about 14 feet high, and will be lighted by windows of the usual height from the floor.

"The ceilings will be flat and formed into panels by moulded and carved ribs, relieved by characteristic and suitable carvings.

"The floors are to be of oak, with borders and inlays.

"The fire-places and door-jambs are proposed to be of British marbles, highly polished. The doors, frontispieces, linings of walls, and fittings, will also be of oak. In some of the rooms it is proposed that the wall framing

should be carried to the height of six or eight feet, in others that it should be of the full height of the room, and with panels for paintings, portraits, &c.

"The plain surfaces of the walls might be covered with paintings of historical events, and the panels in the wainscoting might contain portraits of celebrated personages in British history.

"The architectural details, both in stone and plaster, might be painted in positive colours, occasionally relieved with gilding; and the armorial bearings, badges, and other heraldic insignia which will enrich the wood-framing, might also be relieved with gold and colour.

THE SPEAKER'S RESIDENCE.

"This residence, being designed for state purposes, might also be adorned with paintings. The style of its finishings, fittings, and decorations will be in accordance with the best examples of the Tudor period.

"Its principal rooms for the purposes of state are as follows:—A reception-room, 34 feet by 23 feet; a library, 34 feet by 23 feet; a dining-room, 45 feet by 24 feet; a drawing-room, 38 feet by 23 feet; and a corridor communication, 8 feet wide, surrounding an internal court.

"With respect to any further encouragement of the fine arts in the exterior of the building, I am not aware of any opportunities that offer, as arrangements have already been made for all the architectonic or conventional sculpture that will be required to adorn the several elevations. Equestrian statues of sovereigns in bronze might, however, be placed with considerable effect in the proposed quadrangle of New Palace-yard, the Speaker's quadrangle, and the royal court.

"I have now described, in general terms, the whole of those portions of the building that might, I think, with propriety and effect be adorned with works of art, and the arts of decoration; but in making the several suggestions which have occurred to me, I should wish it to be understood that I have merely stated my own views on the subject, as far as I have hitherto been able to consider it in its general bearings, and with a view to shew how the objects for which the commission has been established may, if desired, be carried out in the decorations of the new building to their greatest extent. I should not, however, wish to be strictly confined in all cases to the adoption of even my own suggestions, as upon a more mature consideration of the subject in detail hereafter, when the shell of the building is completed, I may be induced to vary and modify some of the views which I entertain at present, and which, I fear, I have but imperfectly communicated in this paper.

AS TO THE COMPLETION OF THE EXTERIOR.

"It has ever been considered by me a great defect in my design for the new Houses of Parliament that it does not comprise a front of sufficient length towards the Abbey, particularly as the building will be better and more generally seen on that side than on the other. This was impossible, owing to the broken outline of the site with which I had to deal. I propose, therefore, that an addition should be made to the building for the purpose of enclosing new Palace-yard, and thus of obtaining the desired front. This addition would be in accordance with the plan of the ancient palace of Westminster, in which the hall was formerly placed in a quadrangle, where, in consequence of its low level, it must have been seen and approached, as it would be, under such circumstances, to the best advantage. The proposed addition would, in my opinion, be of considerable importance as regards the increased accommodation and convenience that it would afford in addition to what is already provided for in the new building as hitherto proposed.

"It has long been a subject of serious complaint and reproach that the present law courts are most inconveniently restricted in their arrangements and accommodation. If it should be determined to retain the courts at Westminster, the proposed addition would admit of the means of removing this cause of complaint; it would also afford accommodation for places of refreshment for the public, for which no provision has been made in the new building, also for royal commissions and other occasional purposes required by Government, and now hired most inconveniently in

various parts of the town, at a considerable amount of rental; or for such of the Government offices as may, without inconvenience, be detached from the rest, such as, for instance, the office of woods, or for a record office, and chambers or residences for public officers. It will also afford the opportunity of making an imposing principal entrance to the entire edifice at the angle of Bridge-street and St. Margaret-street—a feature which is at present required, and which would add considerably, not only to the effect of the building, but also to its security in times of public commotion.

"Of the several local improvements suggested, none, in my opinion, is of greater or more pressing importance than that which I have to suggest in respect to Westminster-bridge. The anomaly of the size, outline, and character of that bridge, considered, as it ever must be from its proximity, as an adjunct to the new Houses of Parliament, must have forcibly struck every one who has passed over or under it since the new building has risen into importance; and the steep and dangerous declivities of the roadway, as well as its want of width for the traffic that passes over it, have constantly been a subject of public complaint.

"In order, therefore, to remove these serious objections, I propose that the superstructure of the bridge should be rebuilt upon the old foundations, which are now in course of being repaired and extended under the able superintendence of Messrs. Walker and Burgess. As it is, in my opinion, of the utmost importance, both as regards the effect of the new Houses of Parliament when viewed from the bridge, and the convenience of the public in passing over it, that the roadway should be made on the *lowest possible level*, I would recommend that the form of the arches of the new bridge should be pointed, by which great facility would be afforded for the accomplishing that very important object, namely, by materially reducing the thickness of the crown of the arches within what is considered necessary for arches of the circular form. I am induced also to recommend this form of arch on account of another very important practical advantage which it offers, namely, the elevation of its springing above the level of high-water, by which the water-way through the bridge will be the same at all times of tide; whereas at present the spandrels of the arches offer an impediment to the water-way at high-water nearly equal to 1-20th of its sectional area, occasioning rapid currents, with a considerable fall, and sometimes much danger to craft in passing through the bridge, under the influence of high winds. I consider it also of the greatest importance in an artistic point of view, not only that the bridge should be materially lowered, but that it should be made to accord with the new Houses of Parliament, in order that, both in composition as well as style, the *ensemble* should be harmonious and effective. Upon a rough estimate which I have formed of the cost of the new superstructure, I am satisfied it could be erected for about 120,000, beyond the cost it will be necessary to incur to carry out Messrs. Walker and Burgess's design for widening the present bridge to the extent proposed."

Mr. Barry, in continuation observes, it is clearly to be understood he has no desire to interfere with the employment of the engineers who are now engaged in the repair and extension of the foundations, whom he strongly recommends should be left to complete it. He expresses a hope that the commissioners, if they should think fit, will at their earliest convenience make a formal and urgent communication to the government in accordance with the above views he has laid before them, as an early decision would be of great importance, in order that the works in hand may not be proceeded with farther than is necessary to carry out those views if they should be ultimately adopted.

The embankment on both sides of the river, from Vauxhall-bridge to London Bridge, he considers next in importance to the rebuilding of the superstructure of Westminster-bridge. He says:

"As there would, doubtless, be serious objections to a public road upon the embankment on the north side of the river, I confine my observations to the southern side, where, if a road could be obtained, it would afford a succession of fine views of London, and the best situation for views of the principal front of

SCULPTORS AND CARVERS.

Grimling Gibbons

"An original genius, a citizen of the world," says Walpole, consequently it is indifferent where she produced him. When a man strikes out novelty for himself, the place of his birth has little claim upon his merit. An inventor is equally a master whether born in Italy or Lapland. GRIMLING GIBBONS, it is supposed, was born in Holland of English parents, or at least so on the father's side, and came over at about nineteen years of age. We have no account of any training to the rare excellence so early attained; his first known efforts were as successful as those he subsequently produced, differing only in appropriateness to the buildings enriched by his hand. He lived for some time poor and unfriended, but his merit fortunately attracted the notice of that benevolent admirer and patron of art, Mr. Evelyn, and Gibbons needed but a first move to reach the goal of eminence. Belle Sauvage Court, Ludgate-hill, is the spot where Gibbons is said to have produced the specimen that proved him capable of imitating nature with the most perfect accuracy, in bolder relief, and a lighter style of handling than had been previously attempted; this was a pot of flowers, so delicately carved as to exhibit every characteristic undulation of a natural bouquet. He afterwards lived at Deptford, and it was in an obscure quarter there that he was found by Mr. Evelyn, who, conjointly with Sir Peter Lely, recommended him to the notice of Charles the Second, and that monarch was so much pleased with his skill, that he not only employed him in ornamenting the royal palaces, but bestowed upon him a place of some emolument at the board of works.

Gibbons was both sculptor and carver; the marble pedestal of the equestrian statue of Charles II. in the principal court at Windsor, is an example in which the detail is elaborate and beautifully executed; but it was as a carver that he principally distinguished himself. Foliage, flowers, and the plumage of birds, in which every leaf, petal, and fibre was preserved, were his favourite works; his imitations of point lace, so much worn at that particular period, are also extraordinary, shewing with what facility his eye caught and followed the maze of tracery that fabric is remarkable for; he was, moreover, indefatigable in his profession, and has left abundant examples deserving the study of carvers of the present day.

In Windsor Castle are numerous carvings by this artist; here and at Kensington Palace are seen the most genuine because unassisted specimens; these were his earliest works upon the large scale, executed when he had not yet had time to train the many hands who afterwards assisted him. At Windsor, Hampton Court, Burleigh, and Chatsworth, Gibbons carved while Verrio painted the ceilings and staircases; indeed, these popular decorators worked much together, and the palaces and

seats mentioned still retain the embellishments of both in a high state of preservation.

The magnificent tomb of Viscount Camden, in the church at Exton, in Rutlandshire, 22 feet high and 14 wide, is by Gibbons, who also carved the throne at Canterbury, erected at the cost of Archbishop Tenison. We must again recur to Burleigh, the seat of the Marquis of Exeter, as containing a noble profusion of his carvings in picture-frames, chimney-pieces, and door-cases; and at Chatsworth there is a great deal by Gibbons, particularly in the chapel; and in the great antechamber several dead fowl over the chimney-piece, finely executed; and over a closet-door a pen, scarcely distinguishable from real feather. When he had completed his work at Chatsworth for the Duke of Devonshire, he presented that nobleman with some gems of his art, which are preserved in a glass case in the gallery there; these consist of a medal with his own head, a woodcock, and a point-lace cravat, all shewing that no task in carving was too difficult for him to undertake, and that he revelled in almost microscopic excellence in delineation. At Petworth, also, there is a large chamber ornamented from the ceiling with foliage, flowers, and dead game, all perfect representations; and appended to one of the enriched panels, an antique vase with bas-reliefs, worthy to be classed with the finest specimens of Grecian art; we are told that in saving this particular panel when the seat was on fire, one of his assistants, *Selden*, lost his life, so highly prized were these finished works even by those who were most familiar with them.

Gibbons wrought most extensively, and had several persons under his instruction and employ. *Selden*, whom we have just mentioned, and *Watson*, *Dievol*, and *Laurens*, are names known by subsequent works; in his time they were occupied in certain departments of ornament, but chiefly in figure carving, where such was introduced, for no single hand could have accomplished the number of examples he has left. It must be remarked that we have merely enumerated his most prominent works; he wrought also in many other seats of the nobility and gentry, and in some of the churches of London and the provinces, and we have many times recognized detached pieces of his carving which had, no doubt, been removed to make way for rebuilding or improvements, within the last twenty-five years.

Gibbons died in 1721, and his extensive collection of models, casts, and carvings were sold by auction; amongst them were two chimney-pieces valued even in that day at upwards of 100*l*. each. There is no trace of the whereabouts of these objects of art; could they be discovered and referred to, a stimulus to modern exertion would be afforded, for which there is much need, and undoubted promise of ample remuneration.

METROPOLITAN FOUNTAINS, AND OCCASIONAL SQUIRTS.

SIR ROBERT PEEL, during the recent discussion on the miscellaneous estimates, stated that he thought some handsome fountains would prove a great ornament to the metropolis; but he was strongly opposed to those occasional squirts which were sometimes to be seen. He, therefore, should hesitate to propose any grant for the repair of the "jet d'eau" in Bushy-park. We entirely concur in this opinion of Sir Robert Peel, who is not only a good judge, but a liberal patron of the fine arts. We have, in common with most of our countrymen, long regretted the absence, in our public parks and gardens, of that beautiful ornament "the fountain," which never fails to impart life and interest to the surrounding scene; but then, as Sir Robert Peel justly adds, fountains should be really handsome. We hope, therefore, that the amiable and accomplished nobleman, Lord Lincoln, who pre-

sides with so much ability over the Woods and Forests, will lose no time in carrying out the suggestions of the Premier, and the strongly expressed wishes of the public, by removing that very mean, shabby, unsightly, lotus-leaved fountain, which occasionally squirts in front of the Royal palace, in St. James's-park, and substitute in its place one better suited to that beautiful position and attractive garden—a garden which is day by day assuming a more picturesque and agreeable aspect, from the numerous specimens of choice plants which Lord Lincoln has caused to be placed in various spots, and in the arrangement and selection of which a degree of taste has been displayed which reflects upon his lordship very great credit. We also gladly avail ourselves of this opportunity of expressing our approbation of the manner in which the walks are kept; and, indeed, of every thing in these gardens, except the "jet d'eau," which is really an offence against good taste, and especially exposes us to the ridicule of foreigners.—*British Queen*.

OUR CORRESPONDENCE.

PAINTERS' EYE-SIGHT.

TO THE EDITOR OF THE BUILDER.

SIR,—If you think the following suggestion likely to be adopted by the trade, perhaps you will insert it. I have often pitied the unfortunate painters and whitewashers, who are often seen "laying on the colour" in bright sunshine; the glare must be very distressing to them, and highly injurious to their sight; it appears to me that there is a remedy for it by using common green glass spectacles, which could be made at a cheap rate, and if these are not liked as being *hot* for the eyes, why should not wire-gauze spectacles, such as those used for railway travelling, be adopted by painters and others? Only walk up Regent-street and look at the houses on which the sun is shining, and only think what it must be for the poor workmen who are *obliged* to look steadfastly at it, and then you will agree with me, that something ought to be done to prevent our fellow-workmen from being injured. The knife-grinders of Sheffield have magnetic masks, to prevent them inhaling the iron dust, and if one trade should turn their attention to health, why should not another follow their good example? I hope that some of the trade (masters as well as men) will follow up and work into this suggestion.

In haste, I am, Sir, your well-wisher,
April 24th, 1843. HUMANITY.

TO THE EDITOR OF THE BUILDER.

SIR,—Suppose a beam of deal 12 inches by 2 inches, and supported at a distance of 10 feet in clear, and a weight of 2 tons placed in the centre, what is the average amount of compression per inch down to that part of the beam which is neither compressed nor extended? Also, what is the average amount of extension up to that part of the beam per inch? also, what distance from the top of the said beam is that section called, I believe, the neutral section?

Again, suppose the said beam be raised at one end, so that the distance between the supports is 6 feet in clear, how is the strength affected, and also the whole of the beam as regards compression and extension as above?

Your answer to the above will be of great service to myself and all connected in the building line.

Your well-wisher,
Foleshill, April 20, 1843. SPERO.

The measure of compression and extension that would take place in any beam of wood when loaded in the centre, can only be obtained by experiment, and would always vary with the quality of the same.

A beam of deal of average quality 12 inches by 2 inches, placed edgewise on bearings 10 feet apart, would be safe in practice, with 2½ tons suspended from its centre, or 5 tons spread equally over its length; but the measure of compression and extension would depend entirely on its quality.

Suppose, for example, we take two beams of the same dimensions, and as near the same quality as we can judge, and suppose one of their edges to be fibrous and the other short or sappy, it is clear that very different results would be obtained by subjecting the sappy edge in one to extension, and the other to compression, and therefore the neutral axis would also vary, nor can, for this reason, any exact point be assigned to it.

If the beam be varied at one end, and the bearings brought within 6 feet of each other instead of 10 feet, its strength will be the same as though laid horizontally on two bearings 6 feet apart.

TO THE EDITOR OF THE BUILDER.

SIR,—Walking into a coffee-room last week to glide away an hour, by chance I took up a number of *THE BUILDER*, the perusal of which so convinced me of its utility and importance, that I have ordered the back numbers and a continuation of the succeeding ones. Permit me, Sir, to express my admiration at the talented, liberal, and enthusiastic ardour that your magazine has produced in the minds of your architectural correspondents; the alacrity with which they obeyed your discreet and eloquent appeal for support proves their readiness to contribute to the future improvement of the working classes, and their communications being illustrated by drawings greatly enhances their value; and I fervently hope that my brother workmen will not permit this golden opportunity to escape them unnoticed, unappreciated, and unsupported, for if *THE BUILDER* is not adequately supported, they cannot expect the weekly engraving of drawings. The suggestion of some of your subscribers to make *THE BUILDER* a newspaper I do not concur with, for in a newspaper there would be matter that would

be inimical to the feelings of some party; there could not exist that halcyon spirit and uniformity of sentiment so essential to obtain the desideratum. If a few practical observations on the causes and effects of machinery, as employed in the building department, will be acceptable to your readers, I shall feel happy to communicate mine. Hoping, Sir, the enthusiastic devotedness I feel in endeavouring to promote your views, i.e. the general good, will be a sufficient apology for the length of this epistle, and trusting your goodness will excuse the liberty I have taken,

I am, Sir, your humble servant,
Gloucester Terrace, W. ATKINSON.
Vauxhall Road, April 24, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—Having seen *THE BUILDER*, and surveyed him with a scrutinizing eye from head to foot, heard what he has to say, and seen him at his work, I consider him to be (in my humble opinion) a most valuable and useful companion, which no mechanic ought to (and I trust ere long will not) be without.

I shall consider it my duty, in my humble and limited sphere of action, to do all that lies in my power to cause it to be more fully known and circulated, by recommending it to the notice of all my acquaintances, and using every means in my power to stimulate them to procure and read it for themselves.

I offer you my sincere thanks for having brought this your valuable work before the public; and I do sincerely hope, and not less sincerely believe, that *THE BUILDER* will be able to prosecute his work till the building he has undertaken has extended throughout the length and breadth of the building world, and its top reached the clouds.

If you think this worthy of a place in your truly valuable work, I shall be very happy to see it appear in your next; but if not, do not encumber *THE BUILDER*'s hands with this lump of useless material, which will not facilitate the raising of the structure, nor grace it when finished. Wishing you every success,

I am, Sir, yours respectfully,
Titchmarsh, April 22nd, 1843. G. E.

TO THE EDITOR OF THE BUILDER.

SIR, "We pay little attention to advice, because we are seldom thought of in it; the person who gives it either contents himself to lay down (*ex cathedra*) certain vague general maxims, and 'wise saws,' which we know before, or instead of considering what we ought to do, recommends what he himself would do. He merely substitutes his own will, caprice, and prejudices for ours, and expects us to be guided by them. Instead of changing places with us (to see what is best to be done under given circumstances) he insists upon our looking at the question from his point of view, and acting in such a manner as to please him. This is not at all reasonable, for *one man's meat*, according to the old adage, is *another man's poison*; and it is not strange, starting from such opposite premises, we should seldom join in a conclusion, and that the art of giving and taking advice is little better than a game at cross purposes."—*Hazlitt*.

Let me preface the few remarks that I am about to make with the hope that I shall be exonerated from any idea of *setting myself up* as a dictator on architectural matters, had I even the vanity to come forward in such guise. There is no doubt that your readers would reply as Dean Swift did on a similar occasion to a forward aspirant, and request me "*to set down again*." But I am well aware, that I do not possess the competent knowledge for so learned an office, and sincerely trust that the thoughts I am about to hazard will meet with indulgence from those that take the trouble to peruse this letter. The aphorism with which I head this, forcibly applies, in my opinion, to architectural discussion, and the offering of advice on architectural subjects. There are very few that like to own the superiority of others, and for that reason very few follow advice, however excellent it may be, as they by so doing tacitly acknowledge their own inferiority, and the greater knowledge of the adviser to the advised. This preamble finished, brings me to the subject I have in view in the thoughts raised in the mind by the letter of your able correspondent Mr. Walheim, on the course of study to be pursued by the architectural student. The student is like a traveller setting out on a long journey: he associates himself on the road with Perseverance, Patience, Study, and Fashion; his destiny is the city of Fame, Perseverance and Study urge him on his path, while Fashion wishes him, as he is poor, to make his abode in the city of Wealth, but Study advises that he first get well known to Fame, and the journey from thence to Wealth is easy and free from danger. Is not this the end of our wishes, the hope that our names may be, as it were, embalmed and live in history—is it not this ambition that supports us when neglected and in poverty? and how is that desired goal to be arrived

at, but by close investigation and application? if the traveller on his journey wishes to slake his thirst, Fashion points out many streams that cross the path, the waters gurgling over their story and shallow bed, bright and refreshing, but the few drops the wearied traveller obtains in the hollow of his hand, are not sufficient to allay the parched mouth, till Study, arriving to his aid, points out the fountain head from whence the streams descend; thither he hastes, and inhales a copious and refreshing draught. So let the student proceed to the Fountain of Architecture, let him investigate and anatomize each style, in all he will find something to admire, something to condemn; let his eye, whilst it roams o'er the varied beauties of each, organize and arrange the whole, so that he give not birth to some monstrous conception, and place the head of the elephant on the body of the cat. He head of the elephant on the body of the cat. He must remember that one of the old writers says, "that a good parlour in Egypt might make a better cellar in England." Let him be zealous in his calling, but also let him eschew bigotry; if by his eye finds delight in the classic beauty of the Parthenon, let him not use the language of Sir Henry Wotton, who, speaking of the Gothic arch, says, "On account of their weakness and unsightliness, they ought to be for ever excluded out of all buildings." He must remember the twelve qualifications required in an architect, as enumerated by Vitruvius, "that he be docile and ingenious, literate, skilled in designing, in geometry, optics, arithmetic, history, philosophy, music, medicine, law, and astrology." Should he be an enthusiast, and revel in the romantic beauties of Westminster, let him not condemn the glories of the Athenian Acropolis. A modern architectural writer, speaking of the Temple of Erechtheus, situated on the Acropolis, says that it was partly taken from the Temple of Mount Sinai; and in this remark he merely follows in the steps of Villalpanda, who affirms that the Greeks obtained their knowledge of architecture from the Egyptians and Tyrians, the latter of whom were employed merely as artificers in the great work of the temple, and that the rules of architecture were delivered by the Almighty himself to Solomon.

Before I close my letter, might I hazard a conjecture as to the origin of the Corinthian foliated and cauleolated capital. "The invention of this order is ascribed to Callimachus, an Athenian sculptor (by most of the moderns, after Vitruvius), who passing by the tomb of an Athenian lady, over which a basket had been placed covered by a tile (shell), the whole having been set on the roof of an acanthus, as the plant sprung up, the branches encompassed the basket, and bending down at the top, under the corners of the tile, formed a sort of volute." Might not the supposition be more correct, that the idea was originated from some monumental column placed by the grave and headed by a sepulchral steele, and by referring to Stuart and Gandy, it will be found that the acanthus was a favourite ornament with sculptors for sepulchral adornment. I remain, Sir, yours very respectfully,
April 27, 1843. OFFICIATOR.

TO THE EDITOR OF THE BUILDER.

SIR,—Your correspondent, Adificans, may see the composition he inquires about in front of Pentonville Prison; it was mixed with gas-tar, Thames gravel, and broken brick, and sifted through a sieve, the mesh of which to be determined by the smoothness of the surface required; it is laid three inches thick, having about two inches of lime rubbish, coarse gravel, or any refuse from the building, underneath. That used for the carriage-way is mixed with a portion of broken granite, and is laid six inches thick. It is best suited to parts not exposed to the sun.

It is somewhat doubtful as to its being waterproof.

I remain, Sir, your very obedient servant,
T. LAUNI,
April 27, 1843. Clerk of Works.

TO THE EDITOR OF THE BUILDER.

SIR,—I have before me at this present time the original plans of a building erected in Liverpool, and completed in October, 1827, heated and ventilated by flues built in the thickness of the walls, as shewn in Mr. Hope's plans, or nearly so. A common strong cast-iron hot hearth was required, and placed at one end of the building for drying certain articles (in common use in the building); the hot hearth was also used without any alteration in the ironwork, for heating the building with hot air. The building is two stories high, of 12 and 11 feet; 112 feet long, by 19 feet wide inside, and is divided on the ground-floor into three rooms and a staircase. The floor above is divided into 14 rooms and the staircase.

The whole building was well warmed and ventilated by this means, and continues so to this day, and, I believe, without any repairs. There cannot be any doubt this plan was in use long before, but I

had not seen it adopted to heating apartments, though I had seen it used years before for ventilation.

Mr. Hope and Mr. Bernhardt may have each easily invented stoves for heating the air, and very different from each other, but I am positive the system was in use in Liverpool upwards of twenty years since; and if either Mr. H. or Mr. B. claim the invention, they will both be, I firmly believe, mistaken. But Mr. H., in his last letter, I think, does not lay claim to the general plan, but to the stove only, which he says is quite different from Mr. B.'s. Who was or is the inventor I cannot tell; but having used the method so long since, and with success, I should not have the least hesitation in adopting the method again to-morrow, and that without any fear of the consequences likely to arise from infringing any person's patent. I can readily satisfy any of your numerous readers with reference to the building, or you, Mr. Editor, with a rough copy of the plans. I am, Sir, in very great haste, your obedient servant, T. H. C.

Ruthin, 1st May, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—Could you or any of your readers inform me which part of the Royal Hospital at Greenwich was erected under the superintendence of Luigi Jones?

I would not have troubled you with the question, but I cannot discover which is the part.

The Royal Academy having offered their silver medal for the best drawing of that part, it is of great importance that I should not make any mistake with regard to it.

I am, yours obediently,
AN ARCHITECTURAL STUDENT OF
THE ROYAL ACADEMY.

TO THE EDITOR OF THE BUILDER.

SIR,—A correspondent of yours, signing himself "W." in your last week's Journal, inquires if there is any architectural subscription library in London. I feel pleasure in gratifying the wishes of yourself and the inquirer by informing you that a plan has been long maturing, and is nearly perfected, for opening an extensive library both for town and country, a detail prospectus of which will appear in your journal, when quite prepared, and I trust it will merit your valuable support.

I am, Sir, yours respectfully,

A SUBSCRIBER AND ADVERTISER
TO YOUR "BUILDER."

P.S. It may be as well to observe, that nearly all the useful suggestions offered by you are embodied in our plan.

TO THE EDITOR OF THE BUILDER.

SIR,—I was highly delighted with the honourable offer made by you in answer to the inquiries of an "humble mechanic," and should be very happy indeed to see your proposition brought to bear, for the which I tender you my best thanks.

An evening school of this description I have often sought and inquired for, but in vain.

When I first came to London, I went to the residence of the late "M. A. Nicholson," but to my great disappointment I found that he had exchanged goods a short time previous. At the same time I procured his excellent work on Handrailing, which you strongly recommended to one of your correspondents in a recent number of *THE BUILDER*.

I myself should esteem it a privilege to have my name enrolled as one to form a class for the acquisition of so useful, and at the same time so exalted and delightful a science.

Wishing you every success in your noble and laudable undertaking,

Believe me ever to remain, yours sincerely,
A WORKING MECHANIC.

TO THE EDITOR OF THE BUILDER.

SIR,—Having seen in No. 11 of *THE BUILDER* a letter addressed to you by a carpenter who wishes to obtain a knowledge of staircases as well as a knowledge of architecture, you have had the kindness to suggest, in case a number of young men would form themselves into a class, you would guarantee to bring forward a person of first-rate qualification to instruct them in architectural delineations, &c.; now, I, as well as a friend of mine, are anxious of becoming members of such a class, and in case the person you may appoint may consider it necessary for the better illustration of his subjects to have models, we will willingly tender our services in making such as he may suggest.

Your humble servant, W. G.

The site of the Church proposed to be erected at Malvern Link, in the parish of Leigh, has been given by Earl Somers, in addition to a subscription of 5000. About 1,3000. have been subscribed towards this object, and the farmers of the neighbourhood have undertaken to convey the whole of the building materials to the spot.

We would respectfully direct the attention of our Country Subscribers to the mode we have adopted of signifying to them, when the period of their subscriptions expire, and when they become due—the substitution of a NEW envelope to their paper instead of one of the ordinary nature.

THE BUILDER,

NO. XIV.

SATURDAY, MAY 13, 1843.

NEW PRISON, LEEDS.

IMMEDIATELY upon the information falling in our way, that a new prison was about to be erected for the borough of Leeds, and that the architects of the whole country were solicited by public advertisement to give to that borough and their country the benefit of their common contributions on the subject of prison arrangements, involving, as this must necessarily do, a large amount of personal labour and the study of many minds, and a considerable expense—immediately, we resolved to contribute our part to the common stock, for the benefit of the competing architects, by furnishing information on the subject, which we thought our position entitled us to ask for, and enabled us to give. We lost no time in at once applying to the Home Office for permission to examine the New Model Prison, intending to make it the groundwork of our ratiocinations, as we knew it to be the exemplar required to be conformed to, in its main particulars, by the government. We were surprised that a week's elapse should have produced us no reply, upon which we wrote again, and the cool official answer was, that "Secretary Sir James Graham hath no information to communicate relative to the New Model Prison." No apology was made for the delay, nor, indeed, had the answer a direct bearing upon our application; we asked not for information, but in the most respectful manner sought that permission to go over the New Model Prison, which we considered the government would gladly accord, stating our object to be the promotion of clear and sound views of prison economy, for the benefit of this competition, and through it by consequence for the country.

Now, we think we are not presuming too much for ourselves, and indeed we throw all personal considerations out of the question, in regarding the conduct of the Home Office, as any thing but correct; putting courtesy aside entirely, we are disposed to make a stand at this point, not in any pompous or impertinent spirit of sticking, not in any disrespect of authority; far from it (the authority has less of respect for self than he entertains for it); but we consider a principle violated, or rather a principle enunciated in such conduct, against which, on the part of the profession, it is our duty to take a strong exception. The Home Office has its special duty in presiding over the management of this question: it has taken the lead in determining many points referring to the architectural arrangement of prisons. It employed Major Jebb originally in the contrivance and construction of the prison at Pentonville, which it sets forth as a model for the guidance and imitation of future operators; and unless it intends that Major Jebb, or a staff under his command, shall direct the new erections called for in all parts of the country, by the new views of prison discipline enforced by the government, or assumes that Major Jebb has concentrated

within himself and this prison the perfection and fulness of contrivance—it is a duty, we say, that it owes to the profession of architecture, to give it every facility for understanding the views of government, and for enlarging upon them; and we know of no way so simple as the one we ventured to offer in putting our humble service voluntarily and zealously, as we proposed, in requisition.

God forbid that we should be understood as saying one word of a disrespectful nature in reference to the office over which Sir James Graham presides, or of the government of which he is a member, or of himself; the appointment which he holds, to say nothing of his personal character and great talent, demands from us that which is understood in the enlarged and literal sense of the word loyalty—but is there nothing demanded for the profession of which we are the humble, and it may be said the unworthy representative? Is there no loyalty, no respect due to it? has it no functions, no dignities that invest its members with more than their own mere personality? It has, and it shall have; it is for this that we stand forward—it is for this that we write—it is for this that we exist.

Yes, Architecture must take a different place in the popular estimation before it can be fully accredited, and before this country can hope to regain the lustre which the former doings of its architects obtained for it. A sad disparagement of opinion, as discreditable to the profession that endures as to the public that entertains it, prevails on the subject of art and artists; artists are regarded as inferior to traders, commercial men, jobbers—it takes no stand of equality with the other professions; the law and the army and navy appear to be recognized as the qualifying ordeals of men entitled to legislate and to govern; but artists, among whom architects are reckoned, are thought to be of that class of poor devils—like garret poets and authors—who should to all time personify that nondescript thing in humanity that exists by a conceded privilege, and fights a constant battle with a poverty which the common consent assigns for its sovereign and tormentor.

Matters can never be as they should be with this disturbance of the social and political balance. Art and literature have as strong a claim to the coronet and its immunities and privileges, as territorial wealth, ancestral dignity, forensic ability, the valour of the sword, or commercial renown; politics are not a trade requiring a special apprenticeship, they have been so regarded and so degraded. We have our thoughts now fixed upon one who lived in times when far different views animated the commonalty, and far different results flowed from their prevalence. An architect, the illustrious William of Wykeham, was his sovereign's and the people's trust; it was not incompatible with his devoted pursuit of art to be a councillor of state. Nor was a later scion of the same stock, the equally illustrious Wren, deemed to be unfitted for the high trust of his countrymen because he was an artist—No! And Architecture must again assert her true dignity; she must claim for herself a large and a leading share in the philosophy of life, and in proportion to the greatness of the country in which her place is established must be the renown and the respect which attends and encircles her.

It no doubt required of Major Jebb to bring the resources of a comprehensive mind to the question of designing the New Model Prison; it was not a mere matter of brick and mortar, but one of vast political and moral involvements; and how can it be expected that other archi-

tects and designers are to tread in the steps in which it was thought necessary for Major Jebb to walk, without having their minds thoroughly awakened, as his was, to all the pertinencies that link with the question of criminal punishment and the correction of the criminal? We lament that this opportunity has been thrown away, for so we regard it now, the time being so short; but we shall not fail to recur to it on a fitting opportunity; in the meantime, we may recommend to those who are entering upon this competition, to procure a copy of the *Illustrated London News* of January 7th, where they will find a detail of plans, obtained or permitted under some auspices which we think we have, without the least disparagement of that excellent paper, a much stronger claim to. There is an excellent series of papers, too, on the question of criminal jurisprudence by Mr. Sampson, published by Highley, of Fleet-street, which it would be well to read, and the reports of the Parliamentary committees; with this recommendation we must close the subject for the present.

SURVEY OF LONDON.

At length a becoming spirit is about being manifested on this subject, but still we must complain of, or rather blame, the apathy of the Profession. They deserve all the disrespect and obloquy that is heaped upon them, and the low estimate of public opinion, of which we have treated in the foregoing remarks, if they do not vindicate themselves by a manly, and, we will say, a truly artistic feeling. We have authority for stating that the members of the Royal College of Engineers are imbued by the spirit of gentlemen in this matter, and are not at all anxious to be employed on the irregular service of surveying the city of London, while its own surveyors sit idly by and mope or grumble at the indignity. A meeting will shortly be called, several names of gentlemen willing to take an active part in proper measures of representation to government, have been sent in to us, and we shall be happy to receive any additional ones which the sense of duty, or a feeling of approbation of our views, may induce any gentleman to forward us.

BUILDERS' INSTITUTE OR SCHOOL.

We have received a dozen names of students all anxious and eager to avail themselves of the offer we made to establish a school for instruction in building draughtsmanship, modelling, &c., and we have also had applications from gentlemen competent to take a part in the management of the establishment. Our view is, and it is the view of all with whom we have conversed, that hundreds of building artificers will avail themselves of the advantages which such an Institute, properly conducted, will open to them. And we must confess to a little reluctance, it may be called a coyness on our part to assume the lead in so important a business. We have, however, done the best to wash our hands of any charge of presumption, by putting in train an overture to the Council of Education—that they would take upon themselves the responsibility, and by assigning apartments in Somerset House in connection with the School of Design, and by appointing masters, with all the ample provision that a national grant of 5,000*l.* awards them—with models, and the means of procuring models in profusion—give to the practical genius of our countrymen the benefit of all that good which is so eminently within their power to confer.

But whether or not our suggestion be

adopted in this respect, the main object shall be carried out—whether the national vote of 5,000*l.* have a portion doled out for this great end, or not five farthings come from it—the Builders' School must and *shall* be established. We invite, therefore, all those who are anxious to secure its benefits to come forward with promptitude. If the numbers be large, the expense will be less; and in any case we hope it may be arranged so as very little, if at all, to exceed the rate at which the government school is fixed; but much will depend upon numbers and the amount of voluntary aid.

THE CATHEDRAL OF CHARTRES.

It appears probable from some ancient manuscripts, that the Cathedral of Chartres was originally built on the site of an ancient Druidical temple.

St. Savinien and St. Potentien, founders of the metropolitan church of Sens, coming to Chartres, St. Aventin, their disciple, built the first Christian church in that city, about the end of the 3rd century. The faithful suffered great persecution under the Roman dominion; but, in 313, under the emperor Constantine, the inhabitants of Chartres founded, in conjunction with their bishop, a temple to God upon the very spot where the church now stands.

This church was burnt about the year 858 by the Normans, who entered the town under the pretext of receiving baptism there. Rebuilt by Bishop Gislebert, the church again suffered in the war between Thibaud and Richard, duke of Normandy. In 1040, it was again reduced to ashes by lightning, being probably built of wood, as were many churches of the 6th and 7th centuries. The pious Fulbert, who was bishop at this time, sought the assistance of the different sovereigns of Europe for the re-construction of the building, devoting for three years his own income to the same object. A large sum was consequently raised.

We have little idea, at the present time, with what zeal and perseverance Christians then devoted themselves to such enterprises: they frequently undertook severe manual labour in the erection of new churches; and pilgrims even came from Rouen and other places to assist in its execution.

These pilgrimages and labours were performed with the best intentions. The persons who undertook them generally made up their past quarrels, and many a process of law was thus determined. They nominated a chief, who allotted to each his employment; the works were executed in the fine season of the year; wax tapers were placed in the waggon round the building, and hymns and canticles occupied the night. Thus were executed most of those marvellous constructions of the middle ages, which bear in their conception and execution a character of unity and grandeur impressed upon them by the fervent piety of the founders. With such means at command, we may understand how those gigantic monuments, which seem to have required ages for their erection, may have been completed in a few years. But still we may doubt the assertion of the historians, who state that the construction of the Cathedral of Chartres, such as it now exists, occupied only eight years. It is not certainly of earlier date than the 12th century, and it is probably built over the constructions of Fulbert, of which only the vaults and other concealed parts might have remained. According to the testimony of other documents, it was 130 years before the edifice was consecrated.

In 1083, the Princess Maud, widow of William, Duke of Normandy, caused the central building to be covered with lead, for the entry to the nave, the grand portal, and what is now called the old steeple, were not finished till 1145. The other steeple was built of stone up to a certain height only, and was terminated by a pointed wooden spire, covered with lead. This was burnt by lightning in 1506, and the six bells suspended in it were melted. It was consequently determined to re-construct the spire in stone: Louis XII. gave 2,000 livres towards defraying the expense, and indulgences were granted to persons who were willing to co-operate in the work.

Jean Texier, an inhabitant of Chartres, was the architect on this occasion: the work was commenced in 1507 and finished in 1514. The foreman of the works received about six or seven sous a day, and the workmen only five.

This steeple, after having escaped another conflagration in 1674, was blown down in 1691; and was rebuilt in 1692 in the stone of Vernon, by Claude Augé, a sculptor of Lyons, four feet higher than it was before.

The dedication of the cathedral took place on the 17th October, 1260, under the protection of the Holy Virgin: Peter de Mainey, seventy-sixth bishop of Chartres, officiated on the occasion.

Built upon the top of a hill, the cathedral rises majestically over the city; and the extraordinary height of the steeple makes it a most conspicuous object from a distance. The old steeple was 312 French feet in height, and the new one 378.

The exterior is decorated with a great number of statues and bas-reliefs, interesting memorials of the state of art in the eleventh and twelfth centuries: they are exceedingly well executed, so much so as to distinguish them from most of the works of that time. The same remark will apply to all the architectural ornaments of the building.

The south door is approached by a vast porch, of admirable style and construction; traces of painting and gilding still remain on the figures of this magnificent façade.

The north door is in a severer style. "This," says M. Jolimon, "is the richest in its details. The porch or peristyle is raised upon seven steps, and presents three grand arcades, which are surmounted by gables corresponding with the three entrances below, and sustained by piers and columns, which, as well as the vaulted roofs, are suitably adorned with statues and bas-reliefs."

The great statues fixed to the columns represent the patriarchs and the prophets of the Old Testament, whose names are written in Gothic character on the consoles which support them, and princes and persons of celebrity, among whom are Pierre de Mauleuc, duke of Brittany, and Alice his wife. The vaulted roofs of this peristyle are also richly adorned with groups of figures, representing scriptural scenes.

Above the porch is seen the upper part of the doorway, flanked by two small octagonal turrets, as well as by two large square towers, with flat roofs, and terminated by a gable, adorned with a figure of the Virgin. The central part above the doorway is entirely filled by a window, divided into five compartments, and surmounted by a beautiful rose of regular form.

Two grotesque figures are sculptured on two buttresses on the south side of the old tower, one of which represents a sow spinning, and the other an ass playing on the harp.

The inside of this building is no less beautiful and striking than its exterior. The subdued light which penetrates through the magnificent windows, produces on the mind of the spectator an almost magical effect.

The impressions produced by this temple are heightened in effect by the recollection of the memorable events of which it has been the scene. After the battle of Mens en Puelle, won by the Flemings on the 18th August, Philippe-le-Bel here offered to the Virgin the armour which he wore in the conflict. Philip of Valois came here to render thanks to the mother of our Saviour for the victory of Cassel, the 23rd of August, 1328. And in this church the vanquisher of the League bowed his victorious brow.

This edifice is 396 French feet in length, 103 in breadth, and 106 feet in height to the roof. The windows of the nave, the transepts, and the chapels are adorned with figures of holy men, and a great number of subjects from the Bible, as well as with pictures representing the corporations of the arts and sciences, which contributed by their doctrines or the labour of their hands to the construction of the splendid edifice.

In the circular parts of the windows are represented the kings, dukes, and other persons of note who were benefactors to the edifice:—their shields are emblazoned, and they are mounted on richly caparisoned horses.

The screen of the choir is a very remarkable work; on it the principal events in the life of our Saviour and the Virgin Mary are repre-

sented in bas-relief, and the whole is framed in and surmounted by the most elegant ornaments.

The lobby, constructed before the choir in 1100, was destroyed in 1772, at which time some new embellishments were added to the building, which were unfortunately marked by the bad taste of that period, contrasting disadvantageously with the other parts of the edifice.

The underground vaults of this church are very extensive: and in that part of them situated under the choir are thirteen chapels, one of which is dedicated to the Virgin.

On the 4th of June, 1836, a fire broke out in this fine cathedral, which destroyed the whole of the roofs, the wood-work of the steeples, and other parts of the building. The damage was estimated at about 40,000*l.*—From the *Architect, Engineer, and Surveyor*.

NEW BUILDING ACT—MARYLEBONE VESTRY.

A COMMITTEE appointed to investigate the several clauses in this Act met at the Court House on Tuesday evening, Mr. H. Biers in the chair. It was resolved, that several of the clauses in the new Bill interfering with or repelling parts of the local acts of this parish; and also that other parts of the Act, being oppressive and uncalled for, ought to be opposed. That the vestry clerk be directed to write to the county and borough members, to receive a deputation from this committee upon the objectionable clauses in the Bill, and that they be requested to oppose the same in Parliament.

LEEDS NEW PRISON.

INSTRUCTIONS TO ARCHITECTS.

DESIGNS are required comprising a complete set of plans, sections, elevations, and explanatory drawings, accompanied by a general specification of the manner of executing the works, sufficient for contracting for the same, and an estimate of the cost in detail.

The principle on which the prison is to be constructed being that of the Model Prison at Pentonville, it is strongly recommended that any one who gives designs for it should have seen and examined that prison.

The plans, specifications, and estimates given in are to be in accordance with the Model plans, descriptions, and schedules furnished by Government.

The number of cells is to be kept the same as in the government plan, but the form of the ground selected for the site requires an alteration to be made in the basement story, so as to place it on the reverse side of the building, and such other alterations may be made in the interior arrangements as will not interfere with the principle upon which it is to be constructed.

All exterior walls are to be built of Bramley Fall or other similar stone.

In forming his plan, the architect must keep in view that the cost of the buildings, with provisions for warming and ventilation, and including the prison walls, has to be covered by a sum of about 30,000*l.*, and the Council are anxious to bring it as much within that sum as can be done consistently with solidity of construction, and an appropriate but plain exterior.

The proposed site is indicated on the plan of the ground, but architects may select the precise position which they think most suitable, within the ten acres proposed to be purchased.

All drawings are required to be made to a scale of $\frac{1}{4}$ of an inch to the foot, and the elevations to be tinted in Sepia only.

A premium of 150*l.* will be given for the best set of plans, and 75*l.* for the second best.

All plans, for which a premium is awarded, will be held as the property of the Council, but the Council will not bind themselves to employ the person whose plans obtain either the first or second prize.

The designs are to be sent with a private mark, accompanied by a sealed letter indorsed with the same mark, and containing the name of the persons who send them, to the Town Clerk's Office, before the 21st of June next.

By Order,

EDWIN EDDISON, Town Clerk.

Town Clerk's Office,
58, Albion-street, Leeds,
18th April, 1843.

BERNHARDT'S STOVE.

TO THE EDITOR OF THE BUILDER.

SIR,—I am happy to find by facts, that your valuable journal is not only read and esteemed by architects, builders, and the students and workmen in the building line, but by gentlemen in other stations. I have had the pleasure to find that some of the aldermen of the city of London are not unacquainted with the contents of your journal.

To prove that the foregoing statement is correct, I think it my duty, in answer to Mr. T. P. Hope's letter, to inform the readers of your journal, and particularly Mr. H., that, shortly after the publication of his plans and sections in THE BUILDER, one of the aldermen, very humanely indeed, gave orders to relieve the poor prisoners in Whitecross-street Prison, from the suffocating atmosphere in their wards, by introducing the ventilation plan (my patent-right) so liberally offered to the public at large, by Mr. Hope. A Mr. Dean undertook the task, and had three cylinders of plate-iron erected, in the centre of the ward No. 7, to the height of the room, which were fixed upon cold air flues, constructed for the purpose, below the floor of the said ward.

These cylinders are perforated at the top, so that the cool air from the outside escapes above head in the room (by the same principle that I introduced in my ventilation plan in the Earl of Lovelock's mansion, and in the committee and dining rooms in the House of Commons, six years ago). To each of the above-mentioned cylinders are fixed square flues of the same metal, close to the ceiling, which reach through the wall; and outside the building is a cylindrical tube of considerable height, fixed upon the square flue, for the purpose of carrying the foul air from the room into the open air.

A friend of mine, who has some knowledge of my patent, came to my house and invited me to accompany him to the said prison, and there I found what I have stated. Some of the prisoners complained of the obstruction of the cylinders, which are fixed in the centre of the small passage between the tables.

I told them and my friend, that the obstruction would not remain long, as I was quite certain the authorities would not ventilate the room, and that the cylinders would, therefore, very soon give orders for them to be taken down. Last Saturday, I went to Guildhall and saw the alderman who I was told had ordered Mr. Dean to erect the said ventilating apparatus, but learned from him, that not he but another alderman had given the order, and that the whole should be removed.

I think it my duty to state this to the readers of this journal, and to beg of the editor the favour to furnish his readers with copies of the letters from architects, physicians, &c., wherein it is stated, that my system of ventilation is perfect, when erected under my direction, which, I hope, will be a sufficient reason for refusing to comply with the wishes of Mr. Hope to give drawings and explanations of my patent apparatus and designs, at present. I fear the public might be deceived by men quite unacquainted with the laws of nature controlling fire and air, and my science and myself might be blamed for the blunders of ignorant imitators.

Mr. Hope seems to imagine that my patent contains only one apparatus, as shown in No. 9 of THE BUILDER. He is, therefore, right in saying "that there is not the least similarity whatever between my patent Britannia fire-grate and the grate shown by him; but if he will see the fire-grate fixed in the warehouse of Messrs. Fry and Co., No. 130, Fenchurch-street, City, or see my specification, which was enrolled in June, 1835, he will find that I have secured to myself the right of warming and ventilating with open fire-grates one or several rooms, and that the construction of the fire-grate, chambers, and flues, are of different dimensions to those used before the time of my patent specification.

If the readers of this journal will peruse the Report of the Select Committee of the House of Commons on the ventilation of the Houses of Parliament in 1835, they will find that the first class of scientific men in this country were unable to mention one single room which was well warmed and ventilated; and if the editor will be kind enough to insert the copies of letters I have before alluded to, and the following extract from the *Polytechnic Journal*, No. 1, the public will find that my statements are true, and that, on the continent as well, no man existed who was able to warm and ventilate rooms or buildings as perfectly as I have done.

Extract from the *Polytechnic Journal*, No. 1, pages 76-77:—

"It is not our intention to prolong this article by entering into any critical examination of Mr. Bernhardt's claim to be the discoverer of a new law of nature. We are saved that trouble by the book of certificates, one or two of which we shall presently

quote. But we cannot refrain from calling attention to the first question put by Mr. Bernhardt on this smoky subject. He asks—

"What are those fundamental scientific principles according to which all construction for fire, without any exception, may be executed without previous experiment, in the manner best adapted to their intended purpose? Does anybody understand these fundamental principles, we ask?"

"Knowing what we do about 'certificates' generally, we place little faith in documents of that nature. The following, however, are out of the common way:—

"By his Majesty's command this testimony is given to the architect, Mr. F. A. Bernhardt, that he has remedied the inconvenience of smoky chimneys in the royal palace as well as in private houses, although all former attempts to do so have proved ineffectual.

(Signed) "V. SHUCKMANN,
"Minister for Commercial Affairs.
"Berlin, 22nd April, 1831."

"In my dwelling-house, now built four years ago, Louisen Strasse, No. 31, there diffused itself, upon the lighting of the fire, so much smoke in the kitchen that the tenants were not able to bear it. On making inquiries about the remedying of this nuisance with several competent judges, I got from a royal counsellor in architecture the mortifying information, that with respect to the doing away with the smoke there existed no fixed knowledge as yet, and that the cure depended upon chance only. That this object, which appears as yet impossible to other architects and technical connoisseurs, is an easy thing for the architect, Mr. Bernhardt, he has proved clearly and plainly in my house, for, without making the least trial, he has at once got the apartments given over to him freed from all smoke. In order to be useful to the public in this respect, I think it my duty to make the foregoing known to the same.

"P. LAUTIER,
"Royal Confidential Secretary in the
"Chief Administration of the Public
"Debt.
"Berlin, 31st January, 1831."

"Foley-place, Wednesday morning.

"SIR,—I am happy to inform you that Mr. Currie is satisfied that nothing can answer better than the means you have applied for warming his house at East Horsley. If you will call here to-morrow, I will give you an order for the receipt of the amount of your contract in respect thereof.

"Yours faithfully,
"CHARLES BARRY."

"The fire-places in the royal post-coach manufactory at Dusseldorf were formerly in such a state, that the dust and smoke proceeding from the smithies fell upon the lands and houses of the neighbours. The nuisance increased at length so much, that one of the neighbours instituted proceedings against the post department, in which the latter was condemned through all the courts to indemnify the plaintiff, and the factory was in danger of being compelled to suspend work. In order to prevent this evil, and a removal of the manufactory (which would certainly have also been very expensive), it was necessary to find means and apply them, by which the dust and smoke of the said factory should be turned away from the premises of the neighbours. This task, which was given to the architect, Mr. Bernhardt, he has satisfactorily performed (as is testified by the annexed document of the royal government of Dusseldorf, dated 2nd August, 1833) by means of his alterations and arrangements of the chimneys, with which I hereby make known to Mr. Bernhardt my particular satisfaction.

(Signed) "NAGLER, General Postmaster in
"chief, Director of the Post de-
"partment in the Prussian
"States.

"Testimony for the architect, Mr. Bernhardt, at Dusseldorf, Frankfurt-on-Maine, 8th Oct. 1833."

The above I hope and believe will be satisfactory to the greatest number of the readers of your valuable journal, and I shall be happy to lay before the same, as soon as possible, a drawing of the smoke-purifying apparatus, as mentioned in the last testimonial, which now has been ten years in operation, to the satisfaction of all parties; and I will shew to the public the possibility that the London nuisance, the soot, which now blackens the faces and dresses in the streets, and goods and furniture in the apartments, may be collected in chambers and flues above the roofs, and sold to the gardeners and agriculturists for a considerable price. If this were done, the atmosphere in London would be at least 80 per cent. better than at present; and the use of the soot, as stated, would produce a considerable quantity of food for the

people in London; and the health of the inhabitants of the metropolis be improved in a very high degree. Through another drawing, from a chimney erected according to the principles of my invention in the royal palace at Potsdam in Prussia, I am able to satisfy the public that there is no necessity for building a chimney for every fire-place, but that one chimney is sufficient for ten and more fire-places, if the fire-places and chimneys are constructed to my plan. In buildings thus erected, the atmosphere will be and always remain wholesome in every apartment, from the basement story to the roof; and such buildings can never be set on fire by fire-places constructed to my order. The public may now have and use gas-lights in old and new buildings, and in the most elegant drawing-rooms, &c., without the least inconvenience from the air from the flames, and without the least danger of fire or explosion. The roofs of buildings may be flat, and much superior to all roofing in use, on account of simplicity, economy, and durability. The said roofs may be made of copper, cast or wrought iron, glass, zinc, lead, cement, slate, or earthenware. The said roofs may be made so flat, that the inhabitants of a street with such roofs may go all along the roofs from one end of the street to the other end. Chimneys constructed in accordance to the laws of nature require no elevations above the roof, no chimney-pots, no pipes, no cowl, &c.

Having learned that many new buildings and new streets, &c., are in contemplation to be built, and knowing that the intention of this Journal is to make the community acquainted with that which is useful to them, I beg you will excuse when I intrude upon your time and space in your admirable paper.

I shall be happy to receive or to meet any of your subscribers or friends of arts, science, and improvements, and to grant licences to persons who are willing to introduce my patent warming and ventilating apparatus, as well as my patent gas-light to the public, as it was never my intention to interfere with the trade.

I am, Sir, your most obedient servant,

F. A. BERNHARDT.
2, Princes-street, Finsbury-square.

SURVEY OF LONDON.

THE subjoined letters, addressed to the Editor of the *Architect, Engineer, and Surveyor*, we readily extract:—

SIR,—The following letter was written two months since, with the intention of circulating it among the leading members of the professions, but having seen in the morning papers a paragraph intimating that an interview had been granted by Sir Robert Peel to several architects and surveyors, I presumed that the matter had been taken up by able and more influential persons than myself.

The object and issue of that interview not being generally known, I have been unable to decide whether my ideas have really been anticipated or not, and am therefore induced to request that you will publish the letter which I had intended for private circulation only, that it may stimulate the professions to a united effort to prevent, if possible, a proceeding which will so injuriously affect their members.

I am, Sir, yours obediently,
20th April, 1843. J. BAILEY DENTON.

(Copy of intended Circular.)

SIR,—The Commissioners appointed by Government for the examination of proposed metropolitan improvements, are now engaged in considering the expediency of an ordnance survey and map of London upon a large scale. It is considered arbitrary in the extreme, that at a time when regularly educated surveyors and architects would be glad of a compensating employment, a host of sappers and miners, foreigners to the profession, should be engaged to execute a work for which experienced professional men are more competent, and who have in their possession many valuable and correct surveys of large portions of the metropolis, which might be made available for the purpose of supplying details, both with economy and dispatch.

Should your opinion coincide with the above, I beg you will inform me of your willingness to attend a meeting at which a memorial will be drawn up, expressive of the opinion of the profession, to be presented to the Board of Commissioners.

I am, Sir, your obedient servant,
J. BAILEY DENTON.

MR. BRUNEL.—The loss of this eminent engineer has been threatened us, but we are delighted to say that sanguine hopes of his early recovery may be entertained. It appears that while endeavouring to amuse his own or some friend's children, by pretending to pass money from his mouth to his ear, he slipped a half-sovereign, which stuck in the *trachea*, and that the danger to his life has in consequence been most imminent for several days.

CHURCH OF ENGLAND INSTRUCTION SOCIETY, SHEFFIELD.

On Monday evening, May 1, an interesting lecture on "English Ecclesiastical Architecture," was delivered before the members and friends of the Church of England Instruction Society, by Dr. Branson. After some allusion to a previous lecture before the same audience, by the Rev. Mr. Upton, Dr. Branson remarked, in reference to the title of his lecture, that it was adopted in order to avoid as much as possible the term "Gothic," so commonly applied, or rather "misapplied," to that species of architecture of which the pointed arch forms so remarkable feature. After a series of preliminary details, explanatory of the progress of architecture in this country from the earliest period to the era of the species more immediately under consideration, with a cursory notice of existing examples of the different style in our old churches and other edifices, the lecturer adverted at some length to the much disputed origin of the pointed arch, the invention of which has been alternately attributed to the Goths, the Italians, the French, the Germans, and the English—to say nothing of more fanciful theories, such as that the pointed arch originated with the Egyptians, in placing two large stones in an oblique position; the Doctor himself appeared to regard the present balance of evidence as in favour of a Sarcenic origin. After various details, the subject was pursued under the following heads:—1. the Norman style; 2. the early English style; 3. the Decorated style; 4. the Perpendicular style. Of the periods and styles thus indicated, the following may be given as the summary:—1st. The Norman, which prevailed from the Conquest to the end of the reign of Henry II., in 1166, and characterized by its semicircular arches and rude ornaments. 2nd. The early English, which prevailed to the end of the reign of Edward I., in 1307, known by its pointed arches, lancet windows, and toothed ornaments. 3rd. The Decorated, which continued in use a few years later than the end of the reign of Edward III., in 1377. The windows in this style are larger and divided by mullions, and the heads of the windows are filled in with flowing tracery. Lastly, the Perpendicular, which prevailed till the end of the reign of Henry VIII., in 1546. The constant panelling and the mullions running in perpendicular lines through the heads of the windows, sufficiently characterize the style. Enough, he thought, had been said to disprove the assertion of Evelyn, quoted by Sir Christopher Wren, that Gothic architecture, as he styles it, is a "congestion of heavy, dark, melancholy, monkish piles." Sir Christopher himself calls the "long-drawn aisles and fretted vaults" mere "mountains of stone, vast, gigantic buildings, but not worthy of the name of architecture;" and he describes the inventors of this style as setting up slender and mishapen pillars, or rather bundles of staves and other incongruous props, to support ponderous arched roofs without entablatures, and that the Goths and Vandals having demolished the Greek and Roman architecture, introduced in its stead a certain fantastical and licentious manner of building, which we have since called "modern Gothic, of the greatest industry and expensive carving, full fret and lamentable imagery, sparing neither pains nor costs." It is to be regretted one so deservedly placed in the very first rank of architects, in this or any other country, should have lent the sanction of his high name to the despisers of our ecclesiastical buildings. The sentence passed on the so-called invention of the "Goths and Vandals," by one who had given such a proof of his architectural powers in the cathedral of St. Paul's, was little likely to be disputed at the time; his authority was sufficient to influence not only architects, but the patrons of architecture, and the force of his example has been sensibly felt even at the present day. The facts the lecturer wished to establish were these:—That the Saxon architecture was a ruder imitation of Roman work than is to be met with in other countries, and that very few traces of Saxon buildings exist at the present day; that Norman architecture in this country did not arise from the gradual improvement of the Saxon, but was a distinct style introduced at the Conquest, and was also of Roman origin; that churches erected during the transition of one style to another partake of them

both; that there are four distinct styles observable in English ecclesiastical architecture, previous to the reformation, is clearly to be recognised and distinguished by their forms and ornaments, as the five orders of the Grecian architecture appears to be demonstrated. It is equally clear, as Dr. Branson remarked, that architects of a later style, in repairing or adding to existing churches, almost invariably introduced, in their repairs, the prevailing fashion of the day, and consequently the date of the church can be pretty accurately ascertained by a mere inspection of the form of its windows, doors, arches, and ornaments. It is this last fact that clothes with so much interest the study of church architecture in England. Even a slight acquaintance with its principles and details proves a source of unmixed delight. It is impossible to view these majestic monuments of the piety of our ancestors, connecting links with the present and the past, without the mind being carried back to the times in which they were constructed. The village church and stately cathedral alike teem with the visions of the past. What scenes have they not witnessed? What tales could they not tell? Every stone of their venerable pile is a record of the progress of science and art. The ruined abbey, which even the hand of man has not dared completely to destroy, graceful in its wreck, and beautiful in age, is invested with a new interest; and though regarded before, perhaps, merely as a striking feature in a picturesque landscape, becomes at once, if we may be allowed the expression, a memoria-technica, a standing chronicle of national history. Imagination repairs the time-worn columns, and peoples the deserted aisles. The great and good pass in review, and the truth is forced upon us, that with all their faults, it is mainly to these religious establishments we owe the preservation of the lamp of learning, feebly illuminating, it is true, the darkness which surrounded it, but sufficient to kindle the blaze of modern science. Without them how vague would have been our knowledge of many of the nations of antiquity! Rome would have been as Babylon—the Parthenon as an Egyptian pyramid. The poets, the historians, the orators, the philosophers of old, would have lived only for themselves; for us they would have lived in vain. If, then, a sentiment of wonder and admiration can be excited by wandering among the ruins of the Acropolis, or tracing the fragments of departed Rome, how much brighter that feeling must become within the walls of a holier shrine. The worthy Doctor illustrated the lecture with a series of beautiful drawings from his own accomplished pencil, representing the leading features of the four styles treated of.

NEW CHURCH AT WILTON.

THIS splendid edifice has been erected by the Hon. Sidney Herbert, the Secretary to the Admiralty. The sum expended will not fall short of 20,000*l.*, so that the architects, Messrs. Wyatt and Brandon, have been permitted to carry out their ideas without all those arbitrary restrictions which, from the want of adequate funds, usually cramp designs of this high class. The style which has been adopted (at the suggestion of Mr. Herbert himself) is as yet but little known in this country, and has recommended itself from its picturesque effect; and all the beauties and characteristics of Lombardic architecture have most assuredly been brought out, and are admirably developed in this choice specimen of the style.

The church is built entirely of Bath stone, and consists of a nave and two aisles, with apses in each, but the apse belonging to the former is larger, and projects beyond the others. This apse has seven narrow circular-headed lights, while those which terminate the aisles have only five each. At a little distance from the apses, arches will be thrown across both the nave and aisles, supported by marble columns on white marble bases. The columns themselves, which are very handsome, have been brought from Italy. The space in the nave between this transverse arch and the altar will, no doubt, be left entirely free. The nave arches to the west, where the altar will stand, are curiously arranged: they are three in number, but the two exterior ones are very

much smaller than the middle one. There is also a small one, similar to these two, on the east side of this transverse arch. The remaining arches, six in number, are all uniform; they are semicircular, and quite plain. The columns are circular and of stone: scrolls and figures will ornament their capitals.

The exterior of the building promises to be very magnificent. The front which faces the street is intended to be highly ornamented. The nave and aisles have each a door; above the middle one is a row of nine small lights, and above these again will come a very large rose-window of most elaborate design, set within a square, whose spandrels are sculptured with the emblems of the four Evangelists. Over each of the two aisle doors is a small and pretty niche. The side walls are, perhaps, a little wanting in richness.

The tower is a most splendid and picturesque object; it is very lofty, built entirely of stone, and is separate from the church, being only connected by a vestibule or cloister, whose open arches and columns produce an admirable effect, when contrasted with the breadth and solidity of other parts. It forcibly reminds us of the campanile of St. Mark's, at Venice.

Unlike the generality of our new churches, which, even when they have a tolerably fair exterior, are more or less naked and mean within, we learn that all the internal decorations of this church will be very handsome, and quite in keeping with the architectural beauty of the sacred edifice itself.

Round the lower part of the middle apse there is to be a series of very beautiful mosaic columns, such as we meet with in the ancient Italian churches. There is also a large slab of mosaic, which struck us as being admirably adapted for the front of the altar, and for which purpose it is, no doubt, intended. The above church ornaments were lately purchased by Mr. Herbert, at the sale of a private collection of objects of art, who rightly deemed that what once had ornamented the House of God ought to be re-appropriated to his honour and restored to their proper place.

Amongst other things we also noticed two full-length paintings of St. Peter and St. Paul, and two beautiful bas-reliefs, which are intended to ornament the interior. One of the bas-reliefs is a Pietà, and the other represents "The Flight into Egypt."

The roof is of oak, open and richly carved, and the groining of the roof and the semi-domes of the three apses will be painted in fresco. The floor will be paved in imitation of mosaic, the windows filled with fine old foreign glass, and the chancel itself elaborately and gorgeously decorated! The organ will be an instrument of singular beauty and great power. The font and pulpit will both be of marble, and the latter, as well as the reading-desk, kept well clear of the chancel arch, so as not to obstruct the view of the altar. We have yet an announcement to make, which fills us more with admiration of Mr. Herbert's character than his munificence. We allude to his consideration for the poor. There are neither pews nor galleries in the new church at Wilton.—*British Queen.*

We have received the following through the hands of a respectable tradesman, and are happy to say that subscriptions have already commenced at our office:—

"May, 1843.

"This appeal to the humane and charitable is made on behalf of MARGARET JORDAN, widow of JOSEPH JORDAN, Carpenter, who died in St. George's Hospital, in consequence of a fall from a ladder while fixing a water-spout at the house he occupied, No. 7, Marlborough-street, Chelsea. He was out of employment the long space of twenty-three weeks previous to the accident, and has left behind him a widow (who is at present enceinte) with a family of nine small children, totally unprovided for. The smallest donations will be thankfully received by the following, and most of the respectable tradesmen of Chelsea and Brompton:—

"Mr. Symons' Library, Brompton-row.
Mr. Dale, 82, Leader-street.
Mr. Fell, 18, Paradise-row.
Mr. J. H. Keats' Library, 142, Sloane-street.
Mrs. Walker, 150, Sloane-street.
Mr. E. O. Symons, Exeter-street, Sloane-street, Treasurer."

LETTER OF HERR EISENLOHR TO THE INSTITUTE OF BRITISH ARCHITECTS.

We have great pleasure in putting before our readers the following letter, embodying sentiments and views to which we can most cordially subscribe; it has been before us for some time to give publicity to Herr Eisenlohr's address; but want of space has forbidden it. The paper was read on the occasion of his acknowledging his election as honorary and corresponding member of the Institute of British Architecture:—

"HONOURED SIR,—On my return from a journey, I was agreeably surprised by the receipt of your much valued letter, announcing to me in so flattering a manner my election as an honorary and corresponding member of the Royal Institution of British Architects. My lengthened absence prevented me from immediately expressing my thanks, and acknowledging the unexpected pleasure this kindness has given me, as well as the indulgent manner in which my works have been judged. When I consider how few are the buildings which I have as yet had the good fortune to erect, and feeling, as I do, that they require an indulgent criticism, and when, at the same time, I turn to your country, where such grand edifices are continually rising, my surprise is increased, and my pleasure augmented, by the honour conferred upon me. The highly esteemed members of your Institute have, in electing me, one of their professional brethren, an honorary and corresponding member, conferred upon me an honour which, although quite unexpected, I consider to be of inestimable value, for it gives me courage, and increases my confidence, urging me forward in the well-trodden path of our art. Such encouragement is of great advantage to the artist, but especially to the architect, who has often, in the execution of his work, great impediments and annoyances to overcome by patient perseverance.

"I shall esteem it a great honour to be more closely united with the Institute by the communication of any thing that may relate to the profession. Such an intercourse and reciprocity among the architects of different countries is much to be wished for at the present time, which is principally distinguished by the want of union. Attempts have been made for some time past to correct this, by imitations of the ancient Greek and Roman styles of architecture, and up to the present day many architects are repeating, with various degrees of talent and success, the attempt to introduce those styles into modern edifices, and some even the imperfect conception of them called by the French *la Renaissance*. On the other hand, in many places in Germany a different course has been adopted, which, being partly suggested by the revival of a more Christian spirit, and partly by a patriotic feeling excited by the French revolution, is more inclined to the Christian architecture of the middle ages at home. These two principal divisions, each with its peculiarities, stand opposed to each other in Germany, and carry on, as it were, a contest in secret. But the present age is seeking something which does not yet exist—a kind of universal architecture. It seems to me that no immediate and direct imitation of any style of architecture already existing complete in itself, will lead to the desired result, as long as the present age demands its rights, and the existing state of society requires something arising from its own condition. When I also consider that in our art we have hitherto acted in a manner not sufficiently abstract, true, or scientific, and have imitated too much, although on the other hand it is not to be desired that we should disregard experience, we must have some point in history to which to begin, a root from which a new stem may shoot up to blossom from the present soil. It is also quite clear that here theory and history must go hand in hand, and it is only then that we can hope to attain that new, unprejudiced position, which in child-like innocence unconsciously existed at the commencement of all previous epochs of art. The peculiarity of our age, and indeed its problem, as regards architecture, as well as every other branch of art, consists in this,—how we ought to strive with manly simplicity and knowledge, so to speak, to attain that point from which art at former periods commenced in infancy its career. Where there is nothing but an empty and groundless adherence to forms, where architectural fallacy and pretension, or a certain coquetry is manifested, there an art of a peculiarly creative nature can never be expected.

"It is true that many grand buildings have been recently erected in the Roman, Grecian, and so called Byzantine and Gothic styles, and I may especially mention those at Munich. But they all want an enlivening principle, that of belonging to the present time, so that they are only silent records of bygone styles of architecture. In the same manner that we collect pictures of different schools in gal-

leries, King Louis has collected buildings of all possible periods, and as they were not in Munich, and could not be transported there from other parts, he had them built, and thus made a grand collection of buildings, which are, however, still deficient in historical authority. If, therefore, we may draw a comparison, we must say that the modern collection of buildings at Munich is, as far as regards the arts, worth about as much as a picture gallery, containing a number of more or less successful copies from the different masters and schools. If it be true that the spirit of the times is faithfully expressed in its buildings, that the architecture of every period is, as it were, a fossilized history, future generations will say that the present age was utterly devoid of character. By an intimate acquaintance with the history of architecture, we have been provided with a vast quantity of subject-matter, which has hitherto quite overwhelmed us from its variety and quantity, so that we seem to be quite robbed of our senses. Of this we must first obtain the mastery, and then, impelled by a careful observation, as well as by an artistic and inventive spirit, regain our consciousness without at the same time suffering the experience obtained from history to remain useless. We must, on the one hand, investigate from a theoretical and scientific position, how far our architecture and its elements answer to the conditions of its purpose, of the building materials, climate, and so forth; and on the other hand, in looking back upon history, endeavour to find some period which presents constructions and forms similar to those which result from our abstract investigations, and thus a fruitful germ may be found for a modern, and in itself a harmonious style of architecture, a style which would gradually come into use, and supersede all the lifeless imitations and whimsical changes of fashion. In this, it appears to me, consists the great architectural problem of the present age, which can only be solved by united efforts. At such a period I esteem myself fortunate in having become an honorary member of your esteemed Institute, and I reserve to myself the pleasure of making further communications on this subject, if I have not already become tedious. The result of my endeavours hitherto, towards this end, have induced you to confer upon me the present honour, and you must therefore allow me occasionally to tax your patience. In conclusion, allow me to request you, Sir, to express these ideas and my thanks and esteem to the members of the Institute, and with the assurance of my great esteem for yourself and your worthy colleague, believe me, your most obedient servant,

"F. EISENLOHR."

OUR CORRESPONDENCE.

TO THE EDITOR OF THE BUILDER.

SIR,—Can you inform me, through the medium of your excellent journal, where I can procure a cheap but good covering for boarding? I am erecting some farm buildings, and am desirous of covering the same with some preparation; I object to tar, from its gloomy appearance and tendency to absorb the heat. I am aware of the existence of the "Antiputrescent Paint," but it comes too expensive to use to the extent I purpose.

I am, Sir, your obedient servant,

A SUBSCRIBER.

TO THE EDITOR OF THE BUILDER.

SIR,—In your paper of the 22nd ult. you express as follows:—"Mr. Tito is said to be likely to succeed to the city district, and Mr. John Stevens, son of Mr. Deputy Stevens, to the western district; but there are several* candidates in the field."

Allow me, Mr. Editor, to state that the expression "city district" is erroneous, and that the real state of the case is as follows:—

When the present Building Act of 14 Geo. 3, was framed, the city of London, for purposes of the said Act, was divided into four districts, and the appointment to the surveyorship of them was placed in the aldermen (as magistrates) only, and not in the corporation at large.

Latterly these four district surveyorships have been held by, respectively, Mr. William Mountague, (who had been appointed thereto some time previously to his succeeding the late Mr. Dance, as surveyor to the corporation of the city of London), Mr. George Smith, Mr. James Mountague, and Mr. E. Woodthorpe.

Some years ago, the surveyorship of the Bridge-house Estates (also in the gift of the corporation) was held by the late Mr. Swithin; but at the period of Mr. Dance's decease, the two surveyorships were

* The decease of the late Mr. William Mountague has caused numerous candidates to start for his several appointments; in regard, however, to the election yesterday of a surveyor to the western district, two gentlemen only, namely, Mr. John Stevens (the successful candidate) and Mr. John Bull Gardner, proceeded so far as to appear personally before the Court of Aldermen with their petitions.

united so as to form but one appointment, and the late Mr. William Mountague was elected to it; but whether, in future, this union will be continued is a point which, with others connected with what may be termed the city surveyorship, is, at the present time, under consideration of the committee specially appointed for that purpose.

Yours, &c.

A FRIEND.

May 3rd, 1843.

We are glad to have all such matters as the foregoing put upon a right footing, and are greatly obliged to our correspondent. We may add that Mr. Stevens was elected to the vacant office in the surveyorship.

TO THE EDITOR OF THE BUILDER.

SIR,—Lord Ellenborough once said on a building trial that the only merit possessed by the present Building Act (14 George 3, cap. 78.) was, that no person could understand it, and I need not tell you that it has been the custom of courts of law to set its provisions at naught; under these circumstances it was natural to expect that the bill now proposed would have provided for all these objections, and builders and owners of houses would have been protected against future legal uncertainties; but no! the proposed Bill leaves these disputed points in still more uncertainty than the existing Act.

The case of *Matts v. Hawkins* (5 Taunton, p. 20) and the case of *Tiltiton v. Congers* shew the construction courts of law put on the existing Building Act with respect to party-walls, and lights in party-walls; constructions which were not intended by that Act: hence a new Bill ought to set at rest, instead of slovenly gliding over them, all questions of this kind which may lead to litigation.

The late Mr. William Mountague, the city surveyor, and surveyor for the western city district, invariably refused to interfere in the setting out of party-walls and party-fence walls equally on the soil of each adjoining owner, or otherwise; alleging that it formed no part of his duty, and some serious instances of litigation have occurred in consequence of this refusal; one of which I am well assured is now depending in the House of Lords. The present Bill provides no remedy, as far as I can perceive, for the evil. Undoubtedly it is or ought to be the duty of a district surveyor to see to these matters, and the law upon these and several other points ought to be more defined. I trust that before the Bill passes into a law, an investigation will take place by examining men of practical experience before a committee of the House of Commons, and that the numerous objections to the Bill will be rectified.

I am, Sir, your constant reader,
London, May 8, 1843. AN ARCHITECT.

TO THE EDITOR OF THE BUILDER.

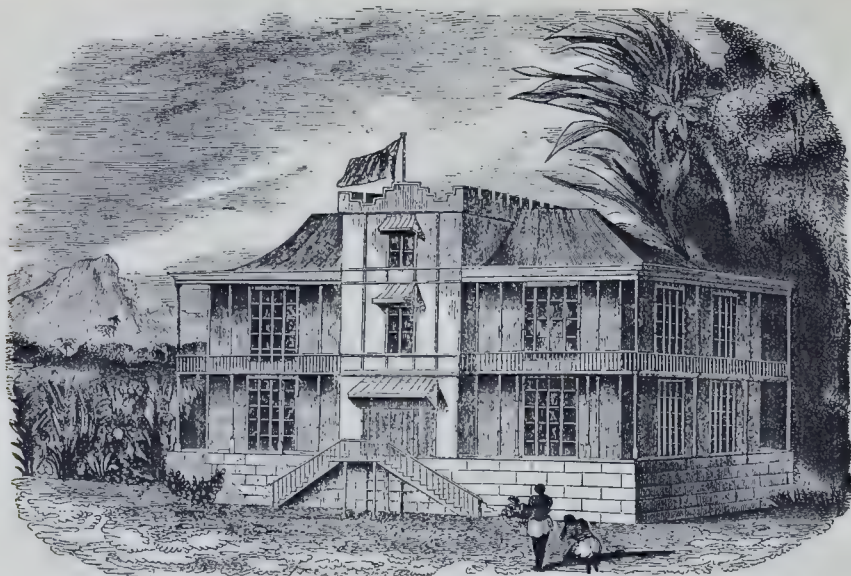
SIR,—During the last month several of the masons in this neighbourhood have received notes, inquiring whether they were willing to tender for the erection of a new parsonage house, intended to be erected at Rotherham, and on their answering in the affirmative, they received detailed schedules, with quantities attached, from Mr. Raiton, architect under the ecclesiastical commissioners. The schedules comprised every department necessary to complete the house fit for occupancy, including bell and paper-hanging. The whole has the appearance of being well managed. The successful contractor only has to include the whole amount of charge and expenses for copies of plans, printed quantities, &c., in the amount of his contract, which each add in the amount of their tenders, as set out in the abstract of the schedules.

The guardians of the poor finding the poorhouse of the Sheffield Union too small for the proper accommodation of the inmates, have had designs and plans from two Sheffield architects (whose names I have not been able to hear, as the affair has been kept so close). I believe a set has been chosen and sent up to London for sanction.

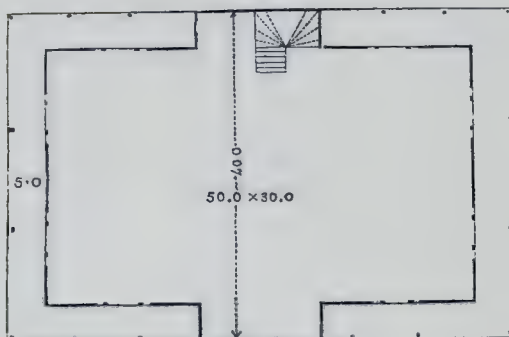
On Monday evening, May 1st, F. Branson, Esq., M.D., delivered at the Cutlers' Hall, Sheffield, a lecture on English ecclesiastical architecture, before the members of the Church of England Instruction Society. The audience was very numerous, and comprised all the *élite* of the town and neighbourhood. The ladies evinced throughout the lecture a most lively feeling for the subject produced before them by the talented doctor, who began and entered into the component parts of the different styles, which are commonly classed as the Gothic style, describing the Saxon, Norman, early English, Decorated, and Perpendicular styles, each with their peculiarities, and laid the whole down so as to be understood by the most uninformed mind present, aided as the paper was by about fifty excellent drawings got up with considerable taste and care. At the end of the lecture a vote of thanks was given, amid great applause, to the worthy gentleman who had so well instructed and delighted his audience.

ELVINO.

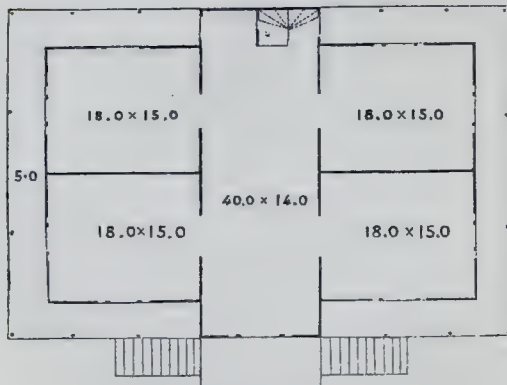
Sheffield, May 2, 1843.



THE IRON PALACE OF KING EYAMBO.



UPPER FLOOR



GROUND FLOOR

It gives us great pleasure to have the first privilege of presenting to our readers the view and plans of the much-talked-of iron palace for the African king. Of its style, as of the style of many things that pass before us, we must be tender in our remarks; things of much more pretension, however, are less to our taste than this, and are infinitely more obnoxious to the canons of sound criticism. Style comes first in most cases instead of last; it is regarded as the procreative instead of the emanative principle. Construction in its modes and material, climate, requirements, are the first consideration, and of these style is born, and by them fed and nourished; but, now-a-days, the first question is, what style shall we build in? and any answer is tolerable but—the rational style.

IRON HOUSES.

REBUILDING OF POINTE-A-PITRE.

On Thursday, Mr. Laycock, iron merchant of this town, opened to public inspection the curious palace of iron and wood which he has built for King Eymbo, one of the African princes on the Calabar river, with whom our Liverpool captains trade for palm oil and other produce of the African coast. The history of the building of this structure is as follows:—Some time ago, a handsome house of wood was sent out from this port, for the use of a rival prince on the same coast, which, when erected, became, like the British constitution, the envy of surrounding nations, and the admiration of the (African) world. On this, King Eymbo determined to be *nulli secundus* in the accommodation of his royal self and his three hundred and twenty wives (for his majesty equals King Solomon himself, both in his zeal for building and in his love of the fair sex), and resolved to have a palace built, superior not only to the wooden house, but to any thing ever seen on the coast of Africa. With this design, his majesty gave the order for the house just completed by Mr. Laycock, which is a great curiosity, even in England, and which will certainly cause his majesty to be the best lodged prince on the Guinea coast, when it arrives at its destination. Unfortunately the exchequer of King Eymbo, like that of a few other princes who might be named, was not quite equal to the splendour of his designs; and there being no African Rothschild to enable him to build his palace at the expense of posterity, he was compelled to fix limits to the cost of the palace, which have rendered it impossible to construct it altogether of iron. A considerable quantity of wood has, in consequence, been introduced into the building. This is to be regretted, as it exposes his majesty to the danger of being burnt out of house and home by a chance spark, and to the certainty of being eaten out of it by the wood lice and white ants, which swarm in his dominions as in all other tropical climates. For a moderate additional outlay, the king might have had a palace which would for ages have defied earthquake and fire, and in which neither ants, centipedes, scorpions, nor any other of the smaller plagues of Egypt would have ventured to intrude on the private hours of his majesty or his interesting family. We hope that the next prince who sends Mr. Laycock an order will prove a sufficiently liberal paymaster to justify him in constructing a building entirely of iron, for this mixture of wood and iron will, we fear, cause the iron to be of much less use than it otherwise would be.

We happened to visit Mr. Laycock's palace

at the same time with a gentleman who had resided many years in the West Indies, and who seemed much disposed to have an iron house for himself. He said that he had no doubt that such a structure as that built for King Eyambo, would stand uninjured through the most violent shock of an earthquake, and would not give way even if one-third of the ground beneath the foundation was to sink from the opening of the earth; but he objected to the introduction of any wood, however small the quantity, on the ground that it would fill the house with vermin, which would there find both bed and board (the latter in more senses than one), and would constantly be in danger of fire. He informed us, that one reason why wooden houses, though so much safer in countries exposed to earthquakes, are so little used in the West Indies, is, that the rate of insurance upon them is so heavy as to render the expense unbearable. In some cases amounts to three per cent. per annum.

We are glad to learn that there is a prospect of the experiment of iron structures being tried on a great scale in the West Indies. The

French government is now making inquiries and seeking estimates of the cost of rebuilding entirely with iron the unfortunate city of Point-à-Pitre, in the Island of Guadaloupe, thrown down by the late earthquake, and afterwards utterly consumed by fire. Some weeks ago we shewed that the only safety for the inhabitants of countries exposed to earthquakes, was in iron buildings, and we have no doubt, that if the French government should fulfil its intention, the restored city of Point-à-Pitre will stand for ages a monument of the triumph of art over the most awful convulsions of nature.

The following account of King Eyambo's palace we take from a contemporary:—

"THE IRON PALACE OF AN AFRICAN KING.—The palace of King Eyambo, of Old Calabar, built of plate and panels of iron, upon a wooden skeleton merely, by Mr. William Laycock, iron merchant, of Oldhall-street, was on Friday opened to public exhibition (for the benefit of the charities) in the open space near the Post-office. The structure consists of two stories and an attic. The first floor contains a centre hall, 40 feet by 14, and four rooms, 18 feet by 15; the whole ten feet high.

The second floor is thrown into one grand state room, forming the royal audience chamber, 50 by 30, extending to 40 in the recesses, and lighted by thirteen windows. It is extremely airy and handsome, and is twelve feet in height. The attic is one apartment, extending over the entire building. The ceiling and walls of the hall of audience are richly decorated by Mr. Dodd, of Bold-street, and on the walls are placed a number of Jennings and Bridgman's splendid pictures, in papier maché, which will certainly astonish 'the natives.' More of these are to follow: one of the lower rooms is to be rendered absolutely gorgeous; and those who visit the palace once will be induced to go again, from the circumstance that embellishments of the first order will be gradually added to the attractions of the palace. When in Africa the building will be placed seven feet clear above the ground, on piles of hardwood, leaving space for store and bedrooms, the whole being designed rather as a state or business palace than as a domestic residence. It is surrounded by a balcony and verandah, and will be painted a light stone colour to resist the solar heat. King Eyambo, we understand, is an intelligent African, able to speak and write English in very fair style."—*Liverpool Times*.



STAPLES INN CHAMBERS.

THE site where this building is erected is the property of the Honourable Society of Staples Inn, and consists of a suite of chambers, to be occupied by the Masters in Chancery; it was formerly a great wool mart, from whence it derives its name, Staples Inn, and we believe one of the oldest inns in London. The design (Elizabethan) is from the hands of those highly talented and respected gentlemen, Messrs. Wigg and Pownall, architects, Bedford-row; Mr. Samuel Grimsdell, of Sun-street, Bishopsgate-street, is the contractor. The quoins, oriel windows, doors, cornices, &c. &c. are of Portland stone, wrought by Mr. Samuel Hemming, mason, of Regent-street, Westminster, to whom great praise is due for the masterly execution of his work; the facing is of Suffolk bricks, with a neat bastard tuck joint; the works have been conducted by Mr. R. Smith, to whom also great credit is due for the manner in which they have been carried out.

ACCOUNT OF THE BUOYANT SEA BARRIER, INTENDED FOR THE FORMATION OF SHELTERED FLOATING HARBOURS OF SAFETY, INVENTED BY CAPTAIN A. W. SLEIGH, K.T.S., LATE R.N.

As every thing connected with the protection of our naval and maritime interests is of great importance to this country, it is with pleasure we refer to a new invention under the above title, together with an illustrative description published on the same, and more particularly as one is in course of construction for a small harbour of refuge near Folkestone, at the Ponton Dock-yard, Nine Elms, Vauxhall. Its object is to form harbours of refuge, not only to shelter ships from the effects of the waves of the sea, but from the fury of the tempest, and is the subject of a patent by the inventor.

The explanation which Captain Sleigh gave at the last meeting of the British Association at Manchester, and a few days since at the Royal Institution in Albemarle-street, are not only highly interesting, but exceedingly comprehensive; whilst, at the same time, he treats of breakwaters in general with a confidence and correctness that could only arise from

considerable experience in these matters. It appears not only original in the manner proposed to realize the desired objects for which it is intended, but the shape of the structure or fabric, the application of those favourable results derived from the suggestions of nature, and the adaptation of each part in connection with the other, are perfectly novel. Should they succeed in practice, of which there is every probability, from the success of various experimental trials, we hesitate not to predict that it will turn out an invention of the very greatest utility to the nation.

The author assumes, in the first place, that the waves of the sea are perfectly superficial, that the wind is refracted from off the superior and windward surface of the billow, and that, as the agitation of the sea is alone attributable to the rapid current of air passing over it, there cannot be any material influence from that cause below the lower curve or trough of the sea. Captain Sleigh then adverts to the impracticability of constructing solid breakwaters of masonry where they would be most required—to the frequent evil consequences resulting from their adoption, by collection of sands in their vicinity—to the enormous expense, and the length of time incurred in their construction before any benefit that can be

derived from them, and to the not only useless but injurious quantity of material consumed by these rocks under water, where all is comparative repose. He then states, that many years back, from various circumstances occasioned during his professional services, and from necessity arising on exposed coasts, where there were no harbours that could be entered, he conceived the idea of the possibility of constructing a floating sea barrier, on the principles above stated, which appears to be perfectly novel in its construction. This appears to embrace the power of two elements in order to antagonize or frustrate the effects of each, as while arresting the waves on their onward whirl, by presenting to them a yielding but solid inclined plane of modified resistance, it turns upwards with the same ease the tempest from off the face of the waters, and thus not only releases the sea from the chafing effect of the storm, but also places in a state of calm or repose, a vast extent of the harbour under the lee and within the limits of the Buoyant Sheltering Barrier.

The invention consists of two parts: a hollow caisson, built either of timber or plate iron, of an oblong wedge-like form, its proportions being about 150 feet long, 20 feet wide, and 7 feet deep, at the highest or rounded

side. On the superior and shelving surface is an inclined plane or platform, of the proportions of 60 feet wide, and 160 feet in length, the lower edge of which is angularly immersed into the water about 15 feet at an angle of from 26° to 30° , and thus when moored by both ends athwart the sea, it presents to the waves or winds an inclined plane, or artificial floating beach. From the peculiar circumstance of this artificial beach projecting a height of fourteen feet above the water angularly downward far below, and before the source of buoyancy of the caisson, on the shelving side of which it is built, no agitation from without can reach, or effect, or impart any motion to the floating structure (except, indeed, the general depression of a few inches), but, on the contrary, each wave is received on the superior surface of the inclined plane, up which they roll, the barrier or caisson at the same time resting beyond the reach of, and screened from, every undulation; it, in fact, rests upon the smooth and comparatively undisturbed water, gently receding from the presence of the waves, and thus, by a natural reaction, without exertion or strain, parries the fury of every succeeding surge, which as quickly recedes. There does not appear to be any limit assigned to the dimensions to which the barrier may be extended.

Captain Sleigh proceeds to lay down the following principles as far as relates to construction of floating breakwaters.

1. That any floating breakwater capable of being held by moorings, and supported on the surface of the sea, the buoyancy of which is exposed to the undulation of waves (no matter, if even deeply immersed) by accommodating itself to each billow, by becoming a part and parcel of every surge, allowing each to pass unaffected within the floating structure, will inevitably fail.

2. That any floating breakwater, whether cylindrical or raft-like, of open work, be the form prismatic or flat, which does not possess extreme buoyancy, will fail.

3. That any floating breakwater which is not calculated to turn aside the cause of the waves, namely, to divert the wind obliquely from off the surface of the sea, by having a considerable angular elevation above the crest of the billows, and at the same time by offering a positive but modified resistance to every surge, while its source of buoyancy is perfectly sheltered from the effects of the waves, and does not rest undisturbed on the smooth water line, will inevitably fail.

4. That any floating breakwater that does not admit of being increased to any size without affecting its peculiar principles, or endangering its security, will fail; and that any structure of a floating nature which does not remove the cause of the waves (the wind) will produce no effect whatever, and inevitably fail.

5. That any floating breakwater must fail which does not possess the following three principles, viz.:—1, extreme buoyancy, sheltered from the effects of the sea; 2, oblique repulsion, through the means of an artificial beach erected on the above buoyancy, and interposed between it and the waves, angularly immersed, and rising out of the waves at an angle varying from 26° to 30° , thus offering a positive but modified resistance to the wind and waves, capable of refracting the former upward and over its shelving surface, and of throwing back the latter on themselves; and 3, angular immersion and reaction, obtained from the combination of the above elements, which give to the whole structure the power of supporting on its area the pressure of the tempest and the waves, whilst its source of buoyancy is perfectly excluded and shielded from both.

Captain Sleigh demonstrates these statements in the following manner:—The first assertion is founded on the fact, that all floating structures, whether cylindrical, with deep shutters suspended from its lower side, or of a raft-like prismatic shape, as the frame of a ship without planks, and having their buoyancy exposed to the waves, when moored broadside to the sea and tide, yield to every undulation. Such are at one moment on the summit of the billows, and the next in the hollow between, each successively passing within its line; one extreme end is elevated on the top of the wave, whilst the other is depressed into the

trough of the sea. The second assertion appears manifest, as any floating structure without sufficient buoyancy to resist the pressure of the sea and tide would be borne down, and every wave would roll uninterruptedly over its foundered hull. The third assertion is founded on an argument that the winds being the exciting cause of the waves, any rude attempts made through the means of a floating structure (cylindrical or raft-like) to break above the crest of the waves, will be unavoidable, there being no positive resistance opposed to the cause or the effect, and hence all such attempts would fail. In support of his fourth objection, he assumes that, in consequence of the wind being the primary cause of the agitation of the sea, that must to a great extent be averted, or no shelter can be afforded or effect produced by a floating structure, and that if any attempt be made to turn aside the wind, without at the same time arresting the surge from a considerable depth below the trough of the sea, by presenting a modified resistance, such attempt will be equally futile. The fifth objection is supported by the fact that the larger the cylinders or rafts are made, the more inevitable will be their destruction, whilst it would be found much more impracticable to moor them. Captain Sleigh concludes these observations by alluding to the frequent circumstance of even nautical men confounding the shelter and effect produced by reefs of rocks which are just on a level with the trough of the sea, with what they suppose should be afforded in like manner by means of rafts or any other floating surface. He states that they forget that the former natural obstacles are immovably fixed by an immeasurable bar, their outward surface opposing and checking the whole set of the sea, while their crest presents an unyielding barrier to the sea, and breaks up with stubborn firmness every giant surge. Not so, however, is it with the structures already described, as they yield to every undulation of the waters. Captain Sleigh concluded with the description of the imperishable material under water which he uses as moorings, namely, *cocoi-nut fibre*, with anchors of granite. In conclusion it may be stated that the peculiar advantages of building his buoyant sheltered sea having arisen from the circumstance that there being no lateral strain on the timbers or frame-work, and from the fabric being constantly like an inverted arch, the crest of which is sustained by the broad and smooth surface of the sea within the artificial beach, every point of the platform is supported by pillars proceeding from the convex and interior side of the curve alluded to, like radii from a centre, while the structure receives the modified force on fixed points. It is therefore requisite that strength should be afforded where the power is applied, and hence the lateral substance of the athwart ship or transverse curlines and staunches may be very inconsiderable. (B.)

BLUE LIAS LIME AND WARWICKSHIRE BLUE STONE.

Our advertising columns will have called the public attention to the introduction into the London market of the new materials specified above. It is on account of this novelty that we are led to notice them, and it is our intention to give similar notices of all such matters as come before us. There are a variety of most interesting products, natural and artificial, and many establishments and processes in manufacture, with which it is important that the builder should be acquainted. In the very class of articles upon which we now treat, there is a variety almost beyond enumeration, and if each of the parties interested in the introduction of them to public use will favour us with particulars, it will be our pleasing duty, as in this instance, to lay those particulars before the public eye.

The blue lias stone is well known amongst geologists as offering, in the extent of its formation and its quality, an inexhaustible and invaluable source of supply for the building requirements of this great country; and at no point of the stretching of that great belt across England, commencing at Lyme Regis and passing away to the north-east, is there to be found a more valuable working than this at Southam, now being brought into the London market through the enterprise of Mr. Greaves.

It is true that the reduction of canal dues, consequent on the opening of the railways, has of itself tended to give, and in fact formed the main facility for the introduction of such products from the interior of the country to London. Yet, nevertheless, there is something of special acknowledgment due to those who, like Mr. Greaves, make the first adventure—who beat down and consolidate the path for their followers.

London is, however, well provided with lines and cements, and the principal ground of recommendation of this Southam Blue Lias is its superiority, considering its cheapness, for water-works and in damp situations; it is not less an advantage either that it comes in at a quarter of the town particularly favourable to the consumers who are so far removed from the banks of the river. The Paddington Canal Basin is so situated with respect to a great building district of London, as to stand in the light of the natural depot or import dock for the locality around it, and since this lias forms an excellent lime for ordinary stucco work (many houses in the western vicinity of London being faced with it), as well as a cement for drains, water-courses, and foundation-work, for which we understand it is being prescribed by some of our metropolitan surveyors, we feel assured that it must come into general use, and that with this extension of its use—cheap as it is at present—a larger consumption will enable the importers, if we may so term them, to give it at still lower prices to the public.

It is important to architects, surveyors, and builders, to be made acquainted with these matters, and we are best performing our functions by running in quest for, and having obtained it, giving the information in this vehicle to them. We lament that the question of the chemies of lime and cement composition are so little known amongst us, that to the building fraternity a discussion on such a subject would have a technicality so as to command little general interest, but it will be our endeavour to strip the matter of this, and to present it in familiar language. A little science, united to the homely practical knowledge of the workman, would be of infinite service; the phraseology which sets forth concerning this blue lias stone, that it contains from 87 to 95 per cent. of carbonate of lime,* and all the vocabulary of analysis, might be made as familiar to the ordinary comprehension as to the simple housewife is the mixing up of her bread, or the compounding of a pudding, and it shall not be our fault if it is not so, both through the medium of this paper, and, as we have elsewhere stated, in reference to the proposed "BUILDERS' INSTITUTE" or SCHOOL. Why should it be difficult for a man to determine why a process of ordinary slaking is inapplicable to that of compounding mortar from this blue lias lime? a knowledge of its qualities would tell him what experience only has led to, that a great dashing of water is inimical to success, and that what is called care is necessary, but which in fact is more properly speaking a saving of trouble, and a more agreeable manipulation, namely, a gentle sprinkling of water and the covering of sand for twelve or fourteen hours, when it will be reduced to a fine powder; it is a question, however, in most of these cases whether grinding is not the more advantageous method altogether; grinding by the manufacturer or importer, by which is saved labour to the consumer, as well as in mixing up; economy in the admixture of sand, of which it thereby takes a larger portion, and in the avoidance of waste.

The price for the lime in the lump is 12s. 6d. per yard, and that which is ground 1s. per bushel; but as we observed before, a large consumption, as in all other cases, will no doubt correspondingly reduce the price, perhaps as low as 9d. per bushel.

To those who are familiar with the paving of the midland districts of England, the product of the Stratford quarries is well known; the blue and white squares form a very handsome floor for halls, vestibules, and passages, and including all charges, can, we find, be laid down complete at 1s. 1d. per foot; inlaid with marble in fancy patterns, and in several varieties, it averages about 2s. per foot.

* This is from the analysis of Professors Daniel and Phillips.

ENGLISH ARCHITECTS.

Vanbrugh

Vanbrugh

THERE is in the agitation and discussion peculiar to our time much that tends to good; it aims chiefly at a sifting and winnowing of pseudo principles and prejudices, and will go on to strip them of that species of oracular authority they have so long occupied in minds of a certain calibre. No profession needs thorough purgation from perversion and little-esses so much as architecture. Noble in itself, it is repugnant to contact with these antitheses; a realization of its capabilities can only be achieved by original genius, matured by familiarity with the sciences, and the properties of the decorative arts. In testing the claim of individuals of bygone periods to these qualifications by reference to their works, there would seem no very insurmountable difficulty in arriving at just conclusions, yet such as and may again occur to prejudiced eyes and ears when the name prefixed to this paper is found in its merited position among distinguished native architects.

JOHN VANBRUGH, the brave soldier, witty dramatist, and able architect, was born in London in 1666, of Dutch parentage. Of his probationary studies we have no authentic accounts. Military education was at that time little attended to, but the figurative deities of literature and science required then, as now, both wooing and sacrifice; and there is no room to doubt that he had done acceptable wit and service at the shrine of each. At the age of nineteen or twenty, he was sent by his father to France, but with what purpose does not appear; it is, however, certain that he incurred the suspicions of the government there, and was for some time confined in the Bastille. Of this fact we have his own testimony, though no cause is assigned; tradition says that he was detected in making plans of some important fortifications, and if this could be relied on, it shows that he had early cultivated, and so daring purpose, the rudimentary study of his future profession. It was shortly after his release from durance that Vanbrugh sought the most effective means for practical retaliation by joining the army; here he did not, however, long continue, neither are we made acquainted with the rank he held; but it must have been respectable, inasmuch as his intimacies with many persons of character originated during that period, and we find, indeed, that he was generally known among men of talent. By Mr. Evelyn, unflinching in his recognition and patronage of genius, Vanbrugh had already been classed with the promising spirits of the time, and he took advantage of the appointment of commissioners for the repair of the palace at Greenwich, and its conversion into a naval hospital, undertaken at the instance of the Queen (Mary, daughter of James II.) to bring him into notice. Evelyn's diary contains the following record:—

"1695, May 21st.—We went to survey Greenwich—Sir Robert Clayton, Sir C. Wren, Mr. Travers, Captain Sanders, and myself. 24th. We made report of the state of Greenwich House, and how the standing part might be made serviceable at present for 6,000*l*. 31st. Met again. Mr. Vanbrugh was made secretary to the commission by my nomination of him to the lords, which was all done that day."

In this position, and observant of the proceedings of Sir Christopher Wren in the building of one of his most magnificent works, Vanbrugh had great opportunities for study: it was after having been thus employed for about two years, that the exuberance of his fancy and turn for witty satire broke forth in the well-known dramatic productions of his pen. Much has been written against the morality, but no dissident opinion of value against the brilliancy and point of these plays; the disparity of what was then rapturously hailed upon the stage, and the tone of our existing drama, must be sought in the character

of the times; the looseness and swagger dear to Charles the Second, and which tintured court, camp, and city, had not yet passed from recollection, and at twenty-nine, Vanbrugh was as true a cavalier of that school as ever wore love-lock.

The architectural period of the life of Vanbrugh began at the vigorous age of thirty-six, with the building (in 1702) of Castle Howard, for the Earl of Carlisle; a noble mansion erected upon the spot where stood the ancient baronial Castle of Hinderkelf. A first essay, at once so magnificent and original, excited surprise and expectation, as it still does the admiration of all unprejudiced critics and observers; the immediate purport of our sketch will be fulfilled by describing it as catching the eye from a great distance by its cupola of a hundred feet high, and on a nearer approach, presenting a lofty central portion of six columns rising two stories, with lateral galleries terminating in projecting wings and pavilions. The whole exterior is of the Corinthian order, but, though very lofty, is contra distinguished from the manner of Inigo Jones and Sir Christopher Wren by having no double stories of columns; the interior is upon an equally imposing scale, particularly the hall, a noble room thirty-five feet square and sixty feet high, adorned with columns of the Corinthian and Composite orders, and topped by a spacious dome; here, and throughout the house, the accessories of sculpture and painting have been disposed with a degree of judgment rarely equalled; while, exteriorly, the many roofs with their cupolas and clustered chimneys, together with the numerous vases and statues, produce a richness of profile scarcely surpassed in British architecture.

Vanbrugh was censured, even in his own day, with the cumbrous manner of his buildings, and incurred lampoons from Swift to Pope: these attacks had their influence, and in the absence of generous criticism heaped up the obloquy under which his memory has lain; but he undoubtedly possessed the almost singular merit of originality, and though disdaining the province of a copyist, succeeded in producing a novelty, combining grandeur with great picturesque effect. The carpers at the fame of Vanbrugh were echoers of the eternal cry of *precedent*—precedent in style, in dimensions, and in detail—such are naturally detractors, not only of his merit, but, by inference, of all originality present and to come.

Castle Howard being achieved, our architect, notwithstanding all that has been said or written, grew into favour; for mankind, ever inclined to see and judge of beauty through their own eyes, really do not need the magnifiers or microscopes of Solons in architecture to assist their vision. Patronage also came to him in the appointment of Clarendon King of Arms, bestowed by the Earl of Carlisle; he had entered a fair field of activity and emolument, and prosecuted his success with corresponding zeal, executing in succession the mansions of Easton-Neston, Northamptonshire; King's Weston, near Bristol; Oulton Hall, Cheshire; Seaton Delaval, Northumberland; and others; which, though inferior to his Castle Howard, were so only in the ratio of the resources at his command.

The great and last work of Vanbrugh was now to devolve upon him in the building of *BLENHIM*, the commemorative monument of the services and victories of John Duke of Marlborough; to this undertaking he was called by the united voices of the Queen (Anne), of the hero himself, and of Sarah, his duchess. This structure is sufficiently known by the many graphic illustrations extant; for several years the building was superintended by Vanbrugh; but disputes of a very serious nature, arising from the Parliament refusing to assign funds, the death of the Queen, and the refusal of Marlborough to incur the expense of proceeding, he was superseded; though, subsequently, and after the death of the duke, who left 10,000*l*. per annum to be expended upon the building, it was completed to the original design. Blenheim has all the peculiarities of this architect's manner, and they become more prominent in proportion to his conception of the magnitude of the task he had before him. From first to last he acknowledged no rule; by mere copyists of classic styles he has, therefore, been deemed and termed an innovator; but by a much less ser-

vile, and, we would fain hope, a more extensive class, he is considered an *inventor*, who has accomplished much in the way of example highly encouraging to aspiring talent.

In justice to our subject, we give space for transcripts from the discourses of Sir Joshua Reynolds, and from Sir U. Price's work, "On the Picturesque," as expressing, in most appropriate language, the opinions of men eminently qualified to propound them. Sir Joshua says—

"I pretend to no skill in architecture; I judge of the art now merely as a painter. When I speak of Vanbrugh, I speak of him merely as our art. To speak, then, of Vanbrugh in the language of a painter, he had originality of invention; he understood light and shadow, and had great skill in composition. To support his principal object, he produced his second and third groups of masses; he perfectly understood to his art what is most difficult in ours—the conduct of the back-ground, by which the design and invention are set off to the greatest advantage. What the back-ground is in painting, is the real ground upon which the building is erected; and no architect took greater care that his work should not appear crude and hard; that is, it did not abruptly start out of the ground, without expectation or preparation. This is the tribute which a painter owes to an architect who composed like a painter."

With respect to Sir Hugh Price, he remembered that he stood in view of the towers, pinnacles, and porticos of Blenheim when he penned the following paragraph:—

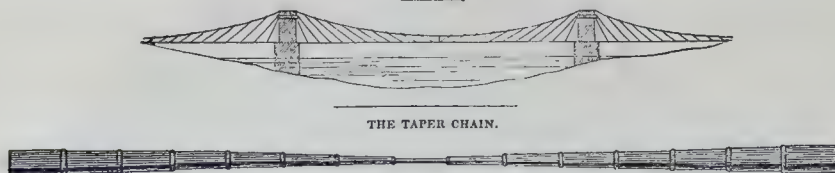
"At Blenheim, Vanbrugh conceived and executed a very bold and difficult design—that of uniting in one building the beauty and magnificence of the Grecian architecture, the picturesque of the Gothic, and the massive grandeur of a castle; and that in spite of many faults, for which he was very justly reproached, he has formed in a style truly his own, and a well-combined whole, a mansion worthy of a great prince and warrior. His first point appears to have been massiveness as the foundation of grandeur; then, to prevent the mass from being a lump, he has made various bold projections of various heights, as foregrounds to the main building; and lastly, having been forcibly struck with the variety of outline against the sky in many Gothic and other ancient buildings, he has raised on the top of that part where the slanting roof begins in any house of the Italian style, a number of decorations of various characters. These, if not new in themselves, have at least been applied by him in a new and peculiar manner, and the union of them gives a surprising splendour and magnificence, as well as variety, to the summit of that princely edifice."

Vanbrugh was unquestionably the most eminent of the successors of Wren, and his boldness of design is entitled to yet greater estimation, inasmuch as it shews no borrowing, even from so great and popular a predecessor. After enduring no little from satire, and much from persecution, by the vindictive widow of the Duke of Marlborough, who refused the remuneration due to him for Blenheim, he retired, spending his time alternately at his residences in Scotland-yard, and Vanbrugh Fields, Greenwich, still courted and admired for the vivacious conversation and engaging manners that to the last distinguished him. He died in March 1726, at the age of 60.

SCHOOL OF DESIGN.—It affords us pleasure to be able to state that the council have purchased for the sum of 510*l*., copies of the fresco paintings commonly known by the name of the Loggia of Raphael in the Vatican, which have been ably executed on canvas screens by Mr. Richard Evans. They are the same size as the originals, in excellent preservation, and are considered to be the best copies of these remarkable decorative paintings. The council of this admirable institution have likewise made arrangements for procuring from Paris the collections of casts of ornaments at the Ecole des Beaux Arts. Many of them have already arrived, and are being arranged in the principal room of the school, and copies will soon be furnished to the schools of design in the provinces. We feel assured that our readers will regard these proceedings with no less interest than satisfaction.

RESTORATION OF THE CHAPEL ON WAKEFIELD BRIDGE.—The restoration of this interesting edifice has been decided upon by the Yorkshire Architectural Society, and the execution of the work has been intrusted to Messrs. Scott and Moffatt, with whose merits everybody is familiar, as the architects of the Oxford Martyrs' Memorial, and the builders of the beautiful new churches at Hanwell, Turnham-green, and Camberwell. A more judicious selection could not have been made.

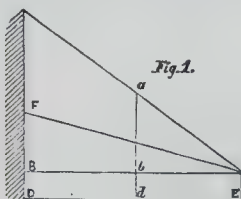
DREDGE'S BRIDGE, BATH.



THE principle I have introduced in the construction of suspension bridges, consists, as you will perceive by inspecting the above sketches, 1st. That the main chains of support should, instead of being parallel, or of the same size throughout, taper from the point of suspension to the centre of the bridge, in the manner as is represented in the plan of the chains, where the larger parts correspond with the points of suspension that rest upon the towers, at which part the sectional area of the iron is a maximum, or should be sufficient to resist, and sustain the tension caused by the weight of the bridge, and transit loads, whilst in the centre each chain is reduced in section to a single link. 2nd. That the rods or bars, which connect the roadway with the chains, are, instead of being in a perpendicular position, arranged in angles varying in extent from the towers of support where the rods are more perpendicular, to the centre of the bridge, where the angles in which they are placed become more acute.

The principle upon which these arrangements are founded, may be easily understood by tracing the action of the forces of a bracket when supporting a parallel weight. I do not intend that the comparison be mathematically correct, or to say that the straight boundary lines, or the action of the forces in a solid bracket be precisely the same in effect as the curved lines and mechanical arrangements of a bridge; but what I mean is this—that the principle which regulates the taper form for a bracket, also points out the propriety of adopting the same in the construction of a bridge; and as the principle is understood and acknowledged to be correct in the one, so, by comparison, we may demonstrate it to be correct in the other.

Suppose the bracket abc fixed to a wall, or otherwise supported at the line ab , were required to support any parallel weight cd , attached to the under or horizontal side bc .



The most economical form it could assume to support that weight (of course neglecting the effect produced by the weight of the bracket itself), would be a right angle triangle, the sides about the right angle of which being respectively represented by the lines ab and ac . That this form is mathematically correct, is evident from the following proportion.

$$ab : bcde :: ab : bcde$$

or, as the area of the section at any vertical line ab , is to the corresponding portion $bcde$ of the parallel weight resisted at that section, so is the sectional area at ac , or the base of the bracket, to the whole amount of the parallel weight sustained by it. From the point c draw the line ck , and suppose it to represent the neutral axis of the bracket, then will that portion ack be on tension, whilst the remaining part, bck , will have to resist the compressive force occasioned by the action of the vertical parallel weight cd .

Now, we will imagine a case where it would be necessary to cross a river by placing the tower of support in the centre of the stream, and to support the roadway by means of two semi-curves, one deflecting from either side of the tower, as in fig. 2. It is evident, a bridge

so constituted would be two similar and independent brackets, one projecting on each side of the central tower of support; now each of

these brackets would have to sustain the parallel weight of a roadway; so that the principle that was demonstrated to be correct in the solid

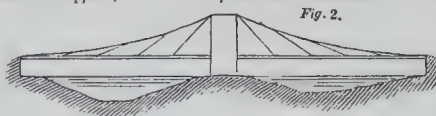


Fig. 2.

bracket, would also, with equal force, apply to the instance just before us; and as it was shewn that the strain, and the material requisite to resist that strain, did, when constructed properly, decrease in regular ratio from the base to the end of the projection; so also ought the tension in the chains, and the dimensions of them, regularly to decrease from the points of suspension to the extremity, where both should become entirely evanescent.

Such, however, is impossible, if the brackets were erected on the principle of the common catenary, with vertical suspending rods to convey the parallel weight of the roadway to the chains, as is represented by diagram fig. 3, for the tension in that case in the chains at the extremity of the bracket would be nearly as great as at the points of suspension; but if the suspending bars were arranged obliquely to the horizon, in the manner as shewn in fig. 2, then



Fig. 3.

an effect altogether different would be produced; for, instead of the weight being conveyed to the chain at right angles to the horizon, it would be taken up and sustained in lines assimilating in direction towards the point of suspension, or, in other words, comparing it with the action of the bracket, the chains would perform the tension that is represented to be sustained by the action of the portion ack above the neutral axis, whilst the roadway, or horizontal line, would perform that part of the duty represented in the solid bracket to be resisted by the material below the line ck . Thus, by the action of the oblique rods, the whole is harmoniously brought to act together; for the upper line or chain supports the tension, or what was supported by the upper portion of the bracket, whilst the lower line, or roadway, resists what was resisted by the lower part of the bracket; but

when vertical suspending rods are used, the upper line, or chain, has to perform the whole of the duty; or if compared to the bracket, it would have to support on tension above the neutral axis those forces that should resist both above and below, which, being entirely contrary to the principles of nature, can only be accomplished with an immense sacrifice of material, and even then in an inefficient and unsatisfactory manner.

It would perhaps be more satisfactory to your readers if the general form in which bridges are presented to us, viz. that where there is a tower of support on each side of the river, and to follow out the illustration, let there be two similar brackets abc and $a'b'c'$, projecting from opposite walls, ab and $a'b'$, conjoined at their extremities c and c' , each supporting a parallel weight cd and $c'd'$, as in fig. 4. Now each of these

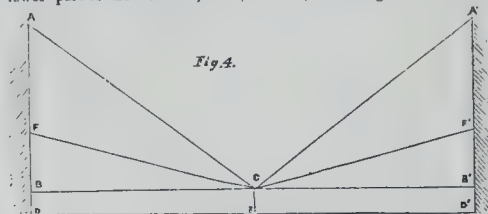


Fig. 4.

brackets, though conjoined, are subject to the same forces as have been shewn to exist in them separately, and if they are divided in the same manner by similar lines drawn from the extremity of each to the points e and e' , the several portions ack , $a'k'$, c , c' , will represent the tensile, and bck , $b'k'$, c , c' , the compressive forces that exist in each of the brackets respectively. It has been shewn above that the area of a vertical section taken in any part of the bracket is always in proportion to the weight or force resisted at that section, and if sections be taken progressively from the base, they will continually decrease in magnitude till at the extremity of the projection the dimensions are entirely evanescent, and the forces existing there equally so. Now, if we conceive a bridge to be two brackets connected at their extremities, and springing from, as a base, the towers of support, one on each side of the

space crossed, and supporting the parallel weight of the roadway for the transit of merchandise, &c., it should obtain the condition of the proposition, have no strain or tension at all at the centre of the chains, corresponding in the brackets to the point of junction c . But as I before said in reference to fig. 3, this cannot obtain in a structure built on the catenary principle, and for the reason there stated, viz. that the roadway is sustained and connected to the chains by vertical rods, from which cause the difference of tension between the centre of the chains and points of suspension is so trivial, as not to afford a sufficient compensation for the trouble of varying their sectional area in proportion to the variation of the tension. The effect and action of these rods on the curve or chains of a bridge may be easily understood thus:—Let abc , fig. 5, be the points of suspension of the curve ac , b ,

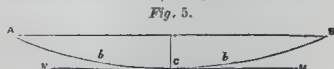


Fig. 5.

hanging, that the whole may be in equilibrium. It is evident that one half $A C$, precisely balances at the point c the other half $B C$, and if either of these portions were removed, the other would immediately adjust itself in a vertical position. Let one half $A C$ be removed, but suppose the other half to be prevented from regaining the vertical position by a force applied at the point c in the direction $c M$, make $c M$ the measure of this force, and it will be the measure of the tension at the point

c , or vertex of the curve, and is a constant quantity acting in that direction in every part of the semi-curve. Take any point b , and the tension at that point is equal to the result and of the force $c M$, and the weight of that portion of the curve $b c$, acting in the direction of gravity, and at the point of suspension A , it is equal to the resultant of the same force $c M$, and the weight of the semi-curve $A C$.

If the platform $D E$ be attached to the curve with vertical bars as in fig. 6, the same effect

Fig. 6.



as exhibited above will still be produced, for this reason, *viz.* that, from the lines $A h$, $B g$, &c., acting vertically, there is the same weight conveyed to the chains, and in the same direction, as though there were no intervening suspending rods. Hence it is manifest that the whole of the horizontal force must be resisted by the chains at every part of them, and that at the centre the section of iron there must be sufficient to overcome the tension caused by it. In a chain or rope hanging in a pendant curve, fig. 5, this cannot be avoided, but in the case of a bridge which consists of curved and horizontal lines, it is clear that the vertical and horizontal forces should be divided, for it is enough for the chains of any bridge in their position of reduced power to support themselves, the platform, and the transit loads; besides, it is certain that the horizontal force, if existing in the chains, would tend to their destruction, but in the platform it is as essentially powerful for the support of the structure, as is the strength of the chains. This is evident from the fact, that in large spans on the catenary principle it has always been deemed advisable to strengthen the platform, and, further, to add to it deep and heavy trussing, to give additional stiffness to the structure; in short, to put a strain in the platform that ought to compensate for the horizontal force that ought to be there.

Fig. 7.



Now, by examining their particular mode of action, we shall see that the constant horizontal force $c M$ does not obtain, nor is there any tension at all existing in the chains at the point c , and for this reason the whole weight of the platform, $D E$, must be conveyed to the chain by means of the oblique rods connected thereto for that purpose; each of these bars will sustain and convey to the curve its proportion of weight. Let us instance the one $d e$, and trace the effect of it on the system in sustaining that portion of the weight acting at the point e . Now the line $d e$ is in an oblique direction with the horizon, and different to that in which the weight acts; therefore, in order that it may sustain that weight, it must be acted upon by two forces at the point e , one of these is the weight, the other is the horizontal force, in the direction $D E$, consequent upon that weight being supported at the angle $d e D$, or otherwise than in a vertical direction. Now the point e is situated in the platform, and therefore the horizontal force induced there must be resisted by it, and cannot be carried into or affect the curve beyond the point d towards c . The action of the other lines may be examined in the same manner; for instance, the tension $A C F$ is induced by the action of the weight supported at f , and the horizontal force generated by that weight being resisted in an angle less than 90° , and as the point f to which the various forces tend is in the horizontal line, the horizontal force acting there must be resisted by the platform, and cannot produce any effect in the chains beyond the point c , and so on for the remaining bars $h g$, $A h$; the weights suspended at the points g and h generating no horizontal force in the chains beyond the points c and a , the truth of which may be demonstrated in the same way as the bars just instance. Therefore it follows that, though with the use of the vertical suspending rods, the variation of the tension, and of course the required proportionate variation of the

In a word, the horizontal force here spoken of is analogous, and may be compared, as I before stated, to that force which is resisted in the solid bracket by the portion of material that is situated below the neutral line or axis $c M$, which, in a bridge on the catenary principle, must be sustained on tension wholly by the chains, and consequently the sectional area at the centre, corresponding with the junction of the brackets at c , must be sufficient to resist the action of that force; and the horizontal line or platform, which is, in fact, the same as the lower part of them, not having that force to resist, must be stiffened with planking, and trusses to check the undulation, and to render it safe for transit purposes. But if, instead of vertical we use the oblique suspending rods to support the platform, then the action of the forces in the structure is very different, and perfectly analogous to the brackets, as shewn in fig. 4, for each half of the bridge in this case may be considered independent of the other, but connected together at their extremities, and this we shall see immediately if we trace the action of the oblique rods in the same manner we have done to demonstrate the action of the vertical ones.

Let $A C N$, fig. 7, represent the chains of a suspension-bridge, the roadway of which is supported by the oblique bars $A h$, $B g$, &c.

section of iron in the chains, is so very inconsiderable as to be hardly worth notice, yet when the oblique bars are applied, the tension in the chain is reduced rapidly from base to the centre of the bridge, and, of course, in the same proportion may the section of iron in them vary also.

The valuable assistance the oblique rods give to the stability of a bridge may be understood by the following experiments:—Cut the chain in the middle, the bridge will stand as firm as ever, there being no strain there; then cut the platform in the middle, and the bridge will be separated into two independent brackets, each supported by the chain and the strength of the horizontal line against the abutment. The force required to resist this tendency is a measure of the power conferred upon the bridge by reason of the oblique rods, independent of the advantages gained by tapering the chains. On the other hand, cut the chains of a common bridge at the centre, and it will destroy the structure; or cut the platform in the middle, and leave the chain entire: then it will be seen that there is no tendency of thrust against the abutments, nor any horizontal force in the platform, and that it is the chain only which sustains the structure.

The principles of the cast-iron and stone-compression bridge are identically those of the common suspension-bridge reversed in position, and it is the most expensive system of construction.

This system is founded upon the principle of the lever, which is far less expensive than the common suspension-bridge. The greatest extent of span of an iron or stone compression-arch yet attained is 240 feet, that of a suspension-bridge 875 feet, but on these principles it could be extended with safety to above 4,000 feet. In the chains alone of the Menai bridge there is above 1,900 tons of iron, on this plan it would only require 75 tons.

JAMES DREDOGE.

CEMETERIES.

We have lately touched upon this subject, and it will occur to us in the discharge of our duty to say much more upon it. What we have already said has stimulated some remarks, not in private alone, but of these it has been our lot to listen to not a few, and to suggestions that if we were to follow, would lead us into a labyrinth. There is, however, in some of these remarks, a challenging of coincidences that it were profitable to note, if what we should say passed not a step beyond the noting. For instance, a friend makes the observation "*à propos* of cemeteries, what do you think of Shillibeer's cemetery carriage?" "Think of it," we said, "we think very well of it." And because we think well of it, and because it is linked with the question of cemeteries, and because every country carpenter at least is an undertaker of funerals, and most London undertakers are not remotely connected with other undertakings advocated in *THE BUILDER*, and because cemeteries include cenotaphs, tombs, memorial tablets, and erections—because of all these it is urged upon us forsooth, that we should include cemetery or funeral carriages. Still our reason is not convinced, but we find on taking up Mr Pugin's late work, "*An apology for the revival of Christian architecture*," that this subject is not beneath his ridicule, and as that is his natural vein, and ours is, perhaps, somewhat more inclined to gravity, especially on grave subjects, Shillibeer's funeral carriage claims from us a notice. We spoke of coincidences which had reference to the remark of our friend, to our writing, and also to our reading; but the key-stone of the arch of that ilk, is supplied by the following quotation, which most appositely and curiously fell in our way on communing with the venerated object of our biographical notice a week or two ago. With Wren at our backs we can venture to follow any precedent, and now we shall let our readers hear what that remarkable man so remarkably said, on the very subject of cemeteries and cemetery carriages:—

"I could wish all burials in churches and churchyards might be disallowed. It will be inquired where then shall be the burials? I answer, in cemeteries seated in the outskirts of the town; and since it is become the fashion to solemnize funerals by a train of coaches, even when the deceased are of moderate condition, though the cemeteries should be more distant, the charge need be little more than usual. The service might first be performed in the church; but for the poor and such as must be interred at the parish charge, a public hearse of two wheels and one horse may be kept at small expense, the usual bearers to lead the horse, and take out the corpse at the grave. In these places beautiful monuments may be erected, but yet the dimensions should be regulated by an architect, and not left to the fancy of every mason—for, thus, the rich, with large marble tombs, would shoulder out the poor—in these places the dead need not be disturbed at the pleasure of the sexton, or piled four or five upon one another, or bones thrown out to gain room."—*Sir Christopher Wren*.

In conning over our remarks, again, and mayhap fortified by this reading, we wonder at our lack of courage; but it is a hard thing to have a laugh against one, though it be an empty one. We have seen men ashamed of the truth, and deterred from doing a good action, less by the fear of what the world will say, bad as it is, than by the force of that basilisk spell which the *trader in satire* attains to the exercise of, among the weak and the pusillanimous of his victims. Is that product of human ingenuity, whether the result of accident or of motive or design, the less welcome to those who benefit by it? The horrors of a town church-yard! are then diminished to the poor because the wealthy alone can secure the decencies of transit to a suburban cemetery! And shall we not the rather hail that which will secure this to the poor than all the formalities and pragmatics of a master of ceremonies? This is done by Shillibeer's funeral carriage. Little, however, did Mr. Shillibeer think that he had an authority so high for his inventions—a suggestion so far outweighing in its force all the sneers of the satirist—the wisdom of Wren against the puerilities of Pugin.

THE PHILOSOPHY OF ARCHITECTURE. (Extracted from the "Artizan.")

It further appears, we think, to be the result of our inquiries, that the Gothic is not the style of architecture naturally best calculated for religious edifices. It is hallowed, it is true, in our imaginations by solemn associations, and in most minds familiar with its applications, we believe, will be productive of solemn impressions. But this effect is merely an accidental one, and is much akin to the gloom a white colour produces on the minds of the Chinese, among whom it is used as a sign of mourning. The natural effect, we think, of the minute, fragile, and elegant components of the more florid Gothic, is to move the imagination to gaiety; and, indeed, such a structure as Henry the Seventh's Chapel, with its flying buttress and airy frost-work, appears to us much fitter for a theatre than a church. The emotions which church architecture should naturally inspire,—if it should inspire any,—are those of veneration, humility, and awe; and no species of architecture will so certainly inspire these emotions, as that which deals in stupendous representations of living beings. This the ancient Egyptians well understood; and we can scarcely conceive any thing better calculated than the architecture of some of their temples for quelling the spirit of the worshipper, and banishing the arrogance and pride of heart which stand in the way of devotional feeling. Among their avenues of sphinxes, and halls supported by images of human beings, a hundred feet high, the spectator collapsed to the dimensions of an insect, and acquired a lesson more powerful than a thousand homilies, of his own frailty and insignificance. We do not for a moment pretend that there is not much in the Egyptian architecture that naturally excites rather ridicule and disgust than solemnity and veneration. The anatomical imperfection of the different representations of living objects for example,—the grotesque hieroglyphics, and many other peculiarities, are all far from pleasing; and we are perfectly confident that any attempt to revive the true Egyptian architecture in the present day could not succeed. But we think the employment of similar instruments of emotion, without any more regard to those details which more particularly give the Egyptian complexion than if they had never existed, could not fail, under judicious treatment, to be eminently popular and successful. It would of course be applicable only to particular kinds of edifices—chiefly churches—and should neither imitate ancient peculiarities, nor neglect any of the aids afforded by the skill and science of the present time. The sculptures should be as true representations of natural objects as the present state of skill can produce, and those objects should be such as are agreeable in themselves, and as, at the same time, are possessed of sensation. To give an example of this architecture—a dome, twice the size of St. Paul's, supported by human figures as tall as the Monument—that would be one variety; and the most sluggish imagination may conceive something of the sublimity of such a structure, and how pale and puny even our most boasted edifices would become in the comparison. The expense, indeed, of such an architecture, is an obvious objection; but with the means of facilitating productions the useful arts now afford, in the case of objects which are merely repetitions of one another, the expense might be made so moderate as to deprive this objection of most of its weight. We must observe, too, that we do not participate in the antipathies of some architects relative to artificial stone, and other elements of a more perishable variety of construction; and, indeed, with the exception of a few particular cases, we think it a reckless extravagance to rear buildings calculated to last till the final conflagration, and which, ten to one, will be burned or demolished in the lapse of a few centuries. A more perishable species of building would be better both for architecture and architects. It would make the introduction of improvements a work of less hesitation, at the same time that it would afford a greater number of opportunities for their introduction; and the saving in the first cost might, at compound interest, generally suffice to reproduce the building in a comparatively short period. Upon this subject, however, we are unable at present to enlarge, and must content

ourselves with observing, that taking into account the aids afforded by modern art to architectural progress, it seems practicable to invent a number of architectural orders which, without being much, if at all, more expensive than those now in use, will be either much more sublime, much more magnificent, or much more elegant and airy. Of these varieties of architectural embellishment, we shall be presumptuous enough, on an early occasion, to furnish some examples, provided that these rude and general hints have not intermediately had the effect of awakening to the work of invention some of those more accomplished practitioners whose more active fancy and more sufficing powers of execution may enable them to achieve such combinations as would both meet with greater attention and more eminently deserve it.

These, then, are some of the consequences which flow from that train of investigation in which we have so long detained our readers, and which we distinguish by the name of the Philosophy of Architecture. To some persons we are prepared to expect it will appear a mere waste-heap of metaphysical refinements; but the larger proportion will probably agree with us in thinking that it constitutes the essence of architectural knowledge, and lies at the root of architectural proficiency. While freeing the fancy from those restraints imposed by a tyrant precedent, it defines clearly the limits within which its flights must be restrained, where the aim is not to please ourselves, but to please human nature; and stands equally opposed to the insipidity of classical sublimations and the vulgarities of a gaudy magnificence. By overturning the notion that art can be empirical, it gives, we think, a most powerful impulse to architectural progress, while the relation it establishes with human sympathies gives a new complexion to architectural art such as cannot fail, we think, to inflame the imaginations and quicken the sensibilities of the less apathetic of its votaries. This, however, it may be contended, though a very important task, ought to have devolved upon other hands, being foreign to the professed objects of a work devoted to the operative arts. To the first point of this objection we have only to reply, that the hands which would have executed the task better appear to have been unwilling to undertake it; and, to the second, that it appears to us founded on a mistaken estimate of the position really due to those arts known by the name of operative, as well as to a fallacious conception of the intellectual stature of the persons habitually employed on them. It is with the artisans that art has ever originated: it was born in the workshops of Athens, and resuscitated in the workshops of Italy; and if it be destined to experience another renovation, it will be in the workshop, we are confident, where the revival will take place. Finally, we may observe, the philosophy of architecture displays the true value of that species of architecture criticism which praises and blames empirically—which erects the personal associations of the critic into the dignity of natural laws, and which reveals, in the acerbity and intolerance of its decisions, the outpourings of a frozen heart and mortified vanity. All men have some peculiar associations, and, therefore, some peculiar ideas of beauty; and these they have every right to maintain so long as they do not attempt to force them on the acceptance of others. But those who work for universal admiration must be careful to deal with those objects only which address themselves to universal associations, and which are the perpetual concomitants in all minds of deep and agreeable emotion.

COLCHESTER.—NEW TOWN HALL.—Nearly all the subscriptions for this long-looked-for and desirable improvement to the town have been paid in, and a considerable number of fresh subscribers are added to the list. We understand that no time will be lost in making arrangements for the speedy removal of the present old and unsightly edifice (the Moot Hall), and disposing of the materials to the best advantage; so that there is some prospect of the foundation of the new building being laid before Midsummer.

THE COLLEGE OF NOBLES in Lisbon, used as a polytechnic school, but originally founded by the Jesuits, was totally destroyed by fire on the 22nd ult.; it is to be rebuilt on a modest but sufficient scale. The books and valuable philosophical instruments were saved.

WHAT IS LUXURY?—A candle would have been a luxury to Alfred; a half-crown cotton gown to his Queen. Carpets, in lieu of rushes, would have been luxuries to Henry VII.; glass windows, in lieu of horn, to his nobles. A lettuce to Henry VIII.'s Queen; silk gloves and stockings to Queen Elizabeth; and so on, *ad infinitum*. Mr. Charles Waterton, the author of some works on natural history, in an account of his family, tells us that one of his ancestors, in the time of Henry IV., was sent into France by the King, with orders to contract a royal marriage, and was allowed thirteen shillings a day for his trouble and travelling expenses.

If by an operation of mechanism animated nature could be copied with the accuracy of a cast in plaster, a tracing on a wall, or a reflection in a glass, without modification and without the proprieties and graces of art, all that utility could desire would be perfectly attained; but it would be at the expense of almost every quality which renders art delightful. Art is only art when it adds mind to form: whatever is high or happy in thought, or skilful and gracefully natural in touch,—whatever speaks to the feelings, or appeals to the judgment, will, if seen in the most distant corner of the earth, or in the remotest period of time, be as truly felt, and as rightly judged, as in the day and hour when it first passed from our hands. But this most ennobling of all studies, this most unworldly of all pursuits, must be followed by a pure heart and a disinterested mind. Should any follower of the arts be disappointed because study is not followed by success, and success by wealth and high fortune, then he expects more than he ought, and deserves mortification, such as ambition of an impure nature merits: indeed, if the glories of art are not sought for their own sake, they had better not be sought at all. If gain only were its glory, it should be a forbidden study, and prohibited, from the very prostitution of soul which in such minds it occasions. True art is, however, too pure and too high a matter to be so misused, and is in no danger of dishonour or neglect in an age of civilisation.

* * * We have private patronage in this land to an extent which no other nation possesses. Let us encourage this market by supplying it with excellence rather than choking it with abundance: husband it in every way; let not its importance be underrated. To this class of patrons we owe the chief works of art in our land. The whole range of landscape-painting, scenes of familiar life, all our portraiture, and a great proportion of our historical works, are the offspring of individual encouragement. The palaces of Rome, of Florence, of Bologna, and of Venice were filled with works from the like source. It was by this, and this alone, that the great families of the Doria, the Colonna, and the Altieri acquired their magnificent specimens of Claude Lorrain and of the Poussins: it was by this that the Farnese, the Farnesina, the Rospioli, and the Ludovisi were decorated; by this the family of Orleans became possessed of the Sacraments of Poussin; and by this has the burgomaster Six been handed down to our day as the friend and benefactor of Rembrandt. All who desire to distinguish themselves, and grow into eminence in art, all who begin to plume, as it were, their wings for an unassayed flight in the higher or the humbler regions of art, must hope for success through patronage such as this,—a patronage which surpasses far that of many foreign governments, and has been established here both by patriotism and generosity. To this source all that the genius of our school has produced must stand indebted for origin and support. This is a feature in our art, as well as a proof of the increasing taste and growing wealth of the empire. Activity of mind in the artist, a variety and diversity of subject, an originality of style, splendour in colour, a happy adaptation of the theme to the feeling of every variety of being: an observance of these ruling points has enabled English art to penetrate and become an object of demand in every country in the world. Instead, therefore, of damping the ardour of young enthusiasm by holding out unreasonable fears, or expatiating on the manifold causes of depression which genius, through its sensibilities, seems doomed to suffer, I would rather conclude with relating a story which came to me through the historian of one of the English settlements of America. A devout community of respectable settlers, too weak to protect themselves, and too humble to purchase the protection of others, held in their misery a day of fast and humiliation, to render themselves worthier of the favour of Providence: but their distresses still continued, and they again consulted about the propriety of another fast, as an atonement for their sins. "A fast!" exclaimed one who had not hitherto spoken; "a fast would be ungrateful to God for the many mercies he has shown us; let us rather appoint a day of thanksgiving;" the proposal was carried with shouts, and the little colony was prosperous ever after.—*From Sir David Wilkie's Life.*

We would respectfully direct the attention of our Country Subscribers to the mode we have adopted of signifying to them, when the period of their subscriptions expire, and when they become due—the substitution of a BLUE envelope to their paper instead of one of the ordinary nature.

THE BUILDER,

NO. XV.

SATURDAY, MAY 21, 1843.

EMIGRATION.

SOONER or later this question must force itself upon our attention, as one in which the working population of this country are deeply concerned. We say the working population, because it is to them that our colonies offer the greatest inducements and the readiest welcome—it is there only that the bulk of our people can hope to exchange for the uncertainty of subsistence in the land of their birth, a probable means of gathering together a “freehold” and a patrimony for their children. The “home market,” as it is termed, is crowded with competitors for its labour. Man and machinery are jostling together, and machinery being the product of the ingenuity of man, will gain the ascendancy, as surely as the intellectual are superior to the corporeal gifts. Education is urged upon us as leading to the remedy of many ills; and no doubt it may serve to adjust in a better way than at present the social balance; but unless it make men masters of a new science, and artists, if we may so speak, in the work of trimming the overloaded vessel of the commonwealth, nice calculators of coming storms; directors of a power to shoot into port or harbour at a sudden emergency—ay, and with a power to lull the storm and waves—make them in fact a set of demigods, it will not teach us how we are to live in a much greater ratio to the square yard upon the surface of this little island than we are now doing; it cannot contrive for us a much greater advance in the art of doing and undoing to keep us employed, than we have attained to at present—it cannot enlighten us much more on the question of human chemies, of turning over the fermentary heap of human product and decay. No! the natural tendency of our pyramidal aspirations is to seek a larger base; a spreading at the feet must sustain the rising superstructure. England may remain the heart or vital centre, but the fever heat cannot be absorbed within herself, it must be subdued by an extent of circulation; the “geometrical progression” of science cannot go on without a corresponding extension of territory. As surely as night follows day, so surely is England fated to require of her children, that they go out from their nursing home, her roof cannot cover them, the maternal hearth is violated by their scramblings.

But they should go out with her blessings and favours, not as outcasts; and she seated heedless and heartless, yielding to the clamour of the boisterous or the more cunning of her progeny. Let her arise in the dignity of her station, and provide for the well-being of the emigrant; let her console him with gifts at setting out, with assurances of provision for his comfort; let her reward him as for consideration, and so deport herself in the separation, as to cause him to carry along with him fond and loyal remembrances, and impress them on every thing subject to his influence.

We have been led to make these remarks from the perusal of the last number of the

New Zealand Journal. Glad we are to see an evidence of this nature, that those who seek an asylum in the antipodes are not unaccompanied by some of the salutary influences of the mother kingdom—that the blessing of a healthy organ of publicity, to give counsel, to express their wants, to retain them in communion with, and to secure them the sympathies of their brethren at home, is secured to the far-removed emigrants; but our feelings have been more intensely excited by the intelligence which this number conveys of the movements of our immediate kindred, our brother builders, who are heralding the way for the less enterprising or the less prepared of those who are destined to follow them.

“The *Auckland Chronicle* furnishes an analysis of the various trades and callings of the immigrants recently arrived by the *Jane Clifford* and *Duchess of Argyle*. From their conduct they were regarded as a virtuous and useful addition to the community, and nearly the whole were at once engaged, and in comfortable situations. In addition to this increase to the population, there was an arrival of ninety-two boys, sent out by the home government in the ship *St. George*, who, from the character given of them by their superintendent as to their general character, and particularly as to their conduct on the voyage out, were nearly all engaged. The following is the classified list as to the immigrants above referred to:—By the *Duchess of Argyle*: gardeners, four; sawyers, two; joiners, seven; brickmakers, three; ploughmen, four; labourers, twenty-two; herd-boy, one; general servant, one; plumber, one; bricklayers, six; farm servants, eleven; masons, six; baker, one; millwright, two; blacksmiths, three; ironmoulder, one; shoemakers, two; farrier, one; rope-maker, one; carpenter, one; quarryman, one; rope-spinner, one; spinster, one. Females:—Domestic servants, twenty-two; dairy-maid, one; sempstress, one; straw-hat-maker, one; farm-servant, one.—Total, 109. By the *Jane Clifford*: carpenters, seven; joiners, nine; cabinet-maker, one; boat-builder, one; cartwrights, two; millwright, one; blacksmiths, eleven; sawyers, ten; joiner and cabinet-maker, one; gardener, one; plasterer, one; agricultural labourers, eight; shoemakers, three; quarryman, one; tailor, one; masons, four; farm servants, four; house-carpenter, one; labourers, six; brickmakers, three. Single Women: Domestic servants, twelve; sempstresses, two; dress-makers, five; midwife, one; straw-hat-makers, two.—Total, ninety-eight.”

From the foregoing extract, it will be seen that, reckoning a fair proportion of the labourers to be engaged in building service, at least half the male cargo of the *Duchess of Argyle* are building craftsmen, while of the cargo of the *Jane Clifford*, a much greater proportion. About 60 out of 76 may be classed as building artificers. How important then it is, that we should take up this question of colonial building interest, so intimately interwoven as it is with that of thousands and tens of thousands at home. God knows how many of those who are the readers of this number, or who ought to be its readers, may be the future emigrants, or if not so actually themselves bound up in feeling, interest, and many associations with those who are, or are to become so.

It is in this manner, that is, by giving force and life to the sympathies of the home-dweller, that we shall accomplish that which we mean by our remarks as to the duty of the mother-country. Through us, and through those to whom *THE BUILDER* is a mouthpiece, as well as through the press generally, the words of comfort, the cheering of counsel, must come; but to us is reserved that especial function of accompanying the emigrant to his adopted home, and catering for his wants as to housing and shelter. We gave a few weeks ago a draft of Mr. Thompson's wooden houses, and we this week subscribe to the same fund an ornamental cottage, applicable alike to colony or continent. In last week's number also, the iron house of Mr. Laycock would suggest many points of fertile application to

emigrants' dwellings; and we shall from time to time continue the subject. For some time, building for the colonies will provide a desirable branch of home manufacture, and it would be well that our countrymen should turn their attention to it. A colonial establishment too, that should wisely and properly facilitate the operations of the settlers in this respect, would be of as much consequence, nay, we will venture to say of a hundred-fold more, than building or architectural societies at home, yeelped by whatever name they may be. Instead of raking into the records of the old country, and turning over, like an old thumbed book, the worn-out pages of the past; instead of making this a paramount consideration, let due importance—and that due is vast—be attached to becoming acquainted with and turning to account the resources of the new country—to reading its virgin pages of profit and of knowledge—to economizing for the future adventurer the steps whereby he is to attain to a settlement and a home.

Great care is necessary in all that may be done and aimed at in respect of our new colonies. We can well sympathize with the feeling expressed in the following paragraph:—

“The *Auckland Chronicle* strenuously recommends a general appeal being made by the colonists to the home government against the further introduction of convict boys into the settlement. The boys already sent to New Zealand from the institution at Parkhurst are, it is said, partially reformed, and most of them are freed on landing; and the rest, after having been duly apprenticed to some useful trade. The danger, therefore, of bad example is not held to be very imminent. But the real danger to the interests of the colony is the odium attached to the very approach to a penal colony, by supplying convict or ex-convict labour; especially when the right application of the labour found, and the civilization of the native, will form a fair supply to the labour-market. It is to be hoped that the experiment, a well-meant one, doubtless, will not be continued.”

To this we say Amen—we reiterate that not the outcasts, not the outscourings of an old country, should be the seed of the new, but well-selected vigorous stocks; let them not be, as the journal says, even the “odium”—the taint of any questionable irruptions. Let it be, as was put lately in the splendid speech of Mr. Charles Buller, in the House of Commons, that the flower of the mother-country lead on and accustom the wanderer to the incumbent weaving from home—that the tears of separation may be dried up by warm rays of promise—that the children of our soil may exchange, as the bride does the caresses of a mother for the protecting arms of her husband, the cherished associations of their old for the compensating dowry of plenty and comfort in the new country.

Emigration companies ought, if properly constituted and conducted, to fulfil the office of guardians in every emergency of the colonist, and should take cognizance most particularly of all buildings, provisions, and arrangements; interposing—and for this purpose they should be armed with some power from the legislature—interposing a strong arm between the weak and their oppressors, whether land, money, or store jobbers; the business and first end of government is to protect the weak against the strong.

With these remarks we must conclude, although we cannot forbear another extract from the *New Zealand Journal*, and to note, that the conductors of that paper purpose in their next number to give several designs for labourers' cottages, in which good work we wish and will them “good speed.”

COLONIAL IMPROVEMENTS.

“We have received several suggestions and recommendations on the subject of the projected as-

PORTABLE COTTAGES.

Association for building and improving colonial towns on a systematic and pre-arranged plan. Objections are raised by one correspondent, whose opinion is entitled to much deference, that such a company would lead to jobbing, and to a hot-bed and forcing system, which is much to be deprecated in all measures of policy or improvement. And it is further recommended that the parties who have projected such a scheme should rather devote all their energies to the formation of a loan company, which would be a matter of simple routine and of undoubted utility, while it would leave the settlers to produce and improve on their own responsibility.

"We are sincerely desirous to see a loan company established, and the reiterated demand for such a means of encouragement from the colony again forces it upon our attention; but we think that by confining the operations of the Improvement Association to the encouragement of labour in the colony, by methodical and well-considered structural undertakings, all private works being projected in accordance with individual wishes, on contract with individual builders and speculators in the settlement, and requiring the direct employment of only one or two architects, in order to induce uniformity of design, and prevent that process of straggling, and that want of method, which has caused all the existing evils in the structural and sanitary arrangements of European towns—a certain good would be effected.

"A gentleman whom we have consulted on the subject, who has been in all the settlements, and who has bestowed much consideration on the wants and wishes of the colonists, points out to us further, that a general benefit would be produced by such an undertaking, in the reduction of house-rent, which is at present the main obstacle to one important and most desirable object—the colonization of New Zealand by Anglo-Indians. The party to whom we refer built a house in one of the settlements for 1071, which he now lets for 1001 a year. He, doubtless, professes no objection to such interest for his money; but he sees clearly and allows, that, in the end, neither he nor any landowner in the colony will profit by the maintenance of such rents for any length of time.

"But, by whatever means the end is to be accomplished, and we ourselves are wedded to no particular system, it is full time that it were set about in earnest.

"Our readers will find several of the remarks we have quoted from the Wellington and Auckland papers, bearing strongly upon the necessity of more preparation—of the immediate application of labour and money to the construction of good dwellings, roads, and markets. The fire at Wellington is the very tide in the affairs of that settlement, the taking advantage of or omitting of which will make or mar the place. 'After the great fire of London,' says Captain Vetch, in a note to his communication to Mr. Chadwick on the structural arrangement of new buildings, 'had the plan of Sir Christopher Wren been adopted for the reconstruction of the city, that circumstance would have saved the great expenses which have been lately incurred in rendering the communications commodious; but no price could now achieve the conveniences and facilities which his plan would have conferred on the inhabitants during the long interval.'

"If it is, even in distant prospect, contemplated to make Wellington a city, worthy of the commercial metropolis of a great colony, worthy of the great name it has assumed; we must even now commence upon a scale commensurate with that object; houses, streets, roads, sewers, market-places, all public works and public buildings, must be projected in the very outset on a well-considered and substantial plan. Health, convenience, recreation, must be prospectively consulted in present arrangements; the past experience of our own towns warns us; the knowledge deduced from that experience must guide us. The warning is to be learnt in all its details in the statements afforded in the report we have just quoted from; and the lesson for the future is to be found in the same work, in the communications of Captain Vetch and others, on the structural arrangements most favourable to the health of towns; and in the contribution of Mr. Loudon, on the arrangement of public walks and arboreta, on the requisites of cottage architecture, &c. &c."

MR. BRUNEL.

It was on Saturday night that the intelligence fell in our way that all was safe, as regarded the late peril to the life of this eminent engineer, and we threw up our hands in thankfulness to God immediately. It was truly appalling to think of the sacrifice of a valuable life in such a manner, and in playing with children too! but the shield of the innocent has been thrown over him, and we trust he may live many years to the pleasure of his own family circle, and the distinguished ornament of his profession.

TO THE EDITOR OF THE BUILDER.

SIR,—Having for some years past devoted considerable time to the designs and construction of portable cottages, and their erection in the northern parts of England, it appears to me, that if the simplicity of their construction was more generally known, many would be induced to erect such buildings.

The accompanying sketches are intended to elucidate a design for a small cottage, suitable for any description of habitation of limited convenience.

The foundations may be either of stone, brick, or timber, according to the abundance of the material in its locality, and may be built as piers or as foundations generally are. In the accompanying diagrams, I have shewn them of brick and stone, and laid in the usual manner.

Any style of architecture can be preserved, and with care and attention, be made as imperious to the elements of the season as the most permanent brick or stone edifice.

The material for filling in the space between the quarters may be either of lead, zinc, marine metal, or corrugated iron, &c.

If you consider this system of building worth development in your journal (*which any panegyric of mine would fall short of appreciating*), I shall be most happy to supply a few for the same, exemplified with all the constructive and useful details, &c.

I remain, Sir,

Yours most obediently,
S. W. BROOKE.

May 6th, 1843.

Fig. 1.



FIG. 2.

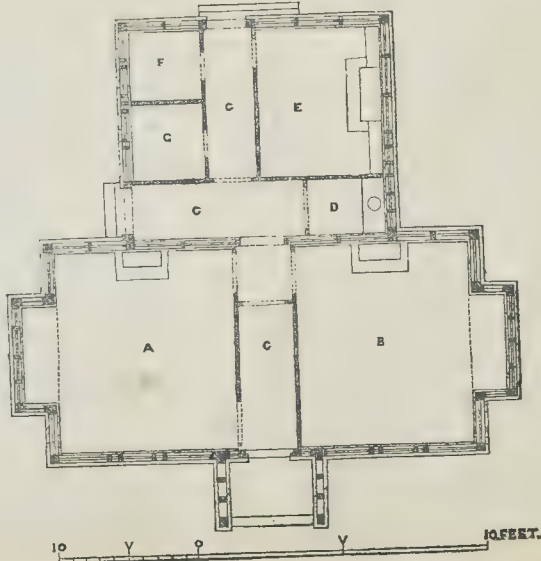


Fig. 1. Perspective view of the cottage.

Fig. 2. Ground-plan.

A. Sitting-room.

B. Bed-room.

C. Passage.

D. Water-closet.

E. Kitchen.

F. Larder, &c.

G. Coals, dust, &c.

The rooms and kitchens are intended to have

portable stoves, with either condensing flues or of circular metal, connecting with the turret on the roof.

Fig. 3. Transverse section of building.

Fig. 4 shews the method of securing the an-



Fig. 3.

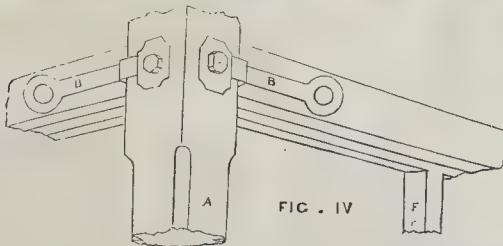


FIG. IV

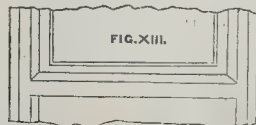
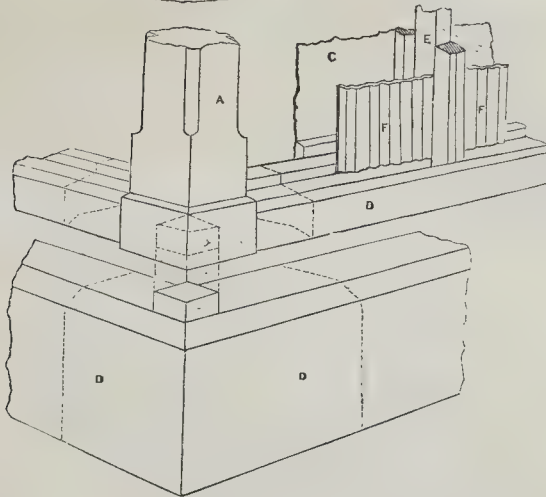


FIG. XIII.

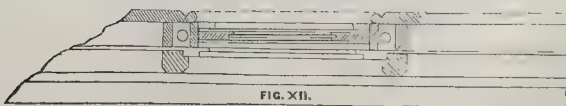


FIG. XII.

gular posts, with sill, head-quarterings, &c. A. Angular post. B. Iron bolt and straps, securing head to the same. C. Sill. D. Stone plinth. E. Quartering or stanchion. F. Corrugated iron. G. Inside lining, composed of oil-cloth or prepared canvas stretched on inch framing, which allows for any interior decoration, &c.

Fig. 5 shews the method of putting the boards

together if zinc is used instead of iron, and which, by means of a bolt introduced in the cavity, between that and the canvas, will allow of expansion and contraction both for zinc or boards, &c.

Fig. 6. Section of head and portion of the roof.

Fig. 7. Section of ridge-board and bolt head.

Fig. 8. External elevation of the same.

Fig. 9. Internal elevation of the same.

Fig. 10. Elevation of clipp at foot of metal rafter, &c.

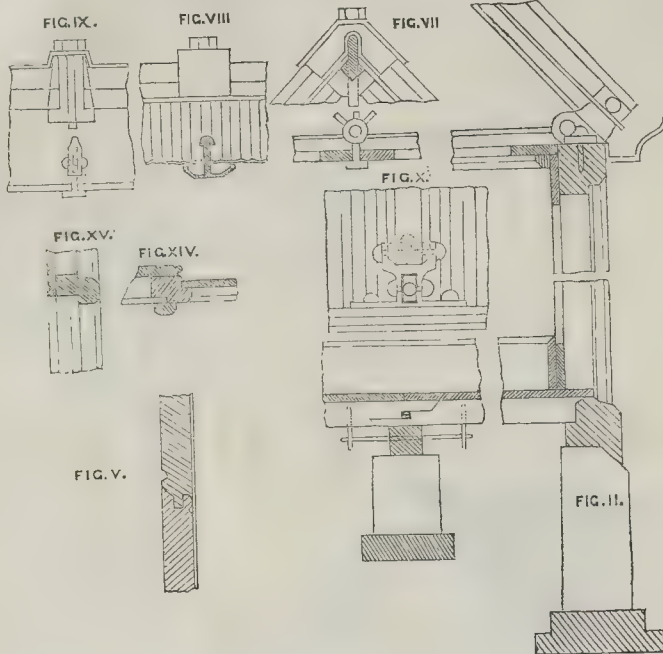
Fig. 11. Section of sill, shewing joisted floor-boards, &c.

Fig. 12. Plan of one of the windows.

Fig. 13. Portion of the elevation of the same.

Fig. 14. Plan of one of the door panels.

Fig. 15. Section of door head, &c.



FRESCO PAINTING.

We had in our thirteenth number a short notice upon the probable revival in England of this very noble art, which for purposes of historical or traditional illustration is the most effective that could be adopted. The oldest known examples of painting are of this kind, and which exist, partially, in patches of colour yet visible in some of the temples of Egypt, and more extensively on the walls of tombs, in commemoration of the exploits of the kings and titular heroes of that remarkable people. The Greeks and Romans also cultivated this species of decoration, more particularly the latter, as chiming in with their peculiar notions of extent and magnificence of effect. Whoever has seen and admired the cartoons of Raphael may form a near conception of the grandeur of effect of which MURAL PAINTING is susceptible; these unique specimens were designed as patterns for tapestry, an invention for covering the walls of palaces and mansions with a fabric in dyed woollen yarns, worked upon canvas, but long since fallen into disuse.

The term *Fresco* is borrowed from the Italian, and implies painting on walls, or, perhaps more properly, alcoves, or similar buildings of light construction calculated for recreation in the open air, and is in its nature capable of resisting for a great length of time the action of atmospheric changes. *Fresco*, as we have before observed, was much used in England some four or five centuries since, in both ecclesiastical and civil structures of importance, the subjects being chiefly scriptural, with occasional deviations in favour of some legendary achievement, or as a pictorial record of some well-contested battle-field. With these bold and beautiful, but unresisting memorials of things sacred, and deeds that redounded to national glory, the fanatical spirit of the sixteenth and seventeenth centuries warred to extermination; neither the enrichments of the temple bestowed by the consistent piety of our ancestors, nor the grateful reminiscences of heroic services to the state, were permitted to escape the devilries enacted

by the factitious saints of the Puritan calendar; the *Frescoes* perished; but better taste and better feelings have supervened, bidding fair to re-establish both the art itself and the influential purposes to which it was anciently devoted.

The report of Mr. Barry on the proposed decorations of the interior of the new houses of Parliament is really a splendid programme of the association of sculpture and painting, upon an occasion too so fertile in appliances and means, that the principles of taste will, it is presumed, be developed in a manner to serve as examples for much of future time. With reference to painting Mr. Barry says, "I would suggest that the walls of the several halls, galleries, and corridors of approach, as well as the various public apartments throughout the building, should be decorated with paintings, having reference to events in the history of the country; and that these paintings should be placed in compartments formed by such a suitable arrangement of the architectural designs of the interior, as will best promote their effective union with the arts of sculpture and architecture. With this view I should consider it to be of the utmost importance, that the paintings should be wholly free from gloss on the surface, that they may be perfectly seen and fully understood from all points of view." By paintings with surfaces free from gloss or glaze, we understand those wherein the colours employed are mixed in other mediums than oils or varnishes; and though *Fresco* is not named, yet the magnitude of the surfaces to be covered, and the exception to those which are glazed, leads us to suppose that it is intended to revive this branch of art. Now, though the buildings to be thus adorned are progressing with considerable rapidity, much time must elapse before the interior is prepared to receive the embellishments contemplated; meanwhile many will have their longings to share in these distinguished labours, and, generally, the revival will open a new field for talent, in which there will shortly be no want of encouragement for those who may have successfully cultivated it; so oblivious, however, has the art become, that we have repeatedly heard

the question put as to its nature and mode of execution, and we think an explanation will be useful to many of our readers. *Fresco* is the art of painting in relief with water-colours on fresh plaster; the amalgamation thus formed of the decorative material with the body to which it is applied is endued with unchangeableness and permanence of a very extraordinary kind.

It would seem that *Fresco* requires considerable rapidity of execution, and that the painter must follow the plasterer within two or three hours after the latter has prepared the surface, and that the whole work needs completing before the mortar sets, as no secondary process, or retouching, can be resorted to with effect; to facilitate the work, a cartoon of paper is prepared, with an outline of the subject chalked upon it, which can thus be readily transferred to the wall. In true *Fresco*, the colours to be used are limited in number, the chemical action of lime upon mineral substances and compounds into which they enter, excluding several positive colours and tints; the ochres, chalks, and colours of earthy bases, are entirely congenial to this art. The operator must possess unhesitating confidence, great quickness of hand and eye, and perform his work with pencils and brushes long and soft in texture, and with colour flowing fully and freely from the tool.

It may be well to state that it is doubtful whether many of the ancient examples cited as *Frescoes*, are really of this description, colours having been found blended in the compositions, and retaining great brightness, which we know that contact with lime in an active state would have destroyed; it is therefore more probable that the paintings so described are executed on stucco, and that dryness of climate, and certain favourable circumstances as to position, have concurred to preserve them. True *Fresco*, or painting by the amalgamation of colours having affinity for lime, with the ordinary plaster composed of that material and sand, is the production we have in view, and which alone resists the effects of time, and very considerable mutations of temperature. The preparation of the

surface by the plasterer is also a matter of some moment, which is done by covering the hand-floats with very fine felt.

We are not prepared to say what degree of improvement may be introduced by bringing into use new varieties of lime, or by certain modes of neutralizing its effect upon metallic colours, but we are aware that no labour will be spared in experiments to that end, and to render this style of decoration deservedly popular.

MASTER CARPENTERS' SOCIETY.

A DEPUTATION, consisting of Mr. H. Biers, the President, Mr. Lever, Mr. Knight, Mr. Higgs, Mr. Harris, Mr. Stephens, and Mr. Allen, from the above influential society, waited, by appointment, upon Lord Lincoln, at the Woods and Forests, to state to his lordship the objections to several of the clauses in the new Buildings Act, and to suggest such alterations as appeared to them to be necessary to make the bill good and serviceable to the community at large. His lordship received the deputation in the most courteous manner, and after a very long interview, agreed that previous to the bill being read a third time, the Crown surveyors and a deputation of the Society should meet, to make such amendments in the bill as might appear to be necessary in the construction of a good and useful bill.

OPENING OF ST. PAUL'S CHAPEL, PENZANCE.

THIS building, which owes its existence to the piety and munificence of the Rev. Henry Batten, is built in the later early English style of architecture, or that style which prevailed during the years 1230 to 1260. It is dedicated to St. Paul the Apostle, on the anniversary of whose conversion the foundation-stone was laid. The structure is in the form of a cross, not only thereby shewing the emblem of our salvation, but also that as the cross consists of four parts, so, by the writings of the four Evangelists, the doctrine of the cross has been promulgated throughout the earth. In the pointed or Christian architecture, every thing has a mystical meaning, even the minutest moulding; and the more we examine this art in detail, the more do we see in it the doctrines of the Trinity and the cross most beautifully illustrated. We hear in the present day of dark ages, but the minds of men must have been much more deeply religious in those dark ages (as they are termed), when our old churches were erected, than they now are, or the deep mysteries of religion would not have been so interwoven in their very architecture.

The church is sixty feet in length, twenty-two in breadth, and sixty in height from the street to the top of the western cross. The extreme breadth, from transept to transept, is forty-six feet. The height of the side walls is twenty-three feet, and that of the gable ends forty-three feet; thus making the gables nearly equilateral triangles. The walls are of the best quality granite rubble, finely pointed; the door and window-jambs, buttresses, string courses, coping, and bell turret being of the best granite ashlar. The doorway at the western front is composed of two orders, that is, an impost of two columns placed in hollows supporting the arch mouldings, which consist of three rounds, with a fillet on the outer one. The door, which is very massy, is of English oak studded with nails, and supported by heavy ornamented hinges. The western windows are, as are the eastern, triplets, yet there is, as in every case there should be, a marked difference between them. The former are, with a slight difference in the mouldings, taken from the celebrated triplets in Wimborne Minster. Each of the three may be said to be a window within a window, with geometrical tracery in the arch; forming, therefore, a link to the next style, the decorated, which consists of distinct lights under the same arch with flowing tracery. The eastern windows in their details are compounded of windows in Beverley Minster and the Chapter House at Oxford, with the proportions of the five sisters in York Minster. The western triplets are filled with stained glass, executed by Willement; they contain figures of Moses, Aaron, the four greater prophets, and St. John the Baptist, all under rich canopies. The bell turret, which is surmounted by an ornamental cross, is taken

in most of its details, with the exception of the cross, from the Church of St. Nicholas, Glastonbury. The windows at the sides of the building are filled with ornamented glazing, consisting of large quarries containing four circles placed crucial-ways, hence shewing forth eternity and the cross. These designs were taken from the older Rathaus at Nuremberg. The windows in the transept gable ends are twenty-three feet in height by three in width, being in their proportions similar to the large windows in the continental churches, though there are examples of the same kind of window in this country. These windows, as well as the side ones, are ornamented on the inside with a single shaft, having caps and bases, and surmounted by arch mouldings of three rounds with equal hollows. The slates on the roof are in imitation of the tiling of continental churches, cut and laid in the form of scales.

The interior of the building is most carefully finished, and contains much decoration. The floor is a fine specimen of granite pavement, cut into squares of equal sizes, and laid diamond-ways. The seating resembles that of the church of Stanton Harcourt, from which it has been chiefly taken. The benches are divided into compartments by arms, whereby they have the appearance and utility of stalls. This arrangement not only economizes room, but also admits of the appropriation of single seats, without the waste of room and great moral injury of the pew system. The fronts of the seats are of carved oak, the finials being cut to resemble *fleurs-de-lis*. The choir contains oak stalls for the choristers. The approach to the chancel is by three bold and well-executed granite steps. On the second step rests the pulpit, hewn out of a single block of granite of ten tons; it was designed from that of St. Peter's, at Oxford; the prominent mouldings are gilded. On the upper step, which is continuous with the floor of the chancel, is placed a rail, or rather screen, of delicately-worked granite: the model was taken, with some slight modifications, from the parapet of Salisbury Cathedral. It is a fine example of what can, by patience, be executed in granite. Within the rail are three steps, or rather plots of granite, on which rests the altar, which is made of English oak, elaborately carved; it is, with some alteration, copied from the communion-table of Bishop Jewel, in Sunningwell Church, Berkshire. The reredos at the back of the altar and sides of the chancel are, with slight alterations in the mouldings and columns, in order to make them correspond with the style of the building, taken from the arcade in Lichfield Cathedral. In seven of the niches are place sedilia, for the use of the clergy who are to be attached to the chapel. The caps and bases of the columns and the prominent mouldings of the arches are all gilded. One of the arcades is deeply recessed, for a credence and piscina. On the first altar-step there are two elegant candelabra, five feet and a-half high, elaborately carved and gilt, containing candles of wax, four feet and a-half in height. The altar is covered with a handsome pall, finely embroidered with gold. The altar-plate is silver gilt. The candlesticks are taken from ancient patterns, and are of bold outline; above the altar there is a plain gilt cross. The eastern windows are, as before stated, triplets of fine proportions; the centre window is of the height of twenty feet, the side ones seventeen; on the edge of the splay are placed clustered columns of threes, supporting the arch mouldings, which consist of seven rounds filleted and equal hollows. The caps, bases, and bands of the columns are gilded, and also the fillets of the arch mouldings. These windows are filled with painted glass, in Willement's best style; they contain figures of Christ, St. Peter, St. Paul, and the four Evangelists, under rich canopies. The colours of the draperies are very splendid.

The service is read from a lectern, which is situated on the upper chancel-step; it is of carved oak, and is similar in design to the one in Ramsey Church, Huntingdonshire. The Litany is said from a faldstool, placed on the second chancel-step, and looking towards the altar. The lessons are read from a brass eagle, which stands on the pavement of the choir. The organ stands on a slightly elevated platform in the western side of the north transept.

The roof is open to the church, after the model of the Suffolk roofs, and though it is of massy proportions, yet from its height and extreme pointedness, is of elegant appearance. It consists of hammer-beams, wall-pieces, and spandrels; the latter springing from granite corbels. The principals of the trusses are fixed by oblique collars, which are prolonged in curves to the hammer-beams, and forming by their junction equilateral pointed arches. The breadth of the logs is six and a-half feet. The prominent mouldings of the spandrels and arch braces are gilded in the chancel and choir.—*Penzance Gazette*.

We are afraid we have been made the victims of a stupid hoax, as on the authority of a communication sent to us last week, we ascribed the works at St. Mary's Church, Brompton, to Professor Donaldson, while it appears from the subjoined certificate, which we gladly transcribe, that Mr. John Blore is the architect. Mr. Donaldson, we believe, was originally employed to give counsel to the church authorities and prepare designs, but beyond that no more.

ADDITIONAL TESTIMONIALS OF MR. JOHN BLORE, ARCHITECT AND SURVEYOR, No. 4, MICHAEL'S PLACE, BROMPTON SQUARE.

From the Vicar and Churchwardens of Holy Trinity Church, Brompton.

GENTLEMEN,—We have great pleasure in bearing our testimony to the professional skill, taste, and judgment evinced by our architect, Mr. John Blore, in designing and superintending the extensive alterations lately projected by him, and now completed in the church of the Holy Trinity, Brompton, and we beg to assure you that these alterations and embellishments have been completed in such a manner as to merit our warmest approval.

The Gothic tracery windows around the church, the new chancel window with stained glass, the elaborate altar-screen, niches, &c. &c., have since their completion in the past week been visited by three distinguished members of the episcopal bench, and by a very numerous body of the clergy and laity; and it is but justice to Mr. Blore to say, that these works have met with universal approbation.

From our experience of the devoted zeal and attention which he has evinced in the superintendence of these works, we have every confidence in most strongly recommending him to the town council of Colchester, or any other public body, as an architect of first-rate talent, and well qualified to conduct any works they may require.

WILLIAM J. IRONS, B.D., Vicar.

FRANCIS GODRICKE, } Churchwardens.
STROUD LINCOLN, }

Holy Trinity Church, Brompton,
22nd April, 1843.

To the Town Council of the Borough of Colchester.

From the Right Rev. the Lord Bishop of London, and the Rev. John Sinclair, Vicar of Kensington.

The alterations and improvements which have been made in the church of the Holy Trinity, at Brompton, under the direction of Mr. John Blore, are in excellent taste, and beautifully executed.

C. J. LONDON,

JOHN SINCLAIR, Vicar of Kensington.

24th April, 1843.

HOLY TRINITY, BROMPTON.—On Palm Sunday, the beautiful new chancel and eastern window of this church were uncovered for the first time. The stained glass in the new window is by Warrington, and is designed to illustrate the service for Trinity Sunday. The window is a triple lancet, and the centre opening has reference to the lessons for Trinity Sunday, the side openings to the gospel and epistle. We regard this window as one of Mr. Warrington's most successful efforts. The effect of the new chancel and window is admirable, although the view is somewhat obstructed by the present position of the pulpit and reading-desk, which we have no doubt, from the good taste already displayed, will soon be put in their proper place clear of the chancel arch. The new side windows are very substantial and good, but it will require a large expenditure to complete the necessary repairs to this church, and to give any thing approaching to an ecclesiastical appearance to its most unsightly exterior. But of this we are certain, that no effort will be wanting on the part of Mr. Irons, and we believe we may add, his parishioners, to render their parish church what a sacred edifice, raised in this vast capital to the glory of God, ought to be. What has been already accomplished so far exceeds our expectations that we look forward with sanguine hopes as to the future.

SPIRE OF ST. NICHOLAS'S CHURCH, NEWCASTLE.

TO THE EDITOR OF THE BUILDER.

DEAR SIR.—In accordance with a previous intimation, I forward you a sketch of the admirable, and I may say inimitable, spire of St. Nicholas's Church in this town—I say inimitable, for I have reasons for thinking that it has been attempted to be copied both in London and Edinburgh, in the former instance by Sir Christopher Wren, or his daughter, for the little church of St. Dunstan's, London, which unhappily is an entire failure, as compared with the beautiful structure in question; and the Edinburgh practitioner has been more unsuccessful still. My principal motive in now directing attention to this matchless production of human skill, is an endeavour to throw some light upon the mode in which it has been constructed, by which with all its aerial lightness it has braved "the battle and the breeze" for several centuries, and yet remains a lasting monument of the fame of the persons, whoever they might be, who designed and constructed it.

It will be observed by the annexed sketch, that the extraordinary effect of this spire is produced by the four arched ribs, which spring from the buttresses at each corner of the tower, and sustain the beautiful perforated lantern, with its attendant miniature buttresses, pinnacles, and crockets.

It is foreign to my present purpose to criticise

the relative proportion which the square tower of this church bears to the beautiful spire of which it is the support—not to condemn the abominable Italian mass that has been stuck against the southern flank of this Gothic church, nor the internal incongruities in the shape of monuments, modern and ill-executed stained-glass that deform the tout ensemble of the interior—No! I trust my object is of a higher order, namely, to endeavour to elucidate the manner of construction of this beautiful spire, which is at once one of the most extraordinary examples of masonic excellence, and one of the most picturesque architectural objects in the world, not excepting the celebrated fane of San Sophia, the Mosque of Saladin at Jerusalem, or the Church of St. Peter's at Rome!

Trusting that the above rapid observations may awaken a spirit of inquiry in the minds of some of your constructive readers, I am, Dear Sir, yours truly,

GEORGE WALHEIM.

P. S.—The writer of the above, being only a temporary inhabitant of these northern climes, will feel extremely obliged by some of your Newcastle readers giving him some authentic information through your pages as to who was the architect, builder, &c., of this church, with the date of its erection.

Newcastle, May 1, 1843.



METEOROLOGICAL SOCIETY.

Tuesday, May 9th, 1843.

THE minutes of last meeting having been read and confirmed, Professor Sevell, of the Veterinary College, Camden Town; W. H. Cullen, Esq., M.D., M.R.C.S., of Sidmouth, and J. W. Burrows, Esq., were elected members.

Papers read:—

1st. On solar, stellar, and cometary light, with an attempt to explain the manner these phenomena influence the earth's atmosphere, by Lieut. Morrison, R.N., and remarks on the peculiarity of the weather during the first week in May, 1843, being a supplement to the above paper, being a practical application of its principles by the Secretary.

"Solar light," observes Lieut. Morrison, "or that which we may properly designate luminosity, is an essence or body emanating from the sun, according to one school of theorists, and a mere undulation of a certain elastic ether, by another." But Lieut. Morrison considers it to be "the excitement of vibrations in the ether, to a certain point, which may properly be denominated the luminous zero. The action of solar influences is precisely analogous to the action caused by heat in ter-

restrial bodies. It has been thought that the chemical action of the solar ray was greater according as the vibrations were shorter, and diminished as the length of the vibrations increased, and at length nearly ceased at the luminous zero, where the luminous and caloric vibrations begin. The evidence is ample that is caused in any body exposed to the solar influence, exactly in proportion to the darkness of its colour; hence, the less solar rays are reflected or thrown off, the greater heat, the more extended and the more rapid vibrations of the ether in that body.

Lieut. Morrison exhibited some slips of photogenic paper, to show that that portion of the paper on which the sun's rays impinged at right angles was much more darkened than that on which the ray impinged with an incident angle of less magnitude. "It is a very surprising fact," he observed, "that the writers on solar light seem to have wholly forgotten that there is such a thing in nature as electricity. I would now suggest, that what I have called the 'luminous zero' or point where light appears, whether by terrestrial or celestial heat, is that where the bodies in question are in a minimum state of induction; and that, when colour appears, induction proceeds rapidly till the red ray is attained;

when chemical action is at its height and ceases to increase, induction is at its maximum, and then conduction commences; therefore, luminosity is evidence of the presence of electrical action or disturbance among the molecules of the body; i.e. 'induction.' Induction is, therefore, electrical disturbance, and conduction the restoration of the equilibrium. The blue ray initiates induction, the red ray commences conduction. The red ray, as shown by Mr. Ryan on light, is the same as positive electricity." This paper continued to illustrate the effects of different rays of light upon vegetables, in which it was fully proved that those plants that were exposed to the red ray only were unhealthy, where those exposed precisely under the same circumstances to the blue ray only, were vigorous and healthy, shewing that under a clear blue sky plants vegetate freely and are healthy, while those periods when the sky is covered with a red haze, which frequently abounds in the air previous to a thunderstorm, the leaves of trees and plants are found to flag, and hence vegetation proceeds but slowly. After enlarging considerably on the colour of the rays of light, and their chemical action, the paper went into the formation of crystals at certain angles by the action of solar light, from which the author came to this result, "that electric intensity of the atmosphere varies with the amount of its heat, excess of vapour, &c."

After briefly noticing the action of reflected solar light, the power of light reflected from the moon was fully discussed, in which it was shown that, by the rapid undulations of reflected lunar light, each particle travelling at the rate of 207,900 miles every second, multitudes of electric currents were generated; that the moon's rays acted on calotype paper, and crystallized salts of silver. On treating of the light reflected from the planet Mars, the same line of reasoning was adopted to show that Mars excites the electricity of the atmosphere, and heralds the most terrific phenomena of lightning and its consequences.

On stellar light, it was observed, that all coloured rays reached the earth in the same space of time, and that the chemical action and electric state of this earth's atmosphere are continually undergoing changes by silent "convective" discharges, through the action of the stellar influences. By

COMETARY LIGHT, the author of this paper considered that the temperature of our atmosphere was raised on its approach, and instanced the following botanical fact in support of such opinion: "The mast of the beech has appeared this year with the leaves, a thing never before known." The paper concluded by shewing that "electric fluid is the most active agent in nature, ever in agitation, affecting animal and vegetable life by chemical combinations, as considered in atmospheric phenomena."

The supplementary remarks by the secretary went merely to remark the highly positive conditions of the atmosphere during the stationary position of Mars on the 3rd May, and the complete electric change of that condition on Saturn becoming stationary on the 6th, changes which were amply verified by the meteorological instruments, by the excessive fall of rain, and by the grand display of the aurora borealis. The secretary thus made a practical use of Lieut. Morrison's remarks.

ECCLIASTICAL ARCHITECTURE.—The new churches at Roehampton, Wimbledon, Hanwell, and St. Paul's, Wilton Place, proclaim a new era in church architecture. The last-named edifice it is reported will be consecrated on the 1st of next month, by the Bishop of London. The interior is very striking. The roof, reading-desk and pulpit display some of the most choice specimens of modern carpentry. The chancel is deep and well-proportioned, but want of adequate funds has prevented its completion for the present, which certainly, considering the opulence of the neighbourhood, ought not to be the case. It is but just to add, that many have acted with becoming liberality, and that the Marquis of Westminster has presented 500*l.* towards defraying the expense of the new organ. The most beautiful ornament to the church is the font, a present from the Rev. D. A. Beaufort to the new incumbent, to whom he was curate. The workmanship and taste are exquisite. We also mention with pleasure, that some of the very best seats in the church are provided for the aged poor, close by the eagle desk and pulpit, where they can both hear and see.

CONGREGATIONAL CHAPEL, LONDON ROAD, DERBY.

CHURCH OF ST. MARY BOURNE, NEAR WHITCHURCH, HANTS.

TO THE EDITOR OF THE BUILDER.

SIR,—Having seen in *THE BUILDER* a sketch of St. Marie's Church, Islington, as proposed to have been restored by Mr. Pugin, I send herewith a sketch of the east window in the church of St. Mary Bourne, near Whitchurch, Hants, thinking it may not be uninteresting to your readers, as it bears such a strong resemblance to that of St. Marie's.

I imagined at first, that the transoms, &c. in the heads of the four lights were of later date, but on a more minute examination, I was satisfied they were original.

Trusting you will think it worthy of insertion in your valuable paper,

I remain, your obedient servant,
May 2nd, 1843. J. C.



EMBOSSSED OAK.

We have recently taken occasion to pay a visit to Messrs. Braithwaite and Co.'s ware-rooms, where specimens of this new mode of producing carvings in oak are deposited; and the inspection of these different specimens has left on our mind a strong impression of the capabilities and value of the process. Before we saw the quality of the work produced, we had an impression that the product of a process akin to branding would be necessarily rude and unsatisfactory. This impression a visit to Messrs. Braithwaite's ware-rooms has removed; and we believe such a visit would produce a similar effect on all minds infected with the same prejudices. Messrs. Braithwaite's process we ought to have explained, consists in forcing a piece of wood with great pressure against a red-hot die, by which means it receives almost as sharp an impression as metal will receive in a common stamping-engine. The surface of the wood is slightly discoloured by the operation, but this discolouration can easily be removed: in oak carving, however, the discolouration is rather pleasing than otherwise, as it gives the effect of age. There are two limitations which attach to the process as compared with ordinary wood carving:—there cannot be the same variety without an immense number of dies, and the operation of stamping does not admit of that high relief produced by under-cutting. The under-cutting, however, if desired, could be done by hand. We think this new mode of producing ornamental wood-work will be most applicable to the decorations of churches, to which purpose it has, we understand, been already extensively applied.

ROYAL NAVAL SCHOOL.—The foundation-stone will be laid on the 1st of June by Prince Albert. The site is Counter Hall, near Deptford.

The first stone of a new church was laid on Easter Monday for the district of Cove and South Hawley (near Farnborough, Hants), by Lord Calthorpe. Norman cruciform, with low tower at intersection; accommodation 250; built of brick, faced with heath stone, in courses, with Bath stone dressings. Cost will be about 1,200l. (no galleries); if added, will contain 400. G. Alexander, Esq., architect, 9, John-street, Adelphi: T. Cooper, builder, Hartly-row.

NEW BUILDING ACT—MASTER CARPENTERS' SOCIETY.

A MEETING of the committee was held at the Freemasons' Tavern on the 17th inst., Mr. H. Biers, President in the chair; present, Messrs. Lever, Grissell, Knight, Harris, Stephens, Allen, Higgs, Stokes, and Burstall, when a report upon the intended act was unanimously agreed to, a copy of which will be found below; and to which report, from the very elaborate manner in which the act is considered throughout its several provisions, we call the attention of our readers, as well worthy their serious consideration.

The Report of the Committee appointed by the Society of Master Carpenters to investigate and superintend the progress of the intended New Building Act through Parliament.

YOUR committee beg leave to report to the society that, in accordance with their wishes, they have very carefully and deliberately perused and considered the several clauses and enactments contained in the proposed New Building Act, and they do not hesitate to pronounce it as one of the most important measures in which the building interest at large has been interested for many years past; and they have much satisfaction in saying, that, in many of its parts, it is a great improvement upon the present Building Act, the 14th Geo. 3, cap. 78.

YOUR committee state, that it is now upwards of two years since they entered upon the duty of watching the progress and considering the several building enactments proposed to the legislature during that period; in deliberating upon the present proposed bill, they have been actuated by a sincere desire to promote only the general good of the whole of the community; and when it is understood that it comprises within its limits, and controls by its powers, the domestic economy of between two and three millions of the inhabitants of the metropolitan district of this great empire, it

must be obvious to all, that as regards the objects embraced within its enactments, it is one of the most important Acts of Parliament that has occupied the attention of the building interests and the public generally for many years; and they therefore entreat the most serious consideration as to its probable effects upon all within its range.

YOUR committee inform you that their attention has been called most particularly to a great evil in the old Building Act, namely, its extreme ambiguity: this has proved a source of much litigation and ill-feeling in a great number of instances; they have to recommend a strict regard to simplicity and plainness of language in the intended enactment, and have made several emendations therein where there appeared to be an ambiguity, or where there might arise a difference as to the construction or intention of its several provisions.

YOUR committee state to the society that, in the proposed act, a clause is inserted, which will prevent the use of PLACE bricks in any building; this prohibition they propose to modify; and, in order to prevent the improper use of shuffy, or soft bricks, they would advise that the words, instead of being good sound "WELL BURNT" bricks, it should read "GOOD SOUND" bricks, and that GOOD PLACE bricks should not be excluded; and they would also advise that no place bricks should be used at all externally, or in basement stories, at all events below the springing of the chimney arch; to prohibit the use of sound place bricks would operate most injuriously to the interests of the brickmaker, or must inevitably very greatly increase the price of stocks.

YOUR committee, in discussing the clause that refers to the projecting or building shops or other erections in the front courts or front gardens of private houses, particularly in roads in the vicinity of town, while tenacious of detracting from the rights of the freeholder, cannot admit that one individual, in a respectable row of houses, should be allowed to cover his front garden to the annoyance and injury of the neighbourhood; they would propose, for the better definition

of the line of street, that, in roads where the different rows of houses do not form one line, each row of houses should be considered the line of street: no encroachment on buildings of any description ought to be suffered in the fore-courts or garden-fronts abutting upon a public way.

Your committee further state, that, in consequence of the proposed alteration in taking the rate of the houses, namely, by the height of the external walls instead of the superficial measure, they think it but proper that in some cases the party and external walls be increased in thickness *under the new act*.

Your committee, however, cannot agree to recommend the several clauses which prohibit more than four floors, unless the walls are of a first-rate building. These clauses will prevent square attics in second and third and fourth-rate houses: for, under the proposed act, the floors are to be counted from the lowest or basement floor; under the old act, they were counted and all heights taken from the ground floor; it is true that an additional floor may be added by a kirk roof, the fore front not being above the prescribed height; but your committee submit that this mode of obtaining an additional floor is an evasion of, instead of a compliance with, the spirit of the act; and further, that this mode of construction by kirk roofs is not the soundest way in finishing the upper construction of any building, and ought not to be encouraged by the legislature.

Your committee would wish most particularly to call your attention to the increased thickness proposed in the withs and backs and fronts of flues, and recommend your determined opposition to this proposition, especially as regards the backs and fronts of flues; it will add most considerably to the expenses, and cause unsightly projections into the several rooms, and also prevent, as at present, the flues being carried up in a two-brick party wall. Your committee have no hesitation in declaring this proposed addition as useless and uncalled for; the objection to the present thickness of the withs and the backs and front of flues might be met by a clause prohibiting any but hard sound stocks in the internal construction of such flues, worked smooth in the interior; and without pargeing, the whole or nearly the whole of a party wall to a third and fourth-rate house would, under this arrangement, have to be, from the foundation to the roof, no less than three bricks thick; and where the chimneys have to be built back to back, the whole thickness will not be less than five bricks thick, and will in some cases be even more than that.

Your committee further submit that, as under the old act, so in the intended act, the usual recess or indent in party walls, for the pipes from internal upper water-closets, is not provided for; they have therefore recommended that provision should be made for this now universally called for accommodation.

Your committee particularly call the attention of the society to the clauses in the new bill, as to the construction and timbering of the several buildings to be built upon the commencement of the intended act; and to point out to the society the impossibility of conforming in many instances to the schedule referred to: and further, that the limitation as to bearings and the consequent introduction of girders in every ceiling more than 15 feet square, will add most considerably to the expense of timbering, and at the same time, in almost every instance, very materially diminish the strength of the horizontal bearing of the floor above.

Your committee further, and in connection with the preceding remark, beg to call your attention to the proposal to prohibit (almost all) timbers from being placed in party walls, and compelling trimmers, and trimming joists, girders, &c., to be placed upon shoes or corbels, a mode of construction objectionable in so many ways, that it is hoped that the promoters of the bill will at once withdraw the proposal.

Your committee particularly call the attention of the society to the enormous increase of the fees that will be chargeable upon every description of building; fees are not only more than doubled to the district surveyor, but it is proposed to appoint official referees in case of any difference between the builder and district surveyor, and in many other matters. These fees, already quite large enough, and quite satisfactory to the present district surveyors, will be so

increased and so oppressive, that your committee recommend your most determined opposition to the proposed scale. To increase these fees according to the present scale, will go a great way to defeat the benefit likely to accrue to the public by the recent reduction in the timber duties.

Your committee do not object to the appointment of official referees, but that efficient persons may be appointed to that office, they recommend the erasure of the word ARCHITECT, being assured that there are many parties not being what is termed an architect who would be much better qualified to carry out the details of a Building Act, but at the same time, leaving it with the Home Secretary as to who shall be appointed. They also think, that if the official referees were paid by a salary, instead of by fees, it would be of much improvement, as preventing unnecessary references, at the same time the parties litigant paying certain fees, which might go in aid of the salaries.

Your committee have endeavoured thus generally to bring the most material points in the bill under your notice, have pleasure in reporting, that in many respects the proposed bill is a great improvement upon the old Building Act, and have only to regret, that in the drawing up Government did not avail themselves of PRACTICAL experience; they have only further to add, that they have annexed their observations in detail on the intended bill, and to which they beg to call the serious attention of the society.

Signed by direction of the committee,
17 May, 1843. H. BIRAS, President.

To ascertain the Rate of Building.—Page 4, section 6, line 23. To prevent a difference of opinion between the district surveyor and the builder as to which front is to be taken for the heights, it is recommended that the fore front or principal front of the building be the one to be taken.

Page 4, sec. 6, line 24. The words "OR FIRST" ought to be taken out, as also the words "ANYONE," and the words "the principal front" added, taking out the letter "s" in the word fronts.

Second-rate Building.—Page 4, sec. 8, line 33. The word "not" ought to be taken out, or second-rate houses will be prohibited from having more than four square stories, unless by that objectionable arrangement a kirk roof or a room in the roof.

Official Referees.—Page 7, sec. 15, lines 2, 3. The words "being architect" ought to be taken out of this clause, leaving it to the Home Secretary to appoint any person having knowledge required; and here your committee would suggest the propriety of a selection from persons of PRACTICAL experience.

Attached or Additional Buildings.—Page 7, sec. 16, line 20. The word "external" to be taken out. Lines 22 and 25. Also, from the word "but" to the word "completed," leaving the whole of the walls to additional buildings of the thickness according to the rate of such buildings.

Method of ascertaining the Rate.—Page 7, sec. 18, lines 40, 41. For ascertaining the heights, the purpose of determining the rate of the building, the principal or fore front ought to be taken; it is therefore proposed to expunge the word "highest" and insert instead the word "principal," taking out the words "or side," "not being a party wall," as the side walls of a detached house will sometimes gable ten feet above the front.

Penalties.—Page 9, sec. 23, lines 24, 30, 31, 32. In this section the word "surveyor" is cut out, and the words "the poor of the parish" inserted instead, as it appears to your committee that the surveyor ought not to be benefited by his own negligence; this section will also be improved by the words "unless and to the end" being taken out.

Windows in Basement Story.—Page 9, sec. 24, line 37. The words "nine inches" ought to be taken out, if not, the window-backs in kitchens will be very low, if a thick lintel and a strong wall-plate are used over the window.

Heights of Rooms.—Page 10, sec. 25, line 3. The height of the basement story might with propriety be altered from eight feet to seven feet six inches, giving an opportunity of draining with a better current where the out-drainage will not permit quicker fall, and especially where buildings have front shops, more than one step to a shop entrance being objectionable.

Eighth Rate or Public Buildings to be re-surveyed after completion.—Page 10, sec. 28, lines 37, 38. To prevent ambiguity, and consequently difference of opinion between surveyor and builder, the word "such" ought to be taken out, and the words "EIGHTH RATE" inserted. "TWENTY-ONE" days' notice to survey is much too long a notice; "SEVEN" has been substituted by your committee.

Iron Doors in Party Walls to Warehouses, &c.—Page 12, sec. 32, lines 13, 15, 22. In this section the words from "and" to the word "wall" have been taken out, it being quite unnecessary to have so large a space between two iron doors as FOUR FEET; and the word "four" has been altered to the word "one," and it appears that limiting warehouses and workshops to thirty-five square feet may operate injuriously.

Cesspools in Streets and Alleys.—Page 14, sec. 38, lines 29, 30. The words from "and," with the whole of the thirtieth line, are taken out, as it appears to be useless to give the overseers the trouble of superintending a Building Act, when there are to be paid officers for such superintendence; this will apply to all the clauses of "Bill where &c."

Drains as to Superficial Measure.—Page 15, sec. 41, line 11. This section as it stands will do away with nine-inch barrel drains, which drains are of sufficient size for second, third, fourth, and all the other rates, with the exception of first and eighth rates. The word "EIGHTY" has been altered by your committee to "SIXTY," thus making a nine-inch barrel drain available.

Private Drains.—Page 15, sec. 42. The observation as regards the overseers the same as preceding remark, page 14, sec. 38, line 29.

Scantlings and construction as regards the timbering to Floors, Partitions, Roofs, &c.—Page 16, sec. 43, line 3; s. 44; p. 17; s. 45, line 1; and s. 46, line 26. It is recommended by your committee, that the whole of the clauses regulating the scantlings and bearings of timbers be expunged, as leading to great difficulty, and promoting much litigation; similar clauses were formerly introduced in the 19th Charles 2, cap. 3, and also in an Act of Anne; but in all subsequent acts they were left out, being found impracticable in the carrying out in detail. The scantlings generally are objected to by your committee, and the absurdity of enforcing a girder in every room more than fifteen feet square is so monstrous, that your committee cannot believe that any person of the smallest practical experience can have been consulted in this matter.

Girders and Bressummers.—Page 17, sec. 47, lines 27, 31. The words "girder or" throughout this section have been taken out, leaving the clause to the regulation of the bressummers only, and the words "tailed all" are also taken out, and the words "laid at least half" inserted instead; if this were not altered in this way, it would be a contradiction to subsequent parts of the act.

Heights of External Wall above Gutters.—Page 19, sec. 55, line 27. In this section, the words "six inches" are taken out; a foot above the highest part of the gutter being quite high enough.

Materials of External Walls.—Page 19, sec. 56, line 36. The words well burnt are taken out, as good sound place, in proper proportions, have always been found to answer every purpose in all internal brickwork. If place bricks were altogether prohibited, it must create great loss to the brick maker, or a great advance must inevitably be made in the price of stocks.

Depths of Footing below Floors and Areas.—Page 18, sec. 49, line 14. With regard to the top of every footing being 12 inches below the surface of the lowest floor of the building, requires alteration, as it cannot be intended that on every foundation, especially if concreted, or other hard and dry substance, or where it may be required to have the part of the basement floor considerably lower than another, that the top of all the footings should be compelled to be below the lowest floor or area, in which case there would be a very great waste of brickwork without answering any good purpose.

Upon requiring a decision by a Referee.—Page 21, sec. 60, line 32. Instead of the party requiring the reference having to pay the costs therein, and who may be the party aggrieved, it is proposed to strike out the words "requiring such reference," and inserting the words "in error."

Materials of Projections.—Page 22, sec. 61, line 1. Ten feet is considered a sufficient distance to prevent any danger from fire: the word "twenty" has been so altered.

Gathering over and corbelling of Chimney-stacks.—Page 23, sec. 60, lines 18, 19, 21. As corbelling or oversailing both at the fronts and sides of chimney-stacks, if done carefully, has seldom been found to be so objectionable as to call for an entire prohibition, the words "either" and "or sides" have been taken out. The word "fifth" is altered to the "third," if this were not so altered, it would prevent corbelling for dressing-room chimneys in the bedroom stories, and the word "third" altered to "second."

Materials and Thicknesses of Flues and Chimneys.—Page 23, sec. 66, line 28. The words "eight and a half" inches have been altered by your committee to "four and a quarter," inasmuch as by permitting the intended thickness of eight and a half

inches to remain part of the bill, a very large addition will be made in the outlay of brickwork, and those unsightly projections of the olden time will be again perpetrated in our new buildings; in no instance would the brickwork be of less thickness than two feet three inches, now only eighteen inches; sometimes even in single chimneys this thickness would be exceeded, and where the chimneys happen to be placed back to back, the mass of the brickwork will be no less than four feet seven inches from the face of one breast to the face of the other.

Iron Chimney-bars.—Page 23, sec. 67, lines 37, 38, 39, 41. The words "iron chimney-bars" have been taken out of this section for the chimney openings in the upper stories, they increasing the expenses without a corresponding advantage; and why *cradle* bars are enforced in the basement to chimneys, three feet ten inches opening, your committee cannot understand; a strong chimney-bar, is all that is required. The words "such bars to be built into the jambs at least four inches on each side" will therefore be unnecessary.

Flues above the roof.—Page 25, sec. 73, line 15. The word "nine" has been altered to "four and a quarter," being the thickness proposed by the alteration of sec. 66.

Chimney-pots.—Page 25, sec. 74, line 31. It appears by this section that a chimney-pot is to be fixed inside instead of upon the chimney-stack; this is no doubt a mistake, and should be rectified by introducing after the word "funnel" the words "being six feet in height."

Depth of Footings.—Page 26, sec. 79, line 37. As it appears that twelve inches above the top of the foundation would be more than required for any desirable purpose, the word "six" has been substituted.

Page 26, sec. 77, line 16. If this section remains as it is, it will prevent the fixing soot-doors, smoke-jacks, &c.

Depth of Footings under floors.—Page 27, sec. 80, line 16. The above observation applies to this section.

Materials of Party Walls.—Page 27, sec. 82, line 40. The words "well burnt" are taken out, for the reason adduced in the observations upon sec. 56, &c.

Timbers, trimming Joists, Girders, &c. not to be let into party walls.—Page 28, sec. 82, lines 1 to 4. It is recommended to take out the whole of the words from the word "and" to the words "party wall," it being the most insecure manner of fixing a floor of joists that can well be imagined to prevent the timbers to be placed in a party wall, if kept at a proper distance from the flues.

Party Walls next vacant ground.—P. 28, sec. 84, line 28. If no consent can be obtained, the first build-

er ought to be permitted to build, upon the party-withholding such consent, to an extent not exceeding nine inches, exclusive of the footing, which ought to be permitted, as for a first, second, or third rate house; if not, the first builder, through perhaps the obstinacy of a neighbour, would have to submit to the loss of a portion of his land, and which probably may be of great value.

Recesses in Party Walls as regards Indents.—Page 29, sec. 87, line 34. The words "metal pipes" are introduced after the word "corbels" to enable parties to insert, with the aid of an indent, such pipes as may be necessary for water-closets in the interior and upper stories.

Page 30, sec. 89, line 21. The same observation applies to this section.

Page 30, sec. 90, line 31. Old sound party walls, built according to the present act, ought to be suffered to remain without having the thickness added to, unless the new building should be of a higher rate than that pulled down.

Party Fence Walls.—Page 34, sec. 95, line 12. The words "hereafter be built" ought to be inserted after the words "party fence."

Penalties for Alterations.—Page 49, sec. 115, lines 18, 19. After the word "builder" the words "or workman" ought to be inserted, as it often happens that, without the knowledge or consent of the master or builder, a workman will cut away a chimney-back or any other part of a party wall; and to render the section clear, in the line after the word "them" insert the words "as the case may be."

Surveyor may order walls to be cut down to inspect.—Page 54, sec. 125, line 25. Your committee have recommended an addition to this section, "that if, upon inspection, the works are found to be according to the act, the damage done and the reinstatement of the works be at the expense of the surveyor."

Fees to District Surveyor.—Page 55, sec. 129, line 41; p. 56, s. 129, line 8. The fees according to the table in this section are decidedly too high; it is true, that if the district surveyor has much additional duty, he ought to have remunerating fees; but if the sections as regard timbering are taken out, and which your committee most strenuously advise should be insisted upon, the duties of the district surveyor will be but very little, if any, increased; it should also be recollected, that in the old act the fees were stated as maximum fees; in the new act, the fees are stated as positive, in many instances making the fees considerably above those permitted or awarded upon an appeal to a magistrate. Your committee, fully appreciating the liberality which always characterizes the builders as a body, recommend

the fees to be as set out in the old act, the amount to be positive. If the new fees are permitted to remain part of the bill, the public will derive little or no benefit from the late reduction in the timber duties, as what will be gained in duties will have to be paid in fees in the aggregate expenditure in the respective buildings.

Fees to additional Buildings.—Page 56, sec. 109, lines 25 to 31, and line 45. The fees in this section for additional buildings ought to be qualified; all additions, if attached and built with the principal building, ought not to be chargeable, as it has almost invariably been considered that the fees to the principal building are remunerative for the appurtenances, such as kitchens, scullery, larders, wash-houses, &c., but not to stable-buildings, which ought to be considered chargeable additions, or any other erections not attached to the main building. The superintending the cutting away chimney-breasts, when a new building is about to be erected, ought to be considered as paid in the fees for such new building.

Fees to Official Referees.—Page 57, sec. 130, line 19. This section having been left blank for the fees to referees, the committee have inserted such amount of fees therein as appears to them to be sufficiently remunerative, if fees are to be paid instead of salary; namely, for every survey made by them, and certifying therein, 21. 2s. each. For any other certificate signed by them in pursuance of the directions of the act, 10s. 6d. each. For every award to be made in pursuance of the directions of this act, the sum of 21. 2s. It will be also very desirable to have inserted a section where the parties can agree to the decision of a single referee, that his decision shall be binding, preventing, by this arrangement, a multiplication of fees and expenses.

Fees to Clerks of the Peace.—Page 57, sec. 131, line 27. The blank in this line we have filled up with the word "three-pence."

Limitation of Actions for Penalties.—To prevent ambiguity, after the word "such" insert the words "penalty or."

Fee for Certificate of Surveyor.—Page 59, sec. 138, line 44. Fee to the surveyor 11. 1s., for determining a disputed amount; but the committee cannot understand what costs are to be awarded to the referee in the matter, that, too, by the surveyor.

Districts of the Referees.—Page 60, sec. 141, line 31. We think that the referees or the Home Office, or some other authority, ought to define the limits of each respective district as regards the referees, and not put the public to the charge of a fee for the referees deciding which is the proper referee.

Fig. 1.



Fig. 2.

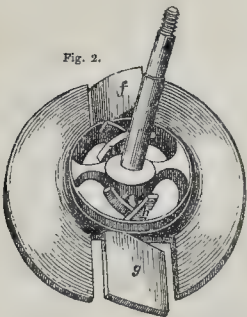
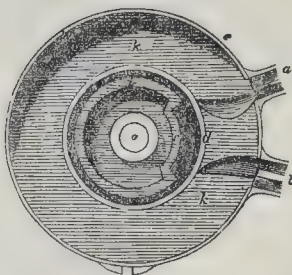


Fig. 3.



WORTH'S PATENT ROTARY PUMP.

This pump, from its simplicity of construction and the ease with which it is worked, is superior to any thing of the kind before offered; and being entirely free from friction, and constructed of durable materials, will last for a long period without repairs. The following description of the above engravings will convey an accurate idea of the machine and its manner of working.

Fig. 1 represents the pump in its complete state, as fixed for action. The body of the pump, or working box, consists of a circular case, an inside view of one of the disks or plate of which is given in fig. 3. The parts c, d, and e are raised upon

the plate; the two plates are neatly fitted together with the open face of the one inserted into that of the other. The revolving disk (fig. 2), with its two valves, f and g, is placed between them, after which they are soldered up: a and b are two pipes, b being the suction-pipe, and a the ejection-pipe. On turning the handle, the revolving disk (fig. 2) is carried round, and by the action of the crosses h h upon the raised parts c and d, the valves f and g are alternately opened and closed, carrying the water contained in the space k k before them, which quantity of water is ejected through the pipe a, which may be of any length required to force the water to upwards of fifty feet. The pump when fixed may be fitted with a three-branched suction-pipe and other fix-

tures, to raise water from wells, cisterns, vats, boilers, &c., and discharge either hot or cold water through three pipes of a similar kind, into three different rooms, being in three receipts and nine discharges; and, in the whole, twelve operations with one pump. It is capable of discharging in one hour six tons, eight hundred, two quarters, and eight pounds; or, taking the day of twelve hours, twenty-one thousand six hundred gallons—or seventy-seven tons, two hundred, three quarters, and twelve pounds. The size, though only seven inches diameter, and two and a-quarter inches wide, will raise thirty gallons per minute. This pump, for acting, requires a lead suction-pipe of one-and-a-half inch bore, and for raising a one-inch.

OUR CORRESPONDENCE.

TO THE EDITOR OF THE BUILDER.

SIR,—In forwarding you the following extracts, according to promise, let me premise them, by stating that I am not aware that there is any very useful general information on the subject of limes published, except in the reports of the Architectural Society; therefore, I considered the following dissertation would convey very desirable knowledge to the student upon this most important article in building. Let the reader recollect that it is taken from a work published in 1893, consequently the prices are altered, and many improvements may have taken place, but still this essay contains much valuable matter and remarks which may be of great service to the country surveyor. I make the extract from a work edited by Mr. John Phillips, Surveyor, author of a work on Inland Navigation, and Surveyor of Canals in Russia under the Empress Catherine II.

I remain yours respectfully,
OFFICIATOR.

DISSERTATION ON LIMES—THEIR PROPERTIES, AND EXPLANATION IN MAKING THEIR KILNS, AND BURNING.

"I shall give a short explanation on the nature of lime for building, and describe the qualities and uses of eight different kinds of limes, viz. First, common chalk lime; second, a much harder chalk, or rather, stone lime, burnt in patent kilns, by the Right Hon. Lord Stanhope, near Bromley in Kent; third, Dorking stone lime; fourth, Guildford stone lime; fifth, shell lime; sixth, Kentish rag-stone lime; seventh, Plymouth stone lime; and, eighth, Welch stone lime, from Cardiff or Aberthaw, in Glamorganshire, and burnt into lime here.

"The first of these limes, and its uses, requires very little description, it being the lime in common use in all our ordinary, and even principal buildings; but if a little more fire and care in its burning was attended to, it would be much the better; and as the price is raised from 8s. to 12s. 6d. per hundred, within these very few years, the common chalk lime merchants could well afford to make a much better commodity, as the extra expense in labour and coals is not above 1s. 9d. per hundred; and it is further remarkable, that where the chalk and coals are procured cheapest, the lime from thence, in general, is the worst, for it is well known to those master bricklayers and plasterers, whose close attention to business has insured them success, that the lime made up at Deptford Creek, and near Lewisham, at Nine Elms, by Vauxhall, and at Chiswick, although attended with additional expense of carriage of chalk and coals, yet it is far better lime than any other made lower down the river.

"The principal matter is generally overlooked or neglected, or, perhaps, not generally known, and that is in building the kiln; whether they think the old method sufficient, or that improvement is useless, I cannot tell; but certain it is, that experimental improvement has been made, and a great saving in coals obtained; and instead of the slovenly way now used in building a kiln, cheapness in labour is only considered. That this labour ought to be done in the most strong and substantial manner, there is no doubt; for it is well known that fire, as well as water, requires the greatest strength and solidity; and five pounds or more would be well laid out in extra labour, in building a large kiln upon a proper principle. The form or figure of the kiln should also be altered. The segment of an egg in the direction of its axis, is the best form for a kiln: its base ten feet, and height twelve feet, or even fourteen feet, will burn 150 bushels of lime every twenty-four hours (but it may be built larger in the above proportion), and consumes, according to the hardness of the chalk, one bushel of coals to four or five of lime; but breeze (cinder ashes) mixed with coals will go further, and answer better than all coals, for the coals of themselves will run and cake, unless continually opened and stirred for the air to get through, but breeze mixed with them will prevent it; and this is the reason why breeze is preferred to coals in burning of bricks in a clamp, for the slag or iron ore in the coals unites the bricks into a lump, which cannot be separated without great force by iron crows, spoiling the shape and form of the brick.

"Three or four courses of bricks should be curved or drawn inwards at the top, to check the fire, which will have the effect of preventing the fire escaping at the top, without performing its duty of burning the stone or chalk; for this is the reason why the lime is in general not so well burnt at the top as elsewhere, especially at the sides.

"The weight of a bushel of well-burnt lime-stones is from thirty-six to thirty-eight pounds; but if laid by twelve hours, it partly slacks itself, and will be nearly sixty pounds weight.

"The second kind of lime I shall mention is Lord Stanhope's, at Cudham, near Bromley, in

Kent, and here, perhaps, I have a just right to beg his lordship's pardon for attempting to animadvert or describe the goodness or quality of a lime lately brought into use, and on a plan quite different to any in this country heretofore; a patent having been obtained by his lordship for a particular way in burning it, so that a proper information of this new manufacture, but lately introduced into the building branch, cannot by me be ascertained. I saw some in Greenwich, in February, 1892; it slacked well, and had all the appearance of the qualities requisite for good lime, being in large stones and exceeding light, and also well burnt; but whether fit for water-works or not, time only will discover. Its gravity is thirty-two to thirty-four pounds per bushel.

"Third kind.—Dorking stone lime. This, with the Ryegate stone lime, is on an equal footing, although attempts have been made to prefer the latter. This stone is only chalk a small degree harder than the first mentioned, and wants more fire, and is generally burnt in a cone kiln, built elliptical and low, for what reason my small judgment cannot find out; nor could either the proprietor or the burner give me a sufficient reason why that is the best form, to induce me to come into their way of thinking. I beg leave to observe that the kilns without cones would burn the lime as well for present use. This lime is supposed (but I never knew it proved) to stand the frost and the frowns of winter, and also for water-works, much preferable to common lime. That it is preferable to it is without doubt, but not equal to the extra price; nor does it brave the winter without injury, where it is exposed nearly equal with common lime. The weight is, per bushel, about forty-six to fifty-nine pounds.

"Fourth kind.—Guildford stone lime. This being still the same stratum of stone as the Ryegate and Dorking, lying in the same range of hills, is but very little harder and burns more yellow, but whether more durable is difficult to ascertain. Too much praise cannot be given to the proprietor of this stone for attending personally at the kilns at the London Docks, in the Isle of Dogs, to see it properly burnt. But, notwithstanding the superior knowledge and abilities of the engineers and surveyors, I cannot be brought to believe that grinding it is superior to slacking it properly. I do not recollect reading that any of the ancients made use of that method in any of the famous structures time has permitted to remain as models for the admiration of modern artists. I well remember as to their being particular as to the water for slacking and making up, to the right time of the year, and length of time to lie before it should be used, and also to its burning, but not a syllable about grinding it; and one reason against it, amongst many others, is, that if the lime is only half burnt, by grinding it cannot be discovered, which by slacking is disclosed immediately; and this chiefly convinces me that the brickwork done in the summer of 1801, in the large dock, the joints, a great part of the way up, were drawn out by the frost, and obliged to be pointed. If so little frost as there was that year has had such an effect, what would a severe winter do? Now, with submission to better judgment, instead of pointing it with the same lime as the bricks were laid in, it should have been done with the best Welsh stone burnt lime, mixed with the clinkers of a furnace (or slag) ground and sifted very fine, which is the best cement for water, unless when the best real Dutch terras is to be got—that only is preferable.

Another reason for slacking the lime, is the many large stones in this, as well as the Dorking lime, that remain unburnt, which will discover themselves in the slacking, but not in the grinding. Some of the stones are put into the kiln so large, that they are not burnt through, and leave the middle of them as unburnt as ever, when the smaller stones are burnt to powder. The weight of a bushel of this lime is from forty-eight to fifty-six pounds, which is proof sufficient that it is not enough burnt.

"Fifth kind.—Shell lime. This lime is seldom burnt or used in England, except in some places on the sea-coast, where chalk or stone is scarce. It was used at first by Mr. Smeaton, F.R.S., Engineer to the building of Ramsgate pier, and esteemed by him a most excellent cement; but he afterwards found a better in the Welsh stone, from Glamorganshire, but that coming very expensive, Mr. Smeaton continued to use the shell lime for backing in, and the Welsh lime for setting the fronts only. Shells make a very good and durable lime, and it is to be lamented that it is not more in use in England. In America, all along the sea-coast, no other kind of lime is used, and the shells are in such amazing abundance on Charlestown Bar, South Carolina, that I have seen from thirty to fifty carts and waggon loads with shells at a time, at low water, and the next tide would bring up as many more; and, if they were taken away, would be repeated, and so on successively. The weight I never remember to have heard. It wants no screening, and has much of the quality and appearance of the Dutch terras.

"I am informed, that in Persia, and many provinces in the East Indies, especially on the sea-coasts, no other lime is made but of shells.

"Sixth kind.—Kentish rag-stone. The lime that is burnt of this stone is an exceeding strong and good cement; it burns brown, and is by much the strongest and best lime made of any English stone, being very hard and heavy, and solid as Purbeck or Portland. The stones must be broken in pieces, not so large as a man's fist, and burnt in a kiln with a cone chimney or vent, from twenty to thirty feet high. The only place where this lime is burnt, near London, is at Nine Elms, near Vauxhall, and sold at two shillings and fourpence per bushel, which generally weighs about ninety-four pounds.

"This lime is in great request, for its great strength, with the sugar-bakers and soap-makers, and also for water-works; a great deal is sent to the West Indies in hogsheds and other casks. The kilns are in general three feet in diameter at the bottom, ten feet diameter at top, and twelve feet deep, which will burn one hundred and fifty bushels of lime every thirty-six to forty-eight hours, when the fire must be let out to cool.

"Seventh kind.—Plymouth stone lime. This is a dirty blue stone, and is broke and burnt in kilns just in the same manner as the former, and at the same place. This stone burns to a beautiful white lime, but it has not the strength of the former, although in general used in all the purposes of the other. The weight of a bushel of this lime is about eighty-six pounds.

"Eighth kind.—Welsh stone lime. This stone comes from Cardiff or Aberthaw, in Glamorganshire. This Mr. Smeaton, the famous engineer, and F.R.S. (who, among other great works, erected the Eddystone Lighthouse), calls the best of lime; and, from his long experience and great knowledge in the many great works he has built, no doubt can be entertained of his veracity; his treatise on the Eddystone Lighthouse, and the great care he took to get the best mortar or cement in that most difficult undertaking, proves that the minutest parts of the great whole did not escape his penetration, and the success in finishing that very dangerous work proves his great judgment and sagacity.

"I think Mr. Smeaton says, the Welsh stone, to burn it properly, will take sixty hours with a good fire, and will lose about one-third of its weight in burning; but as he does not mention its being broke to burn, we must suppose it to be put in the kiln in the lumps as they rise, which are often fifty to seventy pounds weight or more. With due submission to so great a judge, we may believe, if the stones were broken as the Kentish rag or Plymouth stone, which is, I think, as hard, I should think forty to forty-eight hours, with a good fire, would burn a kiln off well of good lime; but nicely in burning from the same stone need not be observed.

"As lime may be made of different materials, such as chalk, shells, and different kinds of stone, it must be observed, that the harder the materials the better the lime, which makes the stone lime to be preferable, and of that the harder the better. In England, the red, or bluish stone is the best; in Italy, marble is cheap and plentiful, and they make of it a most excellent lime.

"Every stone that will ferment with acid, such as aqua fortis, will make good lime, and the more round and solid the better, which makes the Welsh stone preferred; but where the stone comes from a rock, or bed, let it not lie long in the open air before it is burnt, for it loses much in lying above-ground; and also use it as soon as possible when burnt, for its loss by keeping and exposure to the air is incalculable. The lighter the lime the better: the best takes the most water to slack itself: the more it smokes the better it is; and if slacked in a tub, the more it sticks to the sides the better the lime."

TO THE EDITOR OF THE BUILDER.

SIR,—Permit me to inquire, whether it is your intention to devote the pages of THE BUILDER solely to the advancement of structural science, or whether you purpose also to admit essays on antiquarian subjects? If it be your earnest desire to spread abroad a more perfect knowledge of the admirable works of our forefathers, by what means could you better accomplish it than by instilling a love and veneration for the principles that guided those by whom they were erected? True it is, that the spirit of the olden time has departed, or we should not constantly witness those painful caricatures of ecclesiastical edifices that everywhere abound. Until this spirit is re-established, our buildings can be but cold imitations, without the life, or of our ancestors' nobler works.

The task, indeed, is difficult to combat with the sordid feeling of the age, and to inspire generosity and unanimity—yet it is not impossible—a brighter sun is arising amongst us, to shed its light and radiance on our darkened minds—the gloom is everywhere dispersing, and if your correspon-

dents would support, to their best ability, your efforts, no doubt they would be attended with satisfactory results. Your obedient servant,

Saturday evening, May 13, 1843.

P. P.

You should have my humble assistance in the good work.

Our correspondent must have observed an anxiety to set about the "good work" he mentions, and his proffered assistance is a part of that which we have been almost entreating should be tendered to us. We put our hands to the bargain, and at once assign him his niche in *THE BUILDER*—let him occupy it as soon as he likes, with our best honour and welcome.—Ed.

TO THE EDITOR OF THE BUILDER.

SIR,—My attention was more particularly directed by an advertisement in your last number to an evil which has long infested my profession, and which I think loudly calls for the severest censure. The advertisement to which I allude offers to public competition the design required for erecting a new prison in the town of Leeds. The magistracy of that borough, or whoever else have the management of the matter, state that they want "a complete set of plans, sections, elevations, and explanatory drawings, together with a general specification of the manner of executing the works, and sufficient for contracting for the same, and estimate of the cost in detail," and after holding forth the munificent prizes of 150*l.* for the best plan, and 70*l.* for the second best, they propose, with all possible complicity, that all plans they may deign to approve, "be held as the property of the council," but that this same liberal-minded body "WILL NOT BIND THEMSELVES TO EMPLOY THE PERSON WHOSE PLANS OBTAIN EITHER THE FIRST OR SECOND PRIZE"—the plain meaning of which is (if indeed it require any interpretation) that these worthy Leeds contractors, instead of honestly paying an architect the remuneration fairly due to him, for the exercise of his skill and labour, seek to obtain the most valuable fruits of both, for less than one-tenth of the recompense he is entitled to; his commission, were he in the regular course of practice, to design and superintend the work, amounting to 1,800*l.* at the least upon the proposed outlay of 30,000*l.* Nor need I remind you, Sir, what indeed is evident to any one, that the invention of a design is by far the principal and most meritorious part of his labour, that the remainder is simply mechanical, and that in fact, upon the completion of his plans, sections, and specification, he is considered to have earned a good two-thirds of his whole commission. And yet in this instance, the intention of the parties, boldly avowed, and apparently without the desire of concealment, is to procure, at a mean and paltry cost, plans, &c. sufficiently explicit and accurate to enable them to carry them out without any further intervention of, and consequently without any further remuneration to, the architect whatever. Now, Sir, I would ask you, or any indifferent person, whether such a proposition is worthy of the public, and I would fain think respectable, body from which it emanates? Is it true that every one, whether acting for himself or as a trustee for others, is justified in procuring what he stands in need of, with certain limitations, at the lowest possible rate. But there are undoubtedly limits which the conscientious and fair-dealing man would scruple to pass. He would not be anxious, were either his honour or patriotism in any tolerable vigour, to purchase articles in the importation of which the revenue of his country, legally constituted, had been defrauded. Let it not be mistaken that I put this as a parallel case, I mean nothing of the kind; my only object is to illustrate what I have advanced; but I shall not shrink from avowing my decided opinion that individuals, whether acting separately or collectively, are clearly overstepping the bounds, I will not say of honesty, but at all events of honourable dealing, when they hold forth an inducement which they must know will only be seized by men either of little experience, of low principle, or whose "poverty and not their will" prompts them to compete—an inducement to degrade the liberal profession, of which they are members. But, Sir, the radical cure of this growing evil clearly rests with the profession itself. Were such paltry offers completely neglected, were they treated with the contempt they so well merit, they would soon cease to be made. And my main object in addressing you is to point out the mischief, which young practitioners especially, and by far the greater part of them I am convinced from thoughtless invertebrate, are ultimately, if not immediately, inflicting on their profession, and consequently on themselves, by competing on such degrading terms. A young architect just entering into practice, with a laudable ambition to excel and gain a reputation, often embarks upon an undertaking of this character, without thinking of, or caring for, the amount of remuneration; supposing, and in one view justly,

that success in obtaining a work of public notoriety forms its own reward. It is to my younger brethren more particularly that I would, in all kindness and good feeling, point out the deleterious effects of conduct originally springing from high and pure motives. Let it not be imagined that I am opposed to public competition; when properly conducted, I consider it the best, if not the only, means of eliciting genuine talent; and it is only when based upon low and degrading principles that I should think of raising my voice against it.

Were it not for extending my remarks to an unreasonable length, I could adduce several instances which have come within my own knowledge of the injurious effects of the practice upon which I have been commenting. I have frequently known designs furnished for churches, with all the exactness requisite to their being fully carried out, for a premium much less than one-third of the architect's commission; and about ten months ago, a gentleman who called upon myself respecting a house he contemplated erecting, upon inquiring my charge were it placed in my hands, exclaimed with surprise, "Why, a design was furnished to such a public building, of which I was one of the superintending committee, for which a premium of only 25*l.* was awarded, and you now want me to pay more than 100*l.* for a building of not one-sixth its value. I cannot give it to you."

Here, Sir, you see the drift to which these things are tending; and if they go on unnoticed and unchecked, we may expect to see a 10*l.* premium offered for complete designs, &c., of a building that costs 10,000*l.*, and our fair and honest remuneration most materially reduced, if not altogether cut off.

I would hope that the subject may attract the attention and interference of others more able and influential than myself; and trusting that you will be able to find room in your valuable publication for the imperfect remarks I have offered in a matter so important,

I remain, Sir, your obedient servant,

JUSTITIA.

London, May 11th, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—In reference to the competition for the Town Hall, Colchester, which you favoured your readers with a view of in a late number, it would interest myself, and I have no doubt many others, if yourself or any of your readers could afford any information upon the following queries; viz.—

First. Were six or any other number of the designs selected by the committee, and was a professional gentleman called in to give his opinion thereon? and who was he?

Second. Did that gentleman set aside the whole six so selected, and select three from the whole number, there being three premiums, none of which designs was included in the original six?

Third. Did the author of the design so selected for the first premium distinguish his drawings by his *crest*, and is he a friend of the referee, or was the *crest* known to him?

Fourth. You mention a second competition, was it publicly advertised as the first one, and what circumstances gave rise to it? Is the design now about to be carried into execution that which was originally selected with the *crest*, and what became of the premiums?

As there were about seventy-three designs sent, in the original competition, the quiet way in which it was conducted, for no application for official information met with success, together with the whole proceedings being ultimately upset, by what one gleams from various sources, for until I read it in *THE BUILDER*, I was not aware of any second competition, or of the name of the successful party, it would be very desirable, in case there are others of the competitors in the same unenlightened state, to have some information on the subject. I have a very great desire for it, and remain, Sir, I fancy,

ONE OF THE ORIGINAL SIX.

16th May, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—Would you favour a young aspirant to science by a solution of the following question.

If four horses can draw a ton along a level road, how much will they draw, with the same ease, up a hill which rises 1 yard in 40?

W. J. P.

So far from such inquiries being obtrusive, we hail them as the best evidences of the right working of our plans—they stimulate inquiry and turn the studies of practical men in a right direction.

TO THE EDITOR OF THE BUILDER.

SIR,—I take this opportunity of enrolling myself in the drawing school you are so nobly founding. I appeal to all young workmen not to let this

opportunity pass by, for if neglected they may never have the opportunity again. I feel satisfied you will not stop at twenty, nay, nor at five times that number. Wishing you every success, I remain yours,

J. H. S.

May 3, 1843.

Miscellaneous.

DESTRUCTION OF GREENWICH PIER.—The confident prediction that this costly building would crumble to pieces in a short time, from the return of the spring tide, after the injury detailed in this paper of yesterday, unfortunately proved correct. At about 11 o'clock on Tuesday night, just as the tide was rising, another tremendous crash was heard, which was at once attributed to the bursting of the piles in front of the pier. As soon as daylight appeared, boats were put out to see the extent of damage; and the appearance the pier then presented shewed a great extent of injury, and left not the slightest hope of saving any portion. Pile after pile of ponderous timber, bound with iron, and fixed at the foundation in massive plates of iron, had been split and shivered, some falling inwards and others outwards, whilst the Parade gave way in every direction, the fissures extending nearly the whole length, and the plates of iron being shivered like glass. It is now, therefore, scarcely safe for any person to go on the pier, as the only remaining stairs leading to the floating barges have exhibited symptoms of dilapidation; and the whole of the frontage wall and iron railings must ultimately give way, and probably dash the barges to pieces, perhaps momentarily. The eastern end, near Ship Dock and the Royal Hospital, is opening in fissures, and is likely to burst away in that direction. It is quite impossible to stay the damage; the whole must be left to its fate, and be washed down by the tides, where the greater part of at least 10,000 tons, &c., which has been laid in between the wall and the road to form the Parade, will also be washed away. The present appearance of this extensive pier is as if an earthquake had shivered it. Masonry and timbers are lying about, or leaning in every direction.—*Times*, May 18.

THE SUSSEX MEMORIAL.—We have authority for announcing that a most influential meeting of noblemen and gentlemen will shortly be held at the Freemasons' Tavern, to adopt measures for calling a public meeting for the purpose of erecting, by public subscription, a suitable memorial in remembrance of his late Royal Highness the much-lamented Duke of Sussex. A provisional committee has already been formed. Measures were taken to originate the meeting so early as the first instant. We have no doubt the undertaking will meet with a warm and cordial response on the part of the public.—*Globe*.

COST OF RAILWAYS.—Below is a comparative return of the length and cost of construction of the following railway lines:—

Designation.	Length.	Cost.
Birmingham and Derby	38½	1,030,000
Birmingham and Gloucester	55	1,329,300
Canterbury and Whitstable	6	80,000
Dublin and Kingstown	6	303,724
Edinburgh and Glasgow	46	1,200,000
Great Northern	45	1,300,000
Great Western	117½	4,508,160
Hull and Selby	8½	369,589
Leeds and Selby	20	340,000
Liverpool and Manchester	30½	1,407,172
London and Birmingham	112½	5,698,375
London and Blackwall	3¼	643,343
London and Brighton	42½	1,300,000
London and Croydon	8¼	615,159
London and Greenwich	3¼	668,280
London and South Western	76½	2,054,386
Manchester and Birmingham	29½	895,914
Manchester and Leeds	49½	2,113,988
Midland Counties	57½	1,257,811
South Eastern	69	1,850,000

ST. THOMAS'S CHURCH.—This church is closed for repair. The contemplated works are a restoration of the groined roof and east end of the chancel to its original condition, with the entire and thorough repair of the external roof of the chancel, and the restoration of the stone parapet instead of the present projecting eaves—the erection of several new pews at the west end, instead of the unsightly lobby which now occupies so large a space and forms only a loitering place for idle people. The church will be cleaned throughout, and that most important point, a proper ventilation, in which the church is now so extremely defective, will be attained. The works will be done by Messrs. Hendy, of Portsmouth, under the superintendence of T. E. Owen, Esq., and of — Herbert, Esq., of London, the architect to Winchester College. Besides this the organ will be thoroughly repaired, and its different parts, which have been added at different times, will be completely harmonised.—*Hampshire Advertiser*.

THE LAW COURTS IN THE CITY.—From a report made to the Court of Common Council, by the City Lands Committee, it appears that Mr. Tite has been chosen to prepare plans and designs for the City Law Courts. This gentleman and the City Surveyor have presented a report to the Committee, of which the following is the substance:—

"In proceeding to study the general arrangements, the committee is aware that we gave great attention to the question of the possibility of placing any or all of the courts on the ground-floor; and in order to determine this most important question, we laid before the committee, at their meeting on the 14th of September, a series of plans, in which the attempt was made to place the Courts of Queen's Bench and Common Pleas on the ground-floor, and the Court of Exchequer on the one-pair floor. After due and careful examination, the committee were unanimously of opinion, that unless all the courts were placed on the one-pair floor, sufficient accommodation would not be obtained for the public, the counsel, the solicitors, and the witnesses. In this opinion we entirely acquiesce. On the ground-floor, we propose that the great entrance in Guildhall-yard shall be mainly, if not entirely, used by the juries, witnesses, solicitors, and the public; that the entrance for the judges shall be from a door-way towards the east end in Guildhall-buildings, and that the counsel shall enter on the east side. In the public entrance we have thought it right to make the hall, staircase, and vestibule, as open, light, and ample as possible. The rooms for witnesses, solicitors, or consultations, are seven in number, according to the plans, and their area in feet superficial is 2,828, exclusive of the halls, staircases, vestibule, and robing-room. We have prepared two elevations, one of the west front in Guildhall-yard, another of that to the south in Guildhall-buildings, together with a perspective view, which shows the general effect of the whole. In the interior of the building we have carried out the style adopted on the outside. The courts would have level ceilings, executed in imitation of the old carved and timbered ceilings of the Tudor period. By a reference to the plans, the committee will see that this design involves the re-construction of nearly all the present building. The foundations would, of course, be used to a great extent. The internal walls of the courts, and perhaps the back or eastern wall, it would be unnecessary to disturb; but every thing at the back of the courts must be entirely reconstructed, and the two external front walls rebuilt. We have made sufficient general calculations to enable us to advise the committee that the works could be carried into effect at an expense not exceeding 10,000."

As it is intended to remove the Court of Bankruptcy, and an additional space may then be obtained, the question stands over for consideration, as the difficulty of erecting the three courts on the same floor, and other inconveniences, might then be altogether obviated.—*From the "Architect, Engineer, and Surveyor."*

DOVER.—It is contemplated to erect two churches at this place. The sum of 800l. is already subscribed for the purpose.

ROYAL INSTITUTION.—April 7.—Professor Faraday on Light and Ventilation.—The theatre was so crowded that many persons could not gain admission. The subject was interesting, not from any novel theory, but for the application of known facts to useful purposes, especially lighting and ventilating,—ventilation being here used in its common acceptation, as meaning only the mode of withdrawing, from places where human beings are to live, the bad air consequent on combustion, and so leaving the atmosphere in its natural condition, in which alone it can be beneficial to man. After some general remarks on the nature of combustion, the consequent formation of water and carbonic acid, Mr. Faraday described the new process for which his brother has taken out a patent, and exhibited a chandelier to which it had been applied. The ordinary glass chimney is first placed on the lamp, which is fed with external air, as usual: a second chimney, somewhat larger and taller, is then put on, and covered with a thin sheet of mica. In the space between the glasses there is no communication with the external air, except through what Mr. Faraday called an aerial sewer, which sewer is intended to carry off the heated and decomposed air, and is continued till the air is discharged outside the house, or into the fue of a chimney. In brief, the invention consists in the application of the down-drawing stove principle to a lamp burner. This arrangement, in the chandelier exhibited, formed a part of the central support, and was ornamental as well as useful.

CITY WALL.—A part of the ancient Roman boundary of London is about to be demolished to make a site for a new church; this is a bad example, the church demands veneration for its own antiquity, and justly so, but with what face when it despises the antiquity equally venerable with its own?

SOCIETY OF ARTS.—April 12.—W. Tooke, Esq. V.P. in the chair.—Mr. Davis described his patent Stereoprism combination, as applicable to wood pavements, and for other purposes. This combination has already been applied in paving part of the carriage-way in Lombard-street. The mode of forming the paving blocks is by cutting a piece of timber 6 inches thick and 5½ inches wide, into lengths of 9 inches, the angles at which the blocks are cut being 36°. In each side, and in the sloped ends, a rectangular groove is cut three-fourths of an inch in width, and of similar depth, the bottom of the groove being 2 inches from the bottom of the block; into these grooves are inserted wooden keys 3½ inches in length, three-fourths of an inch thick, and 1½ inch in width, the use of which is to tie the blocks together, both longitudinally and laterally. A triangular groove, three-fourths of an inch wide, and five-sixteenths of an inch deep, is cut in the upper surface, in the direction of its length—and each row is put together so as to break joint throughout the work.

PROPOSED COMMISSION TO INQUIRE INTO THE STATE OF THE METROPOLITAN SEWERS.—Sir James Graham has stated in the House that government is about to empower immediately a commission to inquire into the state of the metropolitan sewerage. The value of this inquiry will entirely depend upon the qualifications and honesty of the persons selected for this important duty. It is a subject in which we feel the deepest interest, and we shall not hesitate to express our opinions freely upon any objections which can be fairly raised against the persons to whom the investigation is delegated. To the appointment of military men, whatever may be their qualifications, we entirely object, for reasons we have elsewhere stated. As there can be no doubt that there are many eminent engineers, surveyors, and other practical men who are thoroughly acquainted with the subject, and as the subject of inquiry is unconnected with the duties of the military office, there can be no excuse for depriving the professions of the emolument or honour to be derived from such an investigation.—*Architect, Engineer, and Surveyor.*

The beautiful new church at Turnham Green, built by Messrs. Scott and Moffat, will be consecrated almost immediately. It is one of the very best specimens of modern church architecture. We are glad to learn that the splendid church at Camberwell, which is in course of erection by these able architects, is progressing very satisfactorily. Messrs. Scott and Moffat are also the architects of the new church about to be erected at Halsted, Essex.

The alterations in St. Thomas's Church progress—one of the four lofty Saxon arches, the only one remaining, which formerly supported the square tower, has been uncovered. It will be a work of labour to restore the tracery and ribbing which adorned it, as at present nothing but the plain stone outlines remain, and all the ornamental parts were swept away in 1698. The monuments at the eastern end have been removed, and a Saxon arch with deep-set window, in excellent preservation, discovered. Through this window, during the troubles of the glorious Reformation, the officiating priest was shot at by a monomaniac Lollard. As the object seems to be restoration, we hope the passages leading between the walls will be opened again. They were closed to prevent a draft, but without any effect, while the echo of the building was thereby destroyed. We have no doubt these being removed will improve the vibration of the building, as probably the passages extend all round the chancel, and the entrance to them is in the turret in the southern transept, which contains a circular stone staircase, with two narrow passages at the summit closed by brickwork. A large circular-headed recess is also apparent in the northern transept, but whether it contains a window or was one of the ancient shrines is as yet unknown. We are inclined to think it contained the shrine of St. Thomas à Becket, for the lighting of which a legacy, secured on some houses in the town, was annually bequeathed; or it possibly might have contained the effigy of some ancient personage. If the large Saxon arch be restored to match the two smaller side ones, the incongruous Corinthian cornice above it must be removed, by which a much greater appearance of elevation will be obtained.

UNIVERSITY OF OXFORD.—Important alterations are to be made in some of the colleges in this university. Balliol is to undergo thorough repair, the direction of which was intrusted to Mr. Pugin, the celebrated Catholic architect. The master of the college objected to the employment of this gentleman, and Mr. Pugin's engagement is, consequently, broken off. St. John's and All Souls Colleges will also receive decorations during the course of the summer; and some new buildings are to be added to University College. The dirt, which has been accumulating for many years, covers many beautiful specimens of art in the respective colleges, the existence of which is scarcely known.

RESTORATION.—On the Continent, from Cologne downwards, the work of restoration has begun: and England was even beforehand in setting an example. Canterbury, York, Hereford, Wells, Norwich, Salisbury, Lichfield, Chichester, and Chester, are already undergoing, or about to undergo, extensive repairs; besides Westminster, Beverley, St. Mary Redcliffe, and others of our Minsters; and parish churches without number. With all this, the general taste must be rapidly improving, and a false step made now will before long be obvious to all; and besides having (if possible) to be undone, will render any who have been concerned in taking it amenable to the just indignation of posterity.—*Ecclesiologist.*

The little chapel proposed to be erected at Westport, Somersetshire, is an unaffected design, and has much of the genuine character of our ancient village churches. The plan contains a chancel, nave, and low square western tower. The whole cost of the erection will not exceed 800l. We could have wished to see a small southern porch, which is an almost indispensable feature, and would add very greatly to its appearance at a very small increase of cost. The walls seem somewhat too high for the proportion of the roof. We are not informed who is the architect.—*Ibid.*

The church of Wooburn, Bucks, before the last repair, possessed a carved-wooden roof, north and south porches, an ancient font, and two lychgates. The church was then ceiled, the font ejected for a hideous modern basin, the porches destroyed, and the doors stopped up (so that now the usual entrance is by the priest's door), and the lychgates employed to build a pigsty: what became of the font we know not.—*Ibid.*

The font at St. George's, Hanover-square, is unique in form and situation. It resembles a tolerably-sized marble wine-cooler, fixed in a circular carved oak frame about a foot high. The whole machine runs upon castors, and is wheeled out when wanted from under the communion-table!—*Ibid.*

The ancient and greatly admired font at Wellow Church, Somerset, has been recently restored, at the cost of the Vicar, the Rev. C. Paul, as a preliminary step to the renovation, by public subscription, of the entire interior of the church. This church is a handsome building, consisting of a chancel, a nave with aisle, and a tower at the west. It was built about 1372, at the sole expense of Sir Walter Hungerford, and is dedicated to St. Julian.—*Archaeological Magazine.*

Sir John Smyth, Bart., of Ashton Court, who is the lay impropriator of the parish of Stapleton, has given 1,000l. towards the endowment, and 350l. towards the erection of a parsonage house in that parish.—*Ibid.*

The late Edward Davies, Esq., who at the time of his decease was registrar for the diocese of Salisbury, has bequeathed 500l. to the fund for keeping the cathedral of that city in repair.—*Ibid.*

The Bishop of Salisbury has undertaken to restore, at his own expense, the beautiful chapter-house of his cathedral; the cost will not be less than 2,000l.—*Ibid.*

—A correspondent at Oxford thus writes to us—"We are full of restorations and rumours of restorations. A total repair and almost rebuilding of Balliol College is in contemplation, and Mr. Pugin was invited to execute it, but it has been thought inexpedient to employ a Roman Catholic, and especially a violent partisan, and the Master of Balliol has withdrawn his consent. The Puseyites were exulting in the prospect of Pugin's employment, as a 'great theological step.' St. John's College Chapel is to be fully restored this summer, and the Fellows have selected Mr. Blore as the architect. A very ugly plaster roof is to be removed, and one of oak, which has been plastered over, restored to sight. The altar screen and window are also to be removed and replaced by stained glass, and the whole of the wood-work to be altered more in conformity with the style of the building. The chapel is much older than the time of the foundation of the college, having belonged to a Bernardine convent, on the site of which the college was built. The old and by no means ornamental library has given way to a very elegant new one, and the hall and the front of the college will in their turns be restored and beautified. The martyrs' memorial is completed with the exception of the inscription, and is very elegant. It is universally admired. Mr. Cockerell's building of the Taylor College is near its completion, and the models, &c., of Sir F. Chantrey, presented by his widow, are already deposited. All Souls' College is also being restored by degrees; and a pretty little building has just been added to University College, and forms an additional ornament to the High Street. I thought these details might form a scrap in your 'weekly gossip.'"—*Athenaeum.*

We would respectfully direct the attention of our Country Subscribers to the mode we have adopted of signifying to them, when the period of their subscriptions expire, and when they become due—the substitution of a blue envelope to their paper instead of one of the ordinary nature.

On going to press, we have received a communication from the solicitor of Sir R. Morrison, having reference to an article which appeared in the eleventh number of *THE BUILDER*, under the head of "Dublin Architects." At present, only sufficient time is allowed us to express our sincere contrition that, by giving too ready insertion to the letter complained of, we should have been supposed to sanction, in any way, the tone and spirit which breathe throughout our correspondent's epistle. On the contrary, it will be found, on referring to our remarks appended at the time, that we deprecated, and that in the strongest manner, the personalities in which our correspondent indulged.

THE BUILDER,

NO. XLV.

SATURDAY, MAY 27, 1843.

CARPENTERS' BENEVOLENT INSTITUTION.

THE managers of this institution have been kind enough to forward a ticket, entitling us to the privilege of accompanying them and their friends on the proposed excursion to Basingstoke, on Whit-Monday, June 2nd. We duly appreciate the compliment, but we cannot consent to creep under the wings of a charity to the enjoyments of that day. Our ticket we shall pay for at least, and exert our best influence to swell the receipts, by sending as many as we can to join the goodly company. The price, however, is so low, that we apprehend there cannot be a surplus to benefit the institution. But perhaps the object of the managers is to draw attention to their laudable work, and by a social gathering of this nature to encourage one another in the continued zealous discharge of their duties.

Five shillings and sixpence for a ticket, to free the holder a journey the whole way to Basingstoke and back, ninety miles, and by railroad! appears an extremely low sum, and if the managers have so arranged that this can be accomplished with benefit to the funds of the institution, directly or indirectly, they are well worthy of their posts.

That they will, or ought, by this species of managerial enterprise, to accomplish a great amount of good indirectly, we cannot for one moment entertain a doubt; and the object of our dwelling upon the matter on the present occasion, is to add our feeble voice in the plea for a large and liberal measure of support from the class, and the friends of the class, in aid of their poorer brethren. There is quite enough to tempt any man to join them without one single bit of sentiment or feeling of brotherly love; the very selfishness of the selfish is appealed to, for, besides this five-and-sixpenny ride through the country, and to an interesting rural market-town, with all the accessories so grateful to those who languish for a peep at unsmoked nature, and a salutary retreat, though but for a day, from this great coop of London. Besides all this, there is for the carpenter and the builder generally, a treat that very few rides of this extent could procure; there is at Basingstoke, hard by the railway,

the ruins of what was once the most beautiful and elegant structure of the district, we mean the Holy Ghost Chapel; it is indeed to us, and will be to all who feel an interest, as we do, in Masonic art, a most interesting relic, and is of itself worth five times the sum to go and see.

Then there is the charming village of Old Basing, about two miles from Basingstoke, with its picturesque cottages, rendered principally so by the number of fine old brick chimneys that in their boldness and variety shame the face of the modern bricklayer, with his invariable two-foot cube perched on the party wall, or a ridge of pinched-up slating. These cottages you catch a view of before arriving at Basingstoke, in fact, the railway runs over the village, and divides it so that, right and left, looking from the carriages, the travellers on this excursion will have a foretaste of that which a walk will procure for them in full satiety after they have arrived at Basingstoke; but there is more, there are the ruins of the Old Abbey, the garden walls of which, in "solemn grey," with their massive structure, putting us to the blush again for our nine-inch trumpery of modern economy; and there is the glorious old barn standing to attest how much of obloquy they of Ely have incurred for the demolition of that noble relic of this class, the record of which appeared in our journal of two or three weeks back. The roof of this barn is a fine example of the solid substantial character of former carpentry, and it is ornamental without. To those who understand how to embrace and enjoy the varied treat which this day's excursion proposes to them, we have said enough to direct them in the pursuit of it, and if we should have stimulated any, for the cause of brotherly charity, to join in this agreeable festival, for festival it is, we shall for ourselves reap a full reward.

ARCHITECTURAL MODELLING.

WE cannot violate the maxims of common sense by any intermeddlings of our own with Mr. Liddell's communication; it is so clear, simple, full, and pertinent; ingenious and ingenuous, that we must have it speak for itself; the greatest compliment we could have paid us is in this class of communication, and to have secured so much of the approbation of such minds. We have not the pleasure of knowing Mr. Liddell personally, but have as good a measure of him as any intimacy would bring. He has done a great service to art, and particularly to ours; by his generous communication, he will have been the instrument of contributing to the gratification and enlightenment of thousands. We will have his powder worked up, and are ready to carry out his excellent intentions, by doling out portions to our friends who may apply. Modelling upon this principle should become a fireside amusement, and for its power of instruction there is no estimating it sufficiently. Ladies may now, at no cost, and without soiling a finger, construct for themselves; they may design and build; they may gather that knowledge of architecture without which all their prattle on the subject is mere verbiage, and *talk they must*; but why should they be degraded into the mere echo of the fashion-master, descanting on the last new cut of the revival, the latest mode or rage of the copyist? This modelling should be an excellent handmaid to the philosophy of architecture; but, as Mr. Liddell shews, it has a wider range, or, at any rate, has a range that goes beyond mere structural representations. With the aid of optical ingenuity, various ef-

fects may be portrayed to the life; indeed, there is no saying to what end a facility in modelling, such as this supplies, will tend; we are, for the sake of our art and our class, truly thankful to Mr. Liddell. His papyrus powder is an invaluable discovery.

THE DESTRUCTION OF GREENWICH PIER.

ON Tuesday sen'night, the inhabitants of Greenwich were considerably alarmed by the announcement, that one of the immense piles in front of the stone pier had broken, which would probably lead to the destruction of the entire edifice. For some time past the end of the pier, next to Garden Stairs, had shewn signs of dilapidation, and piles were driven to make a coffer-dam, for the purpose of carrying on such repairs as the gradual sinking of the pier, during the last two months, rendered absolutely necessary; but the public was scarcely prepared to hear of the sudden and almost complete destruction of this costly building. The first alarming indications of its insecurity were shewn soon after daybreak on the morning in question, when some men, who were at work on the pier, felt the steps on which they were standing crack under them; later in the day, a loud report, like the explosion of artillery, was heard, occasioned by the springing of one of the large piles which support the brickwork and masonry. Several persons were on the pier at the time of this occurrence; happily, however, they escaped unhurt, although much alarmed by the danger of their situation. As soon as an examination could be made, it appeared that the damage extended to at least three-fifths of the pier, which is 320 feet long, and 80 feet deep, from the bottom of the piles. The Parade presented an alarming appearance, from the large fissures in the brickwork, and the sinking of the stone pavement. The stairs were so much damaged as to lead to the belief that they would be completely destroyed, while the bulging out of the front wall, in some parts even above the water-mark, indicated that the lower parts of the work were extensively injured. The heavy masses of brickwork which supported the massive iron railings and posts continued to crack and sink in every direction. Such was the state of things on the first day. The news spread rapidly through the metropolis, and it was predicted by many persons who were competent to form an opinion, that when the tide went down, the whole of the building would give way, as the foundation of the pier had, from the outset, by most persons, been considered insecure. Every precaution was therefore taken to guard against accidents. About 11 o'clock at night another loud crash was heard, which was attributed to the bursting of several of the piles. Early on Wednesday morning hundreds of persons thronged to the spot to see the realization of their prediction, and it then appeared evident to all that the complete destruction of the pier would inevitably follow; so great and so extensive was the injury which it had received. On Thursday morning one of the large beams of timber, called land-ties, which are clamped and bound to the piles, and placed horizontally under the water-mark, gave way with a loud crash, dislocating all the parts connected with it, and causing the Parade to sink yet more. A few hours afterwards, Mr. Roberts from the firm of Messrs. Grissell and Peto, and several other gentlemen interested in the subject, arrived on the spot. After a careful examination of the pier, they observed that the unfortunate disaster was occasioned by the insecurity of the foundation; it was necessary, for an erection of

this kind to be secure, that it be formed of arches, so as to allow the tide to ebb and flow freely beneath it. We have this moment (Wednesday afternoon) returned from Greenwich, but it being high water, we had no opportunity of further examining the state of the foundation. The huge mass of brickwork and masonry, when viewed from the river, presents a spectacle which it is almost impossible to describe; it is as one immense pile of ruins, the component parts of which appear to have been jumbled together by the force of an earthquake. The constant arrival of steamboats occasions this part of the river to be greatly agitated, and the rushing of the water against the ruins and into the interstices and fissures of the brickwork apparently threatens, ere long, to wash the several tons of rubbish down the stream. At the time of our visit, the workmen had suspended operations, but recrimination has been carried to such a height, between the "Stone Pier Company" and the "Watermen's Company," that at the present moment it is impossible to glean on the spot any information as to the future proceedings, which can at all be relied on. As soon, however, as the work is resumed, we shall daily watch the progress of the operations, and hope to be able to furnish our readers with some interesting information next week. The pier was erected nearly three years since, at a cost of about 40,000*l.* It is estimated that the repair will cost at least half that amount, and nine or ten months will be required to complete the work. We are informed that Messrs. Grissell & Peto are not liable to rebuild the pier, having only entered into an agreement to forfeit 3,000*l.*, in the event of the work not holding together for three years, of which two years and eleven months had expired when the disaster which we are now recording occurred. A meeting of the proprietors of the pier has just been held, and it is currently reported that Messrs. Grissell & Peto have already paid the forfeiture of their bond.

NEW PRISON.

At a meeting of the committee, it was determined to prolong the time for sending in the plans, &c. for the New Prison, Leeds, from the 21st of June to the 1st of August next.

Least there should be any misunderstanding with reference to "the cells," they are to be the same in number as in the government plan, as stated in the instructions to architects, where it is stated that 300 prisoners are to be accommodated; and the architects in furnishing plans will have to provide cells for that number.

THE ARCHITECTURE OF BIRDS.

TO THE EDITOR OF THE BUILDER.

Sir,—I am induced to send you a specimen of bird-architecture, which I have met with, and hope it will be worthy of a place in *THE BUILDER*, as a proof that there is great ingenuity in birds as well as man. The name of the bird I wish to describe is the *Parus* (titmouse), called by some persons the blue mope, which does much mischief in gardens and orchards, and every means are tried to come at their nest by the gardener to destroy them; this is the reason that the birds endeavour to secure their nests in trees.

There are thirty-one species of the *Parus* scattered over the globe, of which eight are common to our own country; it is of a very fertile tribe, laying from ten to twenty eggs at one hatch; they feed on the tender and young buds, seeds, fruit, insects, and a few on flesh; most of them are fond of the brains of other birds, which they get at by cleaving the skull of such as they find dead. They are restless, bold, and cruel to birds less than themselves, and will even attack such as are three times their own size. My attention was drawn, at the commencement of April last, to a pair of these birds that had built their nest in a stump of a tree by the road side. The tree is about four feet ten inches in dia-

meter, and grown over with ivy, the upper part of the tree having been cut away some years ago, and it had a beautiful effect by the road side on which I have to go. The first time my attention was drawn to this tree, was by observing the birds going in and out, as shown by Fig. 1. The entrance was just so

Fig. 1.



large as to allow them to go in one at once, and about three inches from the top. I should not have supposed there was such a thing, if one of the birds had not come out at the time I was passing. I was therefore induced to examine the tree, which led me to suppose that they had taken up their abode there. I went at different times of the day to watch their movements, concealing myself from them. It is quite clear now, that when I first observed them they were just commencing to work out another separate apartment in the tree, and as the one pecked out the wood of the new apartment, the other brought it out and dropped it in the road, at a distance from the tree, for fear, I suppose, of their place being found out. But on the 12th of May, it was discovered by a lad in search of birds' nests, one of them coming out just at the time he was passing the tree. He soon commenced breaking into it to get at their nest, which he found contained eight beautiful white eggs, spotted with russet. It so happened that I shortly after had to pass the place, and saw what had taken place, and had the opportunity of seeing the wonderful work which those two birds had done. The first apartment is quite clean, and had been made last year, as there was part of an old nest which the birds had not disturbed. Fig. 2 shows the two apartments, the first

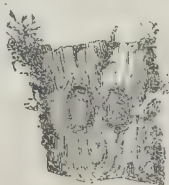


Fig. 2.



Fig. 3.

the old, the second the new one, made this year; now the entrance to the old one was from the back of the new one, by a small round hole a little above the nest, there being a partition between the apartments; the inside of them was as shown by Fig. 3. The nest was made of a little fine moss and cow-hair, the wood was pecked as fine as if it had been done by the hand of man.

I am, Sir, yours,

M. SAUL.

P.S.—I have enclosed you some of the wood, worked out of the tree by the birds, as a proof of the time it must have cost them. You will observe the wood is of the elder tree.

What a theme for the exercise of the philosophic and reflecting mind, and how humiliating, yet in a salutary sense, to the pride of

man, is all that knowledge which he gains by his investigation of the working of inferior nature. From the higher class of animals, nearest to himself, down to the veriest reptile, man may learn in every art of which he boasts himself the skilled proficient, and may so learn as to know that his most boasted matters of handicraft are inferior to the instinctive excellences of things which creep beneath, or fly, the fugitive subjects of his dominion. How often have we been tempted to glory in our species, on considering the greatness of the operations of the architects and artificers of ancient India, whose excavations in the mountain rocks at Ellora, Elephanta, &c. have left us such memorials of temple grandeur, albeit not constructed, but carved of the almost adamant granite. There, as if working in close affinity of purpose with that Mind which conceived and created the mountain, man had busied himself scooping out, picking away the crystals and the mica of those embosomed masses and wrought a throne and halls, and a sanctuary, as if to shew himself a burrowing as well as a building animal. Turning away from this, we find him overthrowing the rock, and transposing, with the mason's art, its fragmental parts into mimic mountains, and again levelling for himself the forest, and fashioning his structures after nature's groves, its pillars and embowerings. These things have served as matter of pride to us, in our "vain imaginings," and we have been tempted to make idols to ourselves of these Titan artists, to worship them for their consecration of the human genius. Alack, how miserably foolish is all this self-exaltation, after all! this little bird of Mr. Saul's observation, this tiny titmouse, see how he has carved and polished the walls and dome of this sanctuary of his; assailing with wondrous perseverance this portly trunk of the elder-tree, making the first outthrusting an antechamber to the second, with craftily-contrived passages, as though he had minded to produce a labyrinth, he and his Eleanor, for the security of their converse and the rearing of their young. What more wisely, fitly, skillfully has the vanity of man achieved?—what architecture of the temple, mosque, or cathedral surpasses this? what chiselling and chasing of the carver's art transcends it? "Worthy of a place in *THE BUILDER*!" What were *THE BUILDER* worth, if it had not place for beauty and simplicity of this mould? or builders, if they had not hearts to be charmed, and minds to be interested in nature's schooling after this attractive fashion? We thank you, Mr. Saul; we are not mere formalists, stretching the compass, or laying the two-foot rule in every thing; although this admits of both; but nature's pages are the great reading book of the builder, and in every sphere or range of her economy, animal, vegetable, or mineral, organic or inorganic; in earth, air, or sea, we have our exemplars, of which you have now so kindly furnished one.

BUILDING SOCIETIES.

Our opinion has been asked as to the nature of such societies, and we have taken some time to fortify ourselves in what we should have to say, that we may do so upon fair ground. Theoretically we have much stronger objections to them than practically; but we are not, in the present constitution of society, to look back, nor, perhaps, forward either, to any period of human perfectibility, when the suspicious and objectionable in principle can be banished from our workings.

Men will look to pecuniary profit, and balance the return per cent. for investing their good actions in the common treasury. Fancy-balls and fancy-fairs have been the successful machinery of advocating the cause of public charity. Raffles and lotteries are now relied upon to prop up or raise the condition of our artists. Insurance companies play the benevolent at so much per cent. in behalf of the loser by fire, or the last calamity of man; therefore we see not that it can be avoided that many men are not to possess themselves of a freehold domicile by the speculation of a building society. Nevertheless, the principle of these societies does not appear to us to be a very equitable one; the system of selling shares, in anticipation, to the highest bidder (engaged to pay up the annual calls), for the purpose of enabling the shareholders to build

houses on mortgage, is evidently liable to great objections. Competition should certainly not be an element in any mutual benefit association.

The objection might be obviated by introducing the principle of mutual assurance into such schemes; and this would be much more simple, and not less profitable to a company; i. e., advance 1,000*l.* to A, B, or C, to be invested in building a house, he paying interest for the loan, together with the ordinary premium for insuring 1,000*l.*, at the end of a certain number of years (or at his death, if his demise is to leave an unburdened property to his children), on mortgage.

FIRE INSURANCE.

We some time since invited attention (No. 8) to the subject of insurance against loss by fire, and its very great importance to builders, shewing, at the same time, the interest and influence held by architects and surveyors in much that relates both to the security of the offices and proprietors of house property and merchandise. The occurrence of another extensive fire at Liverpool revives public alarm, while the calls upon the exchequers of several of the offices will not fail to rouse the apathy even of those who may still have a long line of significant figures to their credit in funds, annuities, and mortgages, to a sense of the insecurity of the large stake at issue represented by the premiums in hand; and we very respectfully refer the directors of these institutions to the above number of THE BUILDER, convinced that our previous observations bear stringently on the calamity that has just occurred. If we may credit the newspaper accounts, large warehouses, stored with many thousand bales of cotton, were in near contiguity to vaults crammed with saltpetre! a single spark, therefore, whether from the lantern of the most careful servant, or from the match of a felon incendiary, was sufficient to cause this devastation of property. Will this second or third visitation upon the merchants of Liverpool, and through them upon the insurance offices, originate no measures of concert for fire-proof buildings, and the assignment of special localities for warehousing goods of hazardous kinds? The reply can hardly be a negative. And the example would be quickly followed by London and the other great warehousing ports of the empire.

Now, with respect to the rate of premium for assurance against fire, we again call attention to it. We have said before, that it is to be presumed that this rate is governed by losses occurring upon an average of years throughout the sphere to which the business of the offices extends; but this datum, even if it exists, is inaccessible, and moreover fallacious; for it would not apply unless the premiums were accumulated into, and the losses paid out of, one common fund. The public, if they inquire at all, are therefore left to do so by collating from other sources a method of approximating to the advantages or otherwise of the species of insurance to the parties engaged in it. To give a passing idea of the effect of a single great fire, such as that of last week at Liverpool (where the loss is variously estimated at from 45,000*l.* (the lowest) to 80,000*l.*), upon the premiums received by the whole of the offices for one year, it may be assumed, which is nearly the fact, that the total amount of property insured is six hundred and fifty millions of all rates or classes of premium; viz. 1*s.* 6*d.* per cent. for common insurances, 2*s.* 6*d.* hazardous, and 4*s.* 6*d.* doubly hazardous. Now, taking the loss at Liverpool at a medium, or 65,000*l.*, and admitting the whole to have been received as hazardous, at 2*s.* 6*d.* per cent., we find that the premiums upon fifty-two millions of assurances are swept away at a single blow. We are, of course, far from pretending to anything like accuracy in this sketch, but it is a sort of inductive process to a better understanding of the subject at large, which we will endeavour to render still more intelligible when we next recur to it.

GOthic STAIRCASE, &c.,

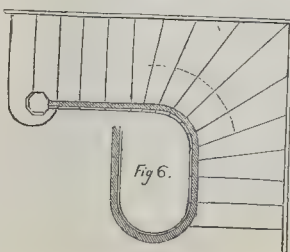
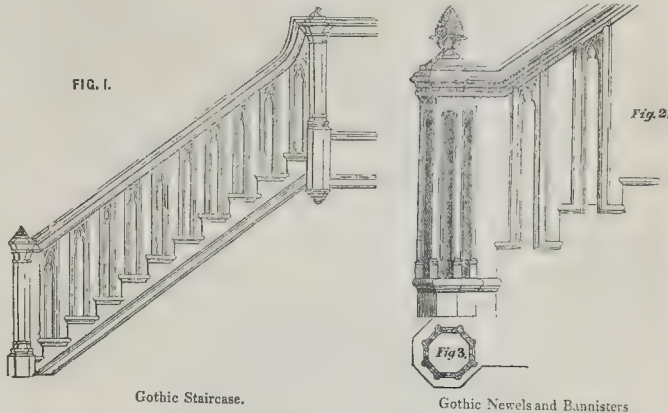
TO THE EDITOR OF THE BUILDER.

SIR,—Being a reader of your valuable work ever since its issue, it may not be unbecoming in me to express my most ardent wish for its continuance, and I should feel happy to find more food for the mind of the workman as well as the archi-

tect, I mean the workmen whose limited means are far beyond the reach of the practical works they require; and as your magazine is the only publication that is within the reach of the class I allude to, I sincerely hope that your correspondents will not fail to do their duty in diffusing that knowledge that is required amongst our class of the present day; such as following up the sections of cornices, as in Nos. 7 and 10. As Mr. W. has shewn full entablatures, I beg to correct an error in Fig. 2, No. 10. It is the Composite or Roman ornament. But the section is out of all character, as the Roman cornice is at all times executed with modillions, so that the plancere must be level, and of greater projection, and the cornice to come down to receive the enriched panels in the intervals of the modillions. It would be well if Mr. W., in following up his works, would give the proper rules of proportion to each order, as it is the principal feature of all orders. In conversing with a carpenter, who considered that it required as much talent as draughtsmanship in describing the orders of Roman architecture, it was his opinion that diameters, modules, minutes, &c. were Roman measurements, so that we must employ our own rule; so long as this is the case, we never shall get rid of those bad examples that are daily eyecores

to those who can see the want of proportion. For instance, supposing a mason had to ornament a window with architraves and cornice, he must consider the height of the opening, the shaft of a column divided into 8 parts or 16 modules, 2 parts or 4 modules will be the height of the entablature, which must be divided into 8 parts, 2 parts for the architrave to be run round the window, 3 parts for the frieze, the remaining 3 to be divided into minutes for the cornice.

As time will not allow me to dwell longer on this subject, I must leave it in the hands of Mr. W., and enter on one of more importance. As a professor of ancient and modern staircasing, and feeling it my duty to lay before your readers proper plans and instructions in an art that has been for so many years worked, in a manner, secretly, notwithstanding the experienced works that have been published by Nicholson, Kelly, and others, whose great confusion of lines only tend to puzzle the student rather than instruct him. After the great expense he has been at in purchasing the works, he commences tracing the lines, figures, letters, &c. until he becomes bewildered and confused; after all, he puts down the work, and declares that if it is not all French to the publisher, it is to him, so that he pursues it no longer.



Modern Staircase.

Fig. 1 shew s part of a Gothic staircase, with open bannister on each step, and octagon newels, with the rail mitered round, forming the cap.

Fig. 2 shows octagon open worked newels, with staff beads on the angles, with turned bases; the nosing is returned, and forms the bannisters, mitered in a staff bead at the under side of the rail. The plan for getting tracery for the bannisters and newels, and for getting the heights and ramps for rail, I will shew in the next number.

Fig. 6 is a modern staircase with winders, which I will continue to some length in your next number, to shew that the system of springings is not required over winders.

We have omitted Fig. 5, intending to insert it in our next correspondence.

COURT OF COMMON COUNCIL.

At a court recently held for the despatch of public business, a great deal of interest was caused by the expectation of a report of the extensive improvements to be proposed to the Government, to correspond with the contemplated improvements at the west end of the town. As there are various and extensive interests engaged, the question occasioned much excitement.

PROPOSED EXTENSIVE IMPROVEMENTS IN THE CITY OF LONDON.

Mr. R. L. Jones brought up the report of the Improvement Committee, which, he said, was one of the most important description. He went at considerable length into the subject; but of the report, the most essential parts of which accurately enough detail the plan the committee wished to submit to the Government, it is only necessary to call the attention of the public to the following particulars:—

"That R. L. Jones, Esq., our chairman, having laid before us a plan of the city, with various suggested lines of improvements delineated thereon, we referred it to a special committee for consideration, in conjunction with the references from this court, together with any other improvements which they might see fit to suggest. That the special committee accordingly proceeded in the consideration of the whole subject, and had laid before them the second report of the select committee of the House of Commons upon metropolis improvements in 1838—the report of the 22nd July, 1842, in relation to the proposed improvements in the new courts of law—the report of the Administration of Justice Committee, in relation to a county rate upon the inhabitants of the city, of the 16th June, 1840—the plan of the city recently prepared under the authority of the commissioners of sewers, shewing the lines of sewers throughout the city, and the plan submitted by the chairman. But feeling sensibly the importance and necessity of various improvements being effected in consequence of the great increase that has taken place in the commerce of the city, as well as the number of carriages, carts, and vehicles of all descriptions thronging the public streets, the attention of the special committee was first directed more particularly to those main and principal thoroughfares wherein the greatest inconvenience is experienced, and the best means to be adopted for remedying the evil. With this object the special committee, after having examined the plans, documents, and witnesses, deemed it advisable that various improvements hereinafter stated should, at the earliest possible period, be carried into execution; but, in the first instance, that an additional access to the city from the west end of the metropolis should be immediately proceeded with. It has long been the subject of public complaint that Newgate-street, Snow-hill, and Holborn, the great thoroughfares to the north-western, and that of St. Paul's Churchyard, Ludgate-hill, and Fleet-street, to the western part of the metropolis, are both quite inadequate to the immense traffic of carriages, waggons, and vehicles of all descriptions which throng in those directions; and that the numbers of waggons and carts which carry provisions to and from Newgate-market frequently choke that thoroughfare, creating delays and inconvenience to the mail-coaches, and other impediments to the Post-office arrangements. The special committee, having examined carefully those plans which have been suggested to the Commissioners of Woods and Forests for a new thoroughfare, commencing in the neighbourhood of Leicester-square, through Lincoln's Inn-fields into the city, crossing Farringdon-street by a viaduct, next considered the practicability of forming a street which would connect the end of Cheapside with such a thoroughfare at Lincoln's Inn, and with a branch diverging into Holborn, which would effectually relieve the great pressure of the public traffic in the thoroughfares alluded to, and at the same time render a viaduct at Holborn-bridge unnecessary. They were of opinion that the formation of a street combining these desirable objects was decidedly practicable. The street to commence at the east end and continue along Paternoster-row, through Amen-corner, across Farringdon-street to the south-west corner of Farringdon-market in a straight line. The main line to continue across the middle of

Fetter-lane to the city boundary, and a branch to diverge from the corner of the market to the end of Fetter-lane at the summit of the hill in the wide part of Holborn. The special committee having had the levels on this proposed new line accurately taken, find that the greatest inclination of any part of it would not be more than about 3 feet in 100, and that only in the distance of 370 feet. It occurred to them, in pursuing the investigation, that this new line would be still greatly improved by the removal of the whole of the houses between the north side of St. Paul's Churchyard and Paternoster-row from the end of Cheapside as far as Ave Maria-lane, which could be done for the additional sum of 150,000*l*. Should this be effected, that magnificent structure would terminate a vista of upwards of one-third of a mile, and the whole would, in addition to the increased facility and convenience which would be afforded to the growing commerce and traffic of the city, form one of the grandest improvements of an architectural character yet achieved in the metropolis. The order in which the special committee have classed the improvements which they consider called for is, according to the relative importance of each end, as follows:—A. From the east end of Paternoster-row to Fetter-lane, and a branch street to Holborn, commencing with the houses at the west end of Cheapside, projecting beyond the line of St. Martin's-le-Grand, all between Paternoster-row and St. Paul's Churchyard, as far as Ave Maria-lane, Amen-corner, crossing the Old Bailey to Farringdon-street, to Shoe-lane, Printer-street, Great New-street to Fetter-lane, to the city boundary; and the branch street from Little New-street to the north end of Fetter lane, Holborn, about 3,360 feet in length. The greatest acclivity in the whole line of this will not be more than 1 in 31, and that for only about 370 feet. B. From the north end of Dowgate-hill to the east end of St. Paul's Churchyard, thence to Earl-street, Blackfriars, through Tower Royal, Little and Great Distaff-lanes, crossing the Old Change into St. Paul's Churchyard, about 1,360 feet in length; and from the Old Change, through Knight-riding-court, Carter-lane, Godlam-street, Bell-yard, Addle-hill, to the east end of East-street, about 1,200 feet in length. C. Watling-street, from Aldermay Church to the west end of St. Paul's churchyard, about 1,055 feet in length. D. The Poultry, on the north side of Mansion House-street, about 1,055 feet in length. From the Mansion House across Bucklersbury and Sise-lane to Queen-street, from Watling-street to the east end of Basing-lane; the east side of Queen-street from Watling-street to Thomas-street, about 1,400 feet in length. E. Lime street, east side, from Culham-street to Fenchurch-street, Leadenhall-market from Fenchurch-street, through to the south end of Gracechurch-street, about 800 feet in length. Aldgate, south side, from the Saracen's Head to Jewry-street, and the east end of Leadenhall-street, at its junction with Fenchurch-street. F. Broad-street-buildings to the Curtain-road, through Half-moon-street to Sun-street, thence to Skinner-street, and on to Worship-street, about 1,550 feet in length. G. From Aldersgate-street, opposite the end of Jewin-street, to Smithfield, and from the corner of Little Britain, across Bartholomew-close, to communicate with the above line of street to Smithfield, about 1,280 feet in length. H. Threadneedle-street, north side, at its junction with Broad-street, and south side, from the church of St. Benet Fink to Finch-lane, about 265 feet in length. I. Holborn-bridge, north side, about 90 feet in length. Butcherhall-lane, east side, about 85 feet in length. St. Martin's-le-Grand, north-east corner, Angel-street. K. Muiden-lane, north and south sides, about 275 feet in length. Jewin-street, south side, from the corner of Red Cross-street to Red Cross-square, and north corner next Aldersgate-street, Aldermanbury, the west side of the south end, Milk-street, east side next Cheapside, White Rose-court, Coleman-street, and Mason's-alley. Moor-lane, south side, east corner, and north and west side, from White-street to Type-street, and south end Milton-street, east side. New Bridge-street, Blackfriars, through Tudor-street, to the Temple.

"Having thus detailed these improvements, the special committee turned their attention to

that part of the reference whereby we were directed to report our opinion as to the best means of accomplishing these objects, and having had under consideration the various improvements which have been carried out during the last twelve years, as connected with the avenues and approaches to London-bridge, ascertained that our expenditure in this respect has averaged about 150,000*l*. per annum, a sum which they apprehend, if the same could be provided, in a few years would enable all the proposed improvements to be carried into effect; and feeling that the corporation have not the means at their disposal of effecting these improvements, however desirable the same may appear to be, the special committee were of opinion, as her Majesty has been graciously pleased to appoint a special commission for the purpose of considering of further metropolitan improvements, which commission is now sitting, that a favourable opportunity exists for drawing the attention of the Government and the commission as to the best means to be adopted for raising the requisite funds for these purposes, and recommended that we should be empowered to confer with them upon this desirable object; and we, agreeing with the special committee in the said report, submit the same to this honourable court."

The report was signed by twenty-one members.

The Chairman having moved that the report should be printed, and that the committee should confer with the Government on the subject, a discussion took place.

Mr. Hall said it was necessary to take a report, involving such important matters to the civic community, into serious consideration before they sanctioned a committee to go with it in their hands to the Government. The court ought to have time to see what was worthy of their approval, and what deserved their disapprobation, in the numerous lines enumerated. He thought that Newgate-street, which the committee did not seem to consider worth much notice, required to be completed, as other improvements there had commenced. (Hear, hear.) He thought, too, that it would be necessary to do something with Holborn-hill. (Hear, hear.)

Mr. W. Lawrence said it was not to be supposed that the improvements proposed would be carried out exactly as they were suggested. There would, no doubt, be important alterations, but the details would be discussed at a future period. Holborn-hill must remain as it was, and they would be justified to go to the right or to the left of it to effect an improvement which was impracticable on the spot itself. As for the proposition to widen Watling-street—so long and warmly contended for—the expense of taking down one side of that street would be so enormous, that the committee were afraid to look at it at all, especially as a much cheaper line could be had at one side of it.

Mr. Lott desired to know of whom Mr. Lawrence learned that the interference with Watling-street would be so enormously expensive?

Mr. Lawrence said he had the authority of surveyors and others who were well qualified to judge.

Mr. Lott would be glad to see the report printed, in order that those who were likely to disapprove, might have the full opportunity of doing so. He considered that the committee were breaking faith by leaving the improvement of Watling-street out of their list, for the court had pledged itself that that street should be widened, and that such improvement should be amongst the very first undertaken.

Mr. King said the court ought to be most cautious of dealing with such wholesale alterations, calculated as they were to affect in so serious a manner such a mass of property.

Mr. Anderton said his constituents would reasonably ask what was to be done with Fetter-lane, that dreadful nuisance.

Mr. Egleton seconded Mr. Lott's views with respect to widening Watling-street.

The Lord Mayor said he was one of the commissioners appointed by Parliament to take into consideration the most advisable means of improving the metropolis, and he assured the court that if they did not send a report as to the improvements they thought necessary, they would be left out altogether in the general plan.

Mr. R. L. Jones spoke of the necessity of conferring with Government on the subject as

soon as possible, but he had no objection to adjourn the consideration of the report until it should be printed. He should be prepared to enter fully into the subject when they next assembled for the purpose.

The report was then ordered to be printed, and to be taken into consideration in detail at the next court.

SPITALFIELDS SCHOOL OF DESIGN.

On Tuesday afternoon at three o'clock a distribution of prizes to the pupils educated in the above school of design took place at Crosby-hall, in Bishopsgate-street. The chair was taken by Lord Robert Grosvenor, M.P., and on the platform there were the Right Hon. Lord Colborne, Mr. Gillman, Mr. Cockerell, Mr. Doxat, and many other gentlemen whose names we were not able to learn. The room and galleries were completely filled, a great many ladies being present; and around the apartment were exhibited several of the prize productions of the pupils, including drawings in crayons and water-colours, and designs for damask furniture, silk, &c. After a speech from the noble chairman, in which he congratulated the meeting upon the progress of the school, the report was read by Mr. Hanbury, which stated, amongst other particulars, that the number of pupils had increased from 122 to 180; that 1,000*l.* had been obtained by the late ball in aid of the funds of the institution, and that, if further pecuniary aid were obtained, many and various improvements, &c. might be effected. The report having been adopted, the prizes were distributed by the noble chairman as follows:—

No. 1. To John Brown, for the best drawing of flowers from nature, in crayons—given by Mr. C. R. Cockerell, R.A., 3*l.* 3*s.* 2. William Thomas, for the second-best drawing from nature—given by Messrs. Truman, Hanbury, and Co., 1*l.* 1*s.* 6*d.* 3. William E. Cadman, for the best drawing from nature of flowers in water-colours—given by Lord R. Grosvenor, 2*l.* 2*s.* 4. S. Nolloth, for second-best drawing of flowers from nature, in water-colours—given by Lord R. Grosvenor, 1*l.* 1*s.* 5. Nimrod Binns, for the best outline drawing of flowers from nature—given by Messrs. Truman, Hanbury, and Co., 1*l.* 1*s.* 6*d.* 6. Anthony Binns, for second-best of the same class—given by Messrs. Truman, Hanbury, and Co., 10*s.* 6*d.* 7. John Tuffnell, for the best drawing in crayons from plaster cast—given by Messrs. Truman, Hanbury, and Co., 1*l.* 1*s.* 6*d.* 8. James Kibberd, for second-best of the same class—given by Lord R. Grosvenor, 10*s.* 6*d.* 9. John Burridge, for the best drawing in crayons from lithograph—given by Lord R. Grosvenor, 1*l.* 1*s.* 10. Charles Branchflower, for best outline drawing from lithograph—given by Lord R. Grosvenor, 10*s.* 6*d.* 11. John Brown, for best design for damask furniture—given by Mr. G. T. Kemp, 2*l.* 2*s.* 12. John Tuffnell, for best design for 600-cord garment silk—given by Mr. T. F. Gibson, 2*l.* 2*s.* 13. Nimrod Binns, for best design for silk, 6*½* inches by 10 inches—given by Messrs. Bridges, Campbell, Harrison, and Lloyd, 2*l.* 2*s.* 14. James Kibberd, for best design for border of tablecloth—given by Mr. William Dewar, 1*l.* 1*s.* 15. John Dudley, for best design for the centre of tablecloth—given by Mr. W. Dewar, 1*l.* 1*s.*

The following prizes were given by the committee:—

16. To William Everitt, for best drawing in his class—"Rise and Progress of the Silk Manufacture." 17. Richard Fryer, for best drawing in his class—practical perspective. 18. Henry Dye, for best drawing of his class—"Catermole's History of the Cartoons." 19. Frederick Palmer, for best drawing of his class—"Guide to Knowledge."

Some of the above-mentioned pupils were exceedingly youthful; they were all loudly applauded as they marched up to the chair, and to many of them Lord R. Grosvenor addressed a few words in a very kind and courteous manner. Thanks were then voted to the committee and other officers; a committee for the ensuing year was elected, and after a tribute had been paid to the noble chairman for his services (which was done very warmly), the meeting dispersed, at about half-past four o'clock. We should observe that this is only the second year of the school's

existence, but, from what occurred, it appears likely to meet with every encouragement. We cursorily inspected some of the prize patterns, and were really surprised at their beauty and excellence.

HISTORY OF LABOUR IN THE BUILDING CRAFTS.

TO THE EDITOR OF THE BUILDER.

SIR,—Convinced by the tone of your journal that you pursue an effective advocacy of the interests of the great body of artisans and labourers connected with building, I am induced to offer the subjoined historical facts and illustrations, relative to their condition in past times, for insertion; if favoured with your attention, I may continue the subject down to our own day, endeavouring as I proceed to bring under notice causes which have a tendency to affect permanence of employment and rates of wages.

I am, Sir, your obedient servant.

"When it becomes a question to ascertain the resources of an empire, the superficial politician visits the palaces of its monarch, its ports, harbours, and arsenals, and calculates the numerical amount of its armies; but the sound politician deduces other conclusions by investigating the true sources of greatness, which are found in the condition of the mechanical and labouring population. The first enumerates the mere extrinsic appendages of a government; the latter estimates the latent strength and energy of a nation."—ROUSSEAU.

If I have rightly rendered the language of the French philosopher, he attached much importance to the well-being of those classes which necessarily constitute the bulk of the people. I am of his opinion; and, with this view, can hardly conceive a subject more acceptable or useful to mechanics and labourers than a succinct history of the condition and progress of their own body, from the earliest period of authentic record to that at which I write. Information of this kind has, it is true, always existed, but in a diffused state; contained in the manuscript rolls of times preceding the art of printing, or in works of a voluminous and costly character, not generally accessible.

Facility for the acquirement of facts and incidents of this description is more desirable than may appear at a first glance, it is one of the great sources of enlightenment, for it enables us to institute comparisons borne out by experience, and to reason calmly, but conclusively upon the chequered policy of governments; it involves also a notice of the ancient guilds, or trade fraternities; of successive societies formed for the protection of trade interests; of the causes that have concurred to neutralize their effects, and as a general result, will excite attention towards the best means of remedying the uncertainty both as to quantity of employment and amount of wages, which now affects the most extensive and useful trades.

While with respect to building, the arts, whether of construction or embellishment, can hardly be said to have progressed, inasmuch as we have no structures of modern date approaching, in extent or styles of ornament, to those of past ages, the condition and modes of living of workmen prosecuting these arts have undergone great transitions. Yet, and notwithstanding the multiplied enjoyments which an increased knowledge has introduced, mankind, so far as indispensable requisites are concerned, is still the same; whether engaged in the mechanical arts or the pursuits of science, we all feel certain definite physical wants; these may be comprised in the short summary of *food, raiment, and habitation*, and it will be my province to shew how far these have been procurable by the wages of labour in the several stages through which society has passed.

I must here assume it to be sufficiently understood that all wealth and the concomitants of prosperity proceed from labour, and that the revenues of the non-producing classes are available only in giving them the command of that labour; wealth in itself is therefore no further an advantage than in confining this power, and which various casualties place more or less within their disposal.* What edifice could be raised without its "hewers of stone" and "drawers of water?" Architectural design and decoration are preliminaries which admit of many modifications by a single hand; but no sooner is a plan decided on, than we must have recourse to diggers of foundations and quarryers of stone. In these operations, the reputation of the architect may be more enviable, but the labour of the mason is more practically useful; the "jutting frieze" and "Corinthian column" generally owe their solidity to the brickwork behind them.†

* When I say of this maxim that "it is sufficiently understood," my meaning must be taken as conveying a dictum as conclusive as any that can in general be applied to an abstract principle. It is the various modes in which capital is brought to bear, more particularly in operations upon a large scale, that render intricacies of distinction, which I shall endeavour to induce intelligible as I proceed.

† Eden, on the State of the Poor.

In the inquiry I propose, little would be gained by referring to the Saxon and Norman times of *villainage*, when man, by a fiction of power, was deemed and treated as the property of the territorial lord. I have to consider him when, after centuries of suffering, he had been emancipated from the soil; when, having wrenched the iron collar of bondage from his neck, he stood erect a FREEMAN! demanding and receiving the wages of his labour; still, in the times to which I must necessarily carry back my retrospect, the building arts had but the limited operation coinciding with the divisions of society. The Church demanded and received the first-fruits of architectural skill, which indeed she had always cultivated within the frail and undecorated walls of the first seats of piety and learning in Britain; the nomenclature of this period recognized but two other classes; namely, lord and vassal. These terms were most comprehensive, for they comprised in the first place the monarch and his vassal nobles; and in the second, the lord or baron, and his dependant serfs. By the class of lords, castellated architecture alone was cultivated; the turreted and machiolated structure, with its donjon-keep, serving at once purposes of defiance and tyranny, and to perpetuate these distinguishing features of the feudal ages. The tenants of the church alone had some few privileges; the socage or free tenures, in consideration of fixed chief rents and services, encouraged on their lands, held out, by the improvement thereby originated in agriculture, examples to the great feudatories, and thus slowly grew up a middle order; the sons and descendants of these soc-men, who from time to time transferred themselves to villages and towns, and followed trading or handicraft occupations, retaining the denomination of freemen, with exemption from personal thraldom.

But to whatever portion of history we turn, we catch glimpses of the exercise of trades conducive to the immediate wants of mankind, and those connected with building were among the first and most important, a proficiency having been attained, which is evident in the stupendous efforts of human skill and labour perfected at extremely remote periods. Be it remembered, also, that with building, or more properly, in the present stage of our inquiry, *Masonry*, originated the many auxiliary trades and professions which have grown into practice with it. Waving abstruse research, and confining myself to examples existing in this and adjacent countries, I may point to the middle ages as redundant in the production of splendid ecclesiastical buildings, the work of a fraternity always bearing the designation of *Freemasons*, and under which workmen of this class continued to be distinguished in the records of wages. I shall have occasion to quote, on the term *Freemason*, as applied to the builders of old, in contradistinction to the modern appellative borne by a most numerous, respectable, and benevolent order. It may be necessary to state that it had immemorial existence in the most ancient kingdoms and states of the world. *Freemasons* probably first came hither with the Roman legions, and never afterwards quitted the British soil, native artisans joining them and gradually arriving at the skill of their foreign instructors.

The association of *Freemasons* admitted members of every country, but its government was peculiar and administered by its own officers; it was the concentration of talent and unity of action of this body that enabled them to achieve the *GOTHIC STYLE* in all its varieties, and to embody those sublime conceptions of religious architecture which all experience has proved to be most congruous to the devotional aspirations of man. When a building was to be erected, these artists and artisans, for they united both qualifications, formed an encampment of huts around the site, where they continued until it was reared; allowing none but recognized members to engage in the work. It is certain that the ancient *FREEMASONS* present the first example of a *FRATERNITY OR GUILD* for the special purpose of planning and executing large works; and detachments or parties of this body ranged throughout Europe, wherever their services were required, and sufficient inducements could be held out to them.

(To be continued.)

VINDEX.

EAST COAST LINE OF RAILWAY TO SCOTLAND.—Sir Robert Peel last week gave audience to Mr. Hudson, chairman of the York and North Midland and Newcastle and Darlington Railway Companies; Mr. H. Hind, M.P. for Newcastle; Mr. Lowther, M.P. for York; Mr. Hodgson, M.P. for Berwick, and Mr. Robert Stephenson, civil engineer; when Mr. Hudson explained his plan for continuing the line of railway, now nearly completed, from London to Newcastle, forward to Berwick, and thence to Edinburgh, and solicited the aid of government. The deputation was very courteously received.

ST. PETER'S, ROME.



THE most magnificent structure that now exists in perfect splendour is the church at Rome, dedicated to St. Peter. It is indeed a temple in which man can pour forth his suppliant prayers to the great Redeemer of his people, with a recollection that all that genius could invent and art could execute, have been eagerly sought to raise it above buildings devoted to the ordinary purposes of life. It is adorned with the most exquisite taste; it is rich with every ornament that lavish wealth could obtain. A model of this splendid building is at the present moment exhibiting in Pall-mall, immediately opposite the Opera House, and a more faithful representation could not by possibility be seen. Not only is the external appearance of the noble colonnade of Bernini, the portico, the dome, admirably shewn to the spectator, but by a most ingenious contrivance the aisles are opened, and all those wonders of the world, the paintings, the mosaics, the sculptures, the sepulchral monuments, the chapels, the gorgeous ornaments in gold, in marble, in lapis lazuli, in stucco and bronze, are distinctly rendered visible to the eye. This marvellous work is the production of the celebrated Gambassini, a name highly estimated throughout the whole of Italy for his extraordinary talents as a modeller. During fifteen years he bestowed incessant labour and attention to this great object, and the result is one of the finest pieces of art of its kind now in existence. The model is reduced to a hundredth part of the original size of the structure; it is executed in ivory and in wood; it may fairly be ranked amongst the great works of Italy, which maintain for it so high a rank in art.

The first inspection exhibits the grand se-

micircular colonnade of Bernini, which encloses the piazza or area of the church, within which is the Egyptian obelisk, and two magnificent fountains. The colonnade is composed of four orders of pillars, each fifty feet in height, surmounted by a balustrade, on which are placed 200 statues, each ten feet high. Two lateral entrances conduct to the church, and have likewise statues on their summit. Two statues of St. Peter and St. Paul, executed by Mino da Fiesole, adorn the white marble staircase. The portico in front, the balustrade, with the twelve apostles twenty feet high, the five doors, and the grand balcony from which the Pope pronounces his benediction,—all the rich architectural ornaments,—are given with a minute fidelity, which those who have frequently seen the grand original must fully appreciate.

The interior of the church is displayed with equal accuracy, and is of course an object of deeper interest; for even those who have not visited the great city are familiar with the outer aspect of the venerable Basilica; but to be enabled to form some opinion of the vastness of the interior, and the rich assemblage contained within the walls, the model of which we speak must be seen; and a better means of gratifying ardent curiosity could not have been devised. So admirable are all the proportions of this building, and so wonderfully adapted are the ornaments, that the first view of St. Peter's seldom excites astonishment; it is only when the details are entered upon that this feeling bursts upon the mind. Thirteen chapels are contained within, each boasting works of art of the greatest men that have lived in the tide of time. In the first chapel stands the work of Michael Angelo, the Statue of

Piety; and there is situated the tomb of Christina of Sweden. In the second chapel is one of the great masterpieces of the world, St. Sebastian, by Domenichino. In the third chapel is St. Jerome, by Domenichino; the Deposition, by Caravaggio. In the fourth is a mosaic, by Pietro Subleyras, of exquisite workmanship. The fifth contains the Erasmus of Pousin. The sixth the St. Petronilla of Guercino. The seventh is St. Peter's chair, supported by four statues, each twenty-two feet in height, in bronze, executed by Bernini. Eighth, the picture of St. Peter curing the Lame, by Mancini. The ninth, St. Peter, by Guido; St. Francis, by Domenichino. The tenth is the Clementine Chapel. The eleventh has the beautiful picture of the Conception, by Bianchi. The twelfth has the tomb of the last of the Stuart family, by Canova; and in the thirteenth is the Baptism of St. John, by Carlo Maratti. We have enumerated a few only of the glories of each chapel; for were we to pursue the subject as far as it would admit, we should require a large catalogue of description. Besides these, we have every opportunity afforded us of forming an idea of the grand cupola, adorned with lapis lazuli, and mosaics exquisitely executed by great masters of art. The great altar, the confession, the vaults, the statue of St. Peter, all are worthy of minute inspection; and we feel a pleasure in expressing our conviction, that there does not exist a more perfect work of art than the model of the Basilica of St. Peter's, so admirably executed by Gambassini. We have little doubt that as it has been the favourite theme of admiration of Italy and of France, it will be regarded with the same feeling in England.



INTERIOR OF THE CHURCH OF ST. PETER'S AT ROME.

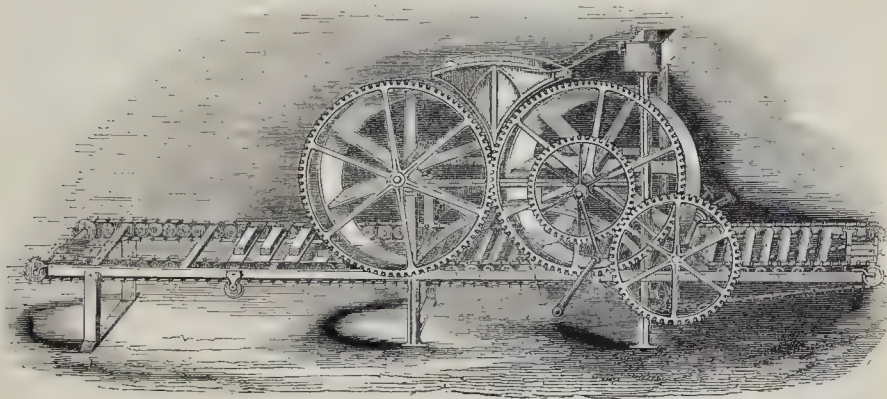
BRICK AND TILE MACHINES.

Our columns of this day record the account of a strange outbreak and conflict in Manchester among the brickmakers, the particulars of which, and as to the cause originating it, we have little or no information upon. We dare say the matter grows out of some real ground of complaint, but it will be laid hold of by many, as an argument against the labourers, and turned to a use the very opposite of that which, in our judgment, the case calls for. Many will look upon the ingenious inventions which we now give a description and illustration of, as a fitting visitation; they will argue from the labourers' outbreak to the brickmaking machine, as from cause to effect, and assign for the stimulus of invention the imposed necessity arising out of this rebellious conduct of the brickmakers. We, who are lookers on upon threatened loosening and rendings of the ties that bind society together, see far different causes of progress and change, and we are not indisposed to hail these apparently threatening agents, in certain cases, as the best auxiliaries and friends of labour. Brute labour, and the brute intellect which too frequently accompanies it, is not to be coveted as an element in the social constitution of this extraordinary country.

Frequently have our hearts bled to see the

degrading labour to which the brick-field has subjected our species, and most revolting of all, to see women put to the drudgery of horses and engines; little children too, who in a country like this should be at school, disguised past recognition in the mixed sweat and plasterings of clay and mud which encumbered their attenuated frames, and we wished in our hearts frequently that machinery could have its unimpeded course, rather than such violations of propriety should offend the eye and the understanding. The brick-yard should be what we have pleaded for on a former occasion, an artistic manufactory; and those who have seen the specimens that have greeted our eyes of late, of beautiful products from the kiln and the pottery, and who will glance over the designs of ancient brick and tile-work, will readily understand us that it can be such. All that toilsome heavy drudgery of excavating and preparing the clay, the moulding and pressing of the bricks, may and ought to be done by the same process as we propel or draw our carts, with yoked beasts, or by the untiring agency of steam, and we are glad to have the opportunity of calling attention to these inventions of the Marquis of Tweeddale, as admirably adapted for accomplishing purposes so congenial to humanity.

The machines act with great simplicity, yet with the utmost accuracy. The one used for tile-making consists mainly of two iron cylinders, over which webs or bands of moleskin or other suitable cloth are made to pass. By this arrangement the clay is pressed into a web of uniform thickness, without adhering to the cylinders. It is then carried over a covered wheel, slightly curved on the rim, and begins to assume the bent shape of a draining-tile; a tendency which is increased by several unexpensive but effectual contrivances: and the tiles are polished and finished by passing through three graduated iron moulds of horse-shoe form; being at the same time moistened from a cistern on the top of the machine, as shown below. The tiles are then cut off, with mathematical accuracy, to such length as may be required (fifteen inches being generally recommended as the most profitable and convenient), and they are carried on to any requisite distance by an endless web; and from thence are placed by two lads into the drying-shelves. Flat tiles, or soles, are formed in precisely the same manner; except that they are partially divided into two portions while passing through the moulds, the quantity of clay required for one draining-tile being the same as for two soles.

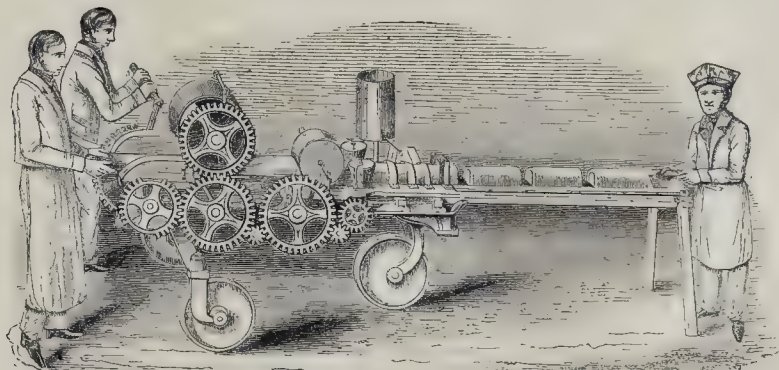


At first, these machines were constructed on a larger scale, and, where the demand is great, that method is preferred; but by recent improvements, the apparatus is brought down to the power of a common labourer, not necessarily acquainted with the process of tile-making, and it is thus made available in the drainage of private estates, where even only a moderate supply is required. The draining-tiles are made at the rate of about fifteen per minute, and are completely formed and finished

by the operation, this machine being the only one capable of effecting that object. It is stated the articles are much better in quality and cheaper than those made in any other way.

The great body of our readers are, however, more interested in the brick machinery; and we would earnestly recommend them to satisfy themselves of the value of Lord Tweeddale's discovery, especially, now that the machine is reduced to the simplicity of being worked by

hand, and by ordinary labourers and boys. All previous attempts to manufacture bricks by machinery have failed, because it has always been thought necessary to use moulds for the formation of the article. The Tweeddale machinery is quite independent of this process, as the bricks take their shape in descending between the cylinders, being cut off quite clean by a very ingenious arrangement, and received on *palette-boards* which are removed for drying in the usual way.



Both the brick and tile machines are free from the usual objection of being intricate. They are, on the contrary, exceedingly easy in operation, portable, and not liable to derangement. The machines will produce any

number of goods, the quantity being governed only by the facilities for removal when made; and we really consider the discovery of this excellent principle to be of the utmost importance to the building world.

A company has been formed, with numerous establishments of their own; but they also grant licenses to the trade and to private individuals.

MASTER CARPENTERS' SOCIETY.—NEW BUILDING ACT.

A VERY numerous meeting of the above society was held at the Freemasons' Tavern on Wednesday last, to receive the report of the committee upon the new Buildings Act. The chairman, Mr. H. Biers, having read the report of the committee, the same was unanimously received and adopted.

The thanks of the society were then voted to the committee, with a request that they would continue their valuable services and endeavour to urge upon Government, or by petitions to Parliament, as they may deem necessary, the importance of the several alterations in the new act, as set out in the appendix to the report, together with some other alterations, as suggested by the meeting.

PUBLIC IMPROVEMENTS.

WE beg to draw the attention of our readers to the following report on the subject of the smoke nuisance, addressed by Mr. A. Booth to the new commission appointed by her Majesty for inquiring into the health of towns and the causes of their deterioration. We understand that the subject will be continued in a series of similar reports by the author. It is addressed to Henry Hobhouse, Esq., the Secretary of the Commission, through Sir James Graham, the Secretary of State for the Home Department.

Willow Cottage, Putney-common,
Surrey, May 16, 1843.

SIR,—Presuming that the new commission appointed by her Majesty, for inquiring into the health of towns, of which you are the secretary, will undertake the investigation of all the evils with which crowded towns and vicinities are affected, with the means offered for their prevention, I am induced to draw the attention of the members of her Majesty's commission to some of the evil effects of smoke, and the means which are in existence for its suppression, confident that from the importance of the subject, the same will be one of the earliest matters which will come before their consideration.

Having paid much attention to the various departments of chemical investigation connected with public health and personal comfort, I have arrived at the conclusion that there are few which claim more attention than the subject of smoke, and that whilst means exist for its prevention, on no subject is legislative interference more required, on account of the unprotected state in which the sufferers from the nuisance are left from the present imperfect state of the laws. Such smoke arises chiefly from the chimneys of the furnaces, manufactories, and other establishments with which every thickly-populated district abounds, and from those in the suburbs, which have extended with the increase of population. The effect of this smoke, in a medical point of view, there can be no doubt, is very injurious, as by the sooty particles depositing upon the skin, they interfere with its natural functional action, whilst their inhalation into the lungs is of the worst effects in producing pulmonary consumption, and further in the aggravation of such and other constitutional disorders. In another point of view, its effect upon the general health of the community is very conspicuous, as by soiling their furniture and clothes, and injuring their property, it renders the poorer classes, who are most exposed to its evil influence, less attentive to their cleanliness and personal appearance, and as a consequence, to the means for the preservation of their health.

Although no manufactory of a general or exclusive character is carried on in the metropolis, there are several which, from the quantity of smoke that is emitted from the chimneys of their furnaces, inflict considerable mischief in the different districts in which they are situated. As the principal of such manufactories and establishments, may be enumerated, gas-works, breweries and distilleries, soap-boilers and tallow-chandlers, sugar-refineries, engineering establishments and foundries, besides saw-mills, paper-manufactories, dye and colour works, chemical manufactories, coke-

furnaces, limekilns, silk and flour mills, and for a variety of other processes. These establishments are distributed all over the metropolis, whilst the smoke which they emit greatly affects the different districts in which they are situated. In some of the more densely-populated and ill-ventilated districts, the effects are probably less apparent to the senses, though they add materially to the evils under which the inhabitants labour, and equally affect the sanitary condition of the inhabitants. Confined and close districts, in addition to other evils, thus become the repository of dirt distributed throughout the atmosphere, where, however, its effects may not be so sensibly traced as in districts where proper ventilation and the cleanliness of the inhabitants are better attended to. Such are the sites in which the five leading descriptions of establishments are principally situate; but the extension and enlargement of the metropolis have recently filled with houses and inhabitants many of those districts which were formerly, and indeed, even until lately, considered suburban. In many of these, manufactories have been established in places which a few years ago were almost a waste, but are now thickly populated. As an instance, may be cited the comparatively limited district near the river Thames, adjacent to the Belvedere-road, in Lambeth (better perhaps known as Pedlar's-acre, and Narrow-wall), extending to the York-road, and parts in its proximity, where many houses of a superior description, tenanted by persons of a superior rank of life, have been erected. The effects of these are very palpable to passengers, and obnoxious to the surrounding inhabitants. Amongst other chimneys which vomit forth their volumes of dense and black smoke, to the contamination of the atmosphere, deterioration of property, and injury to health, are those from two breweries, two shot-manufactories, six saw-mills, one black lead manufactory, one engineering establishment, two connected with the Lambeth water-works, two flour-mills, one emery, and one India rubber manufactory, two glass-manufactories, two coke-ovens, one limekiln, one lead-factory, &c.: whilst from the circumstance previously alluded to, the district of St. George's in the East is not apparently so seriously affected by the smoke given off by the chimneys attached to the different sugar-refineries. The extension of chimneys attached to the various saw-mills and sugar-refineries adjacent to the Regent's Canal, in the City-road, has seriously depreciated property and injured vegetation in Islington and its vicinity. The banks of the river Thames, from Blackwall to Battersea, and even as far as Richmond, have the last few years been equally affected, as can be testified by the market-gardeners and other growers of produce. The evils of smoke are very apparent in other localities, and the luxuries of royalty are not exempt from the noxious effluvia given off from the chimney of a brewery in the immediate vicinity of Buckingham Palace. Within the most circumscribed part of the city, no less than seven chimneys, attached to steam-engines belonging to printing establishments, emit the combustible parts of their fuel into New-street-square and the neighbouring districts of Fleet-street and Holborn. The Grove and neighbourhood of Great Guildford-street, in South-west, have long been the seat of foundries and other establishments, emitting large quantities of smoke from their furnaces, which though not so seriously felt upon the spot, is yet, by particular directions of the wind, driven off to the vicinity of respectable houses. How much, however, the quantity of smoke may be lessened or wholly suppressed, the atmosphere rendered more pure, the cleanliness of the district and the health of its inhabitants assured, is seen in the chimney under which a patent furnace recently invented by Mr. John Juckes is in operation, at the engineering establishment of Messrs. Easton and Amos, at the Grove, which, without the slightest semblance of smoke, affords a singular contrast with the chimneys of other furnaces in the neighbourhood. The neighbourhood of Smithfield, in proximity of St. John-street, affords another such a decided contrast in the chimney attached to one of the furnaces in the stearine-candle manufactory of Messrs. Palmer, in Great Sutton-street, from which not the slightest particle of smoke is emitted, whilst a chimney attached to a brewery within sight (along with many others) expel soot of the most dense and obnoxious kind.

Smithfield itself is annoyed particularly by the furnaces attached to two distilleries, which, at an early hour in the morning, vomit forth immense volumes of smoke, to the great annoyance of the salesmen and others frequenting it for purposes of business. So anxious are these for its suppression, that a memorial to the Metropolitan Improvement Society was recently got up for its suppression, which would have been extensively signed but for the circumstance that the offending parties are without the pale of the present law, as, had they been within its cognizance, the persons aggrieved had expressed their intention to defray the costs of prosecution.

In my observations upon smoke and its effects, as contrasted between a common furnace or fireplace on the ordinary plans of combustion, and the vapour found in the chimney attached to a furnace of Mr. Juckes's construction (the most perfect of any which I have seen in operation), I am led to the conclusion that it is a very heterogeneous compound. In the state as emitted from the imperfect combustion of coal in the fire-grate, or common furnace, it consists of bituminous and resinous matters, carbon in an uncombined state, carburetted hydrogen, carbonic acid, carbonic oxide, nitrogen and oxygen gases, ammonia, sulphurous acid, sulphuretted hydrogen, water, and probably cyanogen gas, most of which are the results of imperfect combustion. The chief source of the deterioration of the atmosphere, as regards health, from the diffusion of smoke, is probably in the mechanical impurities; as the bituminous and resinous and carbonaceous particles of the coal, which escape combustion from the unequal application of heat. It is these which deface our buildings, soil the skin and clothes, and impede the circulation both in animal and vegetable bodies, by depositing on the skin or cuticle, and impeding its natural action. The action of these mechanical impurities is much greater than is generally considered, by their closing the channels of cutaneous respiration, and their effects upon the large surface of the lungs exposed to their influence. On this point, however, the testimony of medical experience and evidence will be more convincing to the honourable commissioners than my own, although I cannot let it pass without a casual observation. The effects of the sooty particles upon animals and vegetables are in many respects analogous, although the latter suffer most, because animals have the power of cleansing themselves to some extent by their powers of locomotion. The best observers inform me that evergreens suffer most, from the adhesion of the soot to the resinous exudation from their leaves; but nothing perhaps better exhibits the probable effects of this deposit on the animal economy than the instance of daily observation on the wool of sheep as seen in the great contrast of those at Smithfield Market, in the clear wool of those from the uncontaminated atmosphere of the country, as compared with those from the pastures in the neighbourhood of the metropolis, and equally so with those grazing in Hyde Park or Kensington Gardens. The chemical impurities of the atmosphere, although less understood, are probably of equal interest. There can be no doubt but that their diffusion, even in very minute proportions, is productive of injury to the animal economy, from the circumstance of their action upon the delicate fabrics of inorganic substances, as shewn in the deterioration of our finest specimens of sculpture and art. Amongst these chemical impurities it is only necessary to allude to the effects of sulphurous acid, ammonia, and sulphuretted hydrogen; and it is certain that the effects assigned to coal smoke, in the purification of the atmosphere, are more than counteracted by these compounds, and others perhaps of more recondite origin. Ammonia, particularly, is a product of some importance, as one of the results of imperfect combustion in rooms or in a limited atmosphere, as, were the hydrogen burnt, the nitrogen which enters into combination with it would escape up the chimney uncombined. It is a great source of the destruction of the fine fabrics and elaborate colours, of which some of our finest works of art are constituted. Sulphurous acid gas exists largely in the atmosphere, as may be seen by its action upon test-papers. It also exercises a very powerful action upon works of art, by which the choicest productions of the limner are soon defaced and destroyed. It also acts powerfully

upon calcareous and silicious matters, and is one cause of the speedy decay of statuary and works of art. I am inclined to add sulphuretted hydrogen gas to this list of noxious substances, emanating from smoke, which produce effects upon the animal economy, analogous to those upon vegetable matters, which are objects of every-day observation.

Having thus alluded to the most palpable effects of smoke upon the animal economy, the next object of consideration is, as to how its formation may be prevented. I enter not here into the disputed point, as to whether coal smoke can be burnt after it has been actually formed, but only to the consideration of the means by which its distribution in the atmosphere may be prevented. That the amount of smoke may be much diminished in a common furnace, and a greater economy of fuel as a natural consequence be effected, there is no doubt. This may be accomplished by regulating the amount of fuel with greater care than is generally taken, and supplying it at more frequent intervals. It may be observed that the quantity of smoke emitted from furnace chimneys varies much with the state of the fire, being greatest when a mass of fresh fuel is thrown on, and least when the fire has burned clear, or the fuel is fully ignited. Attention to this circumstance on the part of the stoker will greatly diminish the nuisance, because if he throw on the fresh fuel in a thin layer, it will be the sooner perfectly ignited; and by laying it in the fore-part of the furnace, the dense smoke arising from it has to pass over that part of the fire which is in a state of more perfect combustion, and is thereby in a great measure consumed. This is the principle of many of the contrivances introduced or suggested as smoke-consuming furnaces, particularly those which have been designed on the additional plan for the right feeding of the fire, without much attention on the part of the stoker.

The means for obviating the smoke nuisance has attracted much attention from private individuals and public bodies, the former giving impulse to much scientific ingenuity, and the latter to active remonstrance and able suggestions. Little, however, has as yet been done in remedying the evil, which may be attributed to two causes,—the imperfection of all the plans in existence for remedying the evils to the advantage of the consumer, and the deficiency of legislation upon the subject. The progress of scientific ingenuity and mechanical improvement has, however, at last devised means for its accomplishment; and nothing now remains but for the Legislature to enforce enactments which will at once be beneficial to the consumer and advantageous in the preservation of public health. These circumstances I embodied in the following petition, which is now in course of active signature throughout the metropolis:—

"To the Honourable the Commons of Great Britain, in Parliament assembled.

"The Petition of the undersigned inhabitants of the Metropolis and its vicinity humbly sheweth,

"That your Petitioners are assured, from their own experience as well as observation, that much injury results to the health as well as to the property of the inhabitants of the metropolis, by the extensive diffusion of smoke in the atmosphere from the furnaces of the various manufactories in all its numerous populated districts. That the effects of this smoke are, in a medical point of view, very injurious, as, by the sooty particles depositing upon the skin, they interfere with its natural functional action, whilst their inhalation into the lungs is of the worst effect in producing pulmonary complaints, and further, in the aggravation of such and other constitutional disorders; that it is noxious to them, by soiling their clothes and injuring the furniture of their houses; that through its effects, the goods of many tradesmen, particularly those dealing in the lighter and more delicate fabrics of manufacture, are greatly depreciated in value and quality; and that its evil effects upon vegetation are most apparent by the recession of some of its most important products from those suburban districts in which they formerly grew and flourished.

"That your Petitioners are convinced that the extensive diffusion of smoke in the atmosphere, particularly in districts inhabited by the poorer classes of the community, is a

great bar to the improvement of their moral and social condition.

"That your Petitioners beg humbly to draw the attention of your Honourable House to the circumstance, that there exist plans by which this nuisance may be wholly prevented in manufactories and all other large establishments where furnaces are employed, and that to the great saving of the manufacturer. That in certain districts where these are employed, the effects are at once seen in contrast with the immense volumes of smoke given off by furnaces where no such means have been adopted; from which your Petitioners are convinced, that if some such plan were brought into general adoption, even as regards the smoke from manufactories alone, the atmosphere of London and its environs would be much clearer and more salutary than it is at present.

"That your Petitioners also humbly beg to draw the attention of your Honourable House to the present inefficient state of legislation on the subject as far as the metropolis is concerned. Your Petitioners would represent to your Honourable House, that whilst the local acts of Derby and other towns give a power of summary process where the evil is complained of and substantiated, the chances of obtaining redress are very difficult and remote in the metropolis, the only means of such redress being by action at common law, or by the act of George IV., cap. 41, commonly known as Michael Angelo Taylor's Act, which, however, only applies to nuisances from smoke in cases where steam-engines are employed, whilst, by the former, an indictment cannot be sustained after the nuisance has been in existence for a period of twenty years. Your Petitioners are therefore precluded from that prompt mode of relief, which, if provided and enforced, would, they are convinced, be of great benefit to the health and comforts of themselves and the inhabitants of the metropolis generally.

"Your Petitioners would further state to your Honourable House, their impression, that the present means of remedy have been inoperative, and no further or more stringent legislative measures have been enacted, from the circumstance that scientific ingenuity had not devised any plan by which the evils might be prevented. Your Petitioners, however, beg to assure your Honourable House that such means do now exist; and they approach your Honourable House with confidence, that whilst any legislative measures for the easy remedying the evil would be attended with great advantages to the interests of the manufacturer, in his saving of what is now a positive loss, to the deterioration to a great extent of the atmosphere.

"Your Petitioners further express their hope, that whilst the attention of Parliament is devoted to many plans for the improvement of the metropolis, this subject may attract its due attention, from the manifold evils which smoke inflicts, in impairing health, destroying or injuring vegetation, defacing public monuments and works of art, rendering property less valuable, and depreciating the qualities of furniture, soiling clothes and apparel, and rendering the poor less attentive to their personal appearance, and, as a consequence, to their social condition.

"Your Petitioners therefore humbly and earnestly appeal to your Honourable House to devise such means as in your wisdom you may think fit for remedying the evils of which they complain.

"And your Petitioners, as in duty bound, will ever pray."

That public attention is anxiously drawn to the subject, that they are prepared to adopt any practical suggestions or improvements, and to give support to any legislative measures that might be adopted, is evident from the number of inventions which within the last few years have been introduced, with the object of economizing fuel and preventing the formation of smoke. Unfortunately, this feeling has been but too little encouraged by corporate or public bodies. The corporation of London recently issued a report upon the subject, pointing out the best smoke-consuming plans then in operation, with recommendations for their adoption, on the grounds of economy to the consumer and as regarded the public health. Here, however, they suffered the matter to drop, without in any instance en-

forcing the statutes as by law provided. The Metropolitan Improvement Society (on whose committee rank some of the most intelligent and practical scientific men in the metropolis) have recently issued notices threatening to enforce the present laws in cases where their provisions are evaded, but they have not yet attempted to obtain a conviction, nor is it probable that any attempt will be successful at the suppression of the nuisance until fresh legislative measures are provided for the encouragement of scientific ingenuity, alike with the benefit of the public. Their exertions have been laudable in making this the first subject of their inquiry, and in their investigation of the most feasible plans for their abatement; and their having been satisfied that means for the total suppression of smoke do now exist, has led to the proposition for the active measures which it is now their intention to adopt.

Although many plans have been introduced and proved partially successful, for the suppression of the smoke nuisance, and that on the principles which I have previously alluded to, none have hitherto proved perfectly successful or such as to lead to their very extensive adoption. I have now, however, great pleasure in recommending to the notice of the commission a furnace recently invented by Mr. John Jukes, a description of which I enclose. In this, the perfect chemical combustion of the coal is effected by the mechanical arrangement of the furnace. That the former is the case, is shewn in the entire absence of smoke from the chimneys of the furnaces under which it is employed, as it is entirely divested of the carbonaceous and bituminous particles, the diffusion of which in the atmosphere is the source of so much injury to health and vegetation. The details of this will, I have no doubt, attract the attention of the members of the commission, as connected with one of the most important objects of inquiry to which their attention can be directed.

I have previously alluded to the probable chemical composition of smoke, and the examination of the volatile products given off from the chimneys of the furnaces in which it is in operation, which leads me to some important conclusions as regards the difference between the smoke of common furnaces and the vapour given off in combustion from those just alluded to. Nothing is there proved to exist but carbonic acid, the natural and necessary product of the most complete combustion; nitrogen gas, essential from its separation from the air, the oxygen being required for the support of combustion; and sulphurous acid gas, the quantity of which depends upon the quality or nature of the coal employed. This I find to be greatly lessened in one of these furnaces, from the sulphur of the coal coming into more intimate combination with the iron and other metallic particles, more running down in a fluid state than is given off in a vaporized condition. Ammonia and the other ingredients which are chemical constituents of ordinary smoke are not to be found, though, perhaps, the most important distinction is in the total absence of the mechanical impurities, viz. the carbonaceous and bituminous particles constituting the *smuts* or *dirt* which so largely deposit upon furniture and clothing, impede the circulation and secretions, by fixing upon the skin; injure the system by their inhalation into the lungs; and in many other respects are annoying and injurious to the animal economy and the social and personal comforts of the community.

Without prejudging any of the other plans for effecting the desirable object of the prevention or formation of smoke, I can satisfactorily recommend to the notice of the commissioners the invention of Mr. Jukes, as one that effects in the most perfect manner the entire suppression of smoke from furnaces, with a most important equivalent result,—that of great economy to the manufacturer or consumer. In this invention, as far as smoke is concerned in the deterioration of public health, I am sure her Majesty's commissioners will find a valuable adjunct, and I cordially recommend it to their notice as one of the most important subjects connected with the wide range of investigation and inquiry which it is their design to undertake.

In the extensive range of chemical inquiry connected with public health, I would also suggest to the notice of her Majesty's commissioners the desirability of their concen-

trating their inquiry under the respective heads of—the effects of the decomposition of animal matters in grave-yards on the atmosphere; the water nuisance; the causes and prevention of fires; culinary mistakes and domestic errors; the adulterations practised in articles of food and medicine, and sophistications in domestic economy; sewerage, drainage, ventilation, cleanliness, contagion, miasma and disease; obnoxious manufacturing processes; markets and slaughter-houses; accidental poisons; roads and road-making; and London accidents.

Should these observations meet the approbation of her Majesty's honourable commissioners, I shall feel happy in furnishing them with a more complete report upon this, or any of the other subjects to which I have alluded, as far as the results of my chemical investigation and personal inquiry have extended.

I have the honour to remain, Sir,
Your obedient and very humble servant,
ABRAHAM BOOTH,

Chemical Engineer; late Lecturer on Chemistry to the Royal Adelaide Gallery.
To Henry Hobhouse, Esq.
&c. &c. &c.

NEWCASTLE AND DARLINGTON RAILWAY.—This work, under the untiring energy of Mr. Hudson, the chairman, is being pressed forward with expedition unparalleled in railway history. Within four weeks after the passing of the act, the contracts for every yard of the line have been let. Aycliffe contract, nearly six miles, was taken on Thursday week, by Mr. James Bray, for 35,000*l.*; and the Nunston and Shincliffe contract, the same day, by Mr. Wm. Hutchinson, for 41,700*l.* Both contractors are experienced engineers.

CHIMNEY TURRET.

TO THE EDITOR OF THE BUILDER.

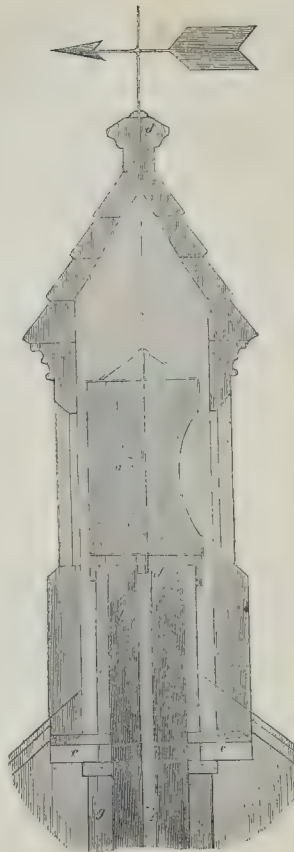
SIR,—Enclosed I send you a design for a chimney-turret, applicable to small picturesque cottages, lodges, &c.

There is a method, I believe, for the prevention of smoky chimneys, by forming a small chamber under the base of the turret, for the reception of smoke from the various flues, acting by means of valves, over which is placed an iron fly; can any of your correspondents give any information concerning it?

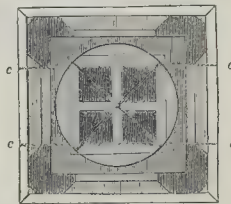
The plan I have sent might also be applied for the ventilation of various buildings, churches, halls, &c., and where a turret is not desired, a small iron frame-work, pierced, for the escape of the confined air, might be substituted. Yours sincerely,

AN ARCHITECTURAL STUDENT.

Exeter, May, 18, 1843.



SECTION.



PLAN.

a, Zinc cylinder, for reception of smoke (secured to the standard of vane, which revolves in brass sockets at d, d), which turns its back on the wind, and permits the free escape of smoke.

b, Brick flues.

c, c, Pieces of wrought iron, $3 \times \frac{1}{2}$ inches, with pieces of Yorkshire slab laid on them, to carry stone turret one way; other two sides of same carried by chimney-breast.

MARTIN'S CEMENT.

In a former number, we stated it to be our intention to pass in review those productions and processes in manufacture which the builder will be found to be more particularly interested in, and with which, consequently, it is desirable that he should be made more intimately acquainted. But while readily taking upon ourselves this pleasing task, we would wish it to be clearly understood that we shall in no way lend ourselves to the too common practice of becoming mere chroniclers, as it were, of the superior excellence of certain productions, without having tested, and that by personal experience, the claims each and every one may put forth to public patronage. In the selection we have made this week for the subject of this article,

we find little more will be left us than to record (what before has been very generally admitted by the profession and practical builders), that this is one of the most valuable cements, that has ever been offered to the trade. Our own experience goes to prove that it is both hard and durable, capable of being cleaned by simple water and immediately presenting a dry surface, thereby shewing no absorption or retention of noxious vapour, and when painted, never peels, but presents a surface equal in smoothness almost to marble. In proof of the former statement, we would observe, that the interior of the Chapel Royal, Buckingham Palace, was stuccoed with Martin's cement, and in a few days after it had been applied, the edifice was fit for the reception of her Majesty. Its recent adoption in stuccoing the interior of the new Sun Fire Office, by that eminent architect, C. R. Cockerell, Esq., as well as the use of it by Government in many public works, and by Mr. T. Cubitt and other eminent builders, all go to prove its superior excellence. Among other purposes to which we have heard of its being applied, is that for forming a ground for painting a landscape, which was exhibited by Captain King, at the last meeting of the British Institution. In fine, we can safely recommend Martin's cement for all those purposes to which plasters and cements are usually made applicable.

OUR CORRESPONDENCE.

TO THE EDITOR OF THE BUILDER.

SIR,—Seeing that in your last number you mention the eagle desk of St. Paul's, Wilton-place, I beg to inform you, that that beautiful ornament has, from some cause or other, been removed, and a common reading-board has been substituted. Should you be able to inform me, through your excellent journal, why this beautiful device is not used, as was intended, you will greatly oblige

Yours respectfully,
C. F. H.

TO THE EDITOR OF THE BUILDER.

SIR,—I have long been of opinion that too little attention is paid to architectural modelling, and also to the mode of exhibiting them, for the purpose of studying the effect when placed under different points of view. Although in no way connected with building matters, I have on several occasions tried experiments, for the purpose of making a composition that would supersede the use of plaster of Paris, which is of too friable a nature to bear much handling in the delicately ornamented parts of a small model. Wood, pasteboard, &c., are all, more or less, objectionable.

After many trials, I at length succeeded in making a composition which answered the purpose exceedingly well, but it may, no doubt, be still further improved. It has the property of being very plastic, and when dry, is exceedingly tough; it may be carved, turned, planed, or, in fact, cut into any form that may be desired, and will receive water-colours, so that it may be tinted to suit the particular character of any building which the model is intended to represent. The basis of the composition is paper (bookbinder's cuttings) reduced to powder, under edge-stones at a drug-mill, and may therefore be said to have some affinity to papier mâché, but with the manufacture of which I am totally unacquainted. The composition I am about to describe is a discovery of my own, seventeen years ago; and I feel quite at liberty to make it known to others, in the hope that it will induce some young aspirants to architectural fame to embody his ideas in a more tangible form than upon paper. The following is the Papyrus composition: Take of paper, in powder, one pound, steep it in soft water for about a week, at the end of that time squeeze out the superfluous water, and add to the paper three pounds of wheat flour; knead them into a mass with cold water, and when sufficiently plastic, mould it into the desired form. In my original experiment, I steeped one pound of paper shavings in water for a week, then squeezed out the water and kneaded them with one pound of flour, afterwards dried the mass and reduced it to powder in a mortar; to this powder I added one pound more flour, and kneaded the whole into a plastic mass with cold water; the articles moulded with this mass had all the properties described above. This process was so tedious, that I got seven pounds of shavings ground under mill-stones, a portion of which I send you for distribution amongst those of your friends who feel sufficiently interested in the matter to make a trial of it.

Having succeeded in making the composition, I next turned my thoughts to arranging a plan for

modelling the various parts of any one of the orders.

The entablature of any order may be made of any required length, by means of a wheel (turned out of hard wood) about six inches diameter, having the plain mouldings of each order (in reverse) turned upon it. It should revolve in a trough, passing backwards and forwards underneath, in the same manner as a mangle; all the small enriched mouldings to be made in a similar way, but in detached pieces, unless it should be found practicable to do them on the same wheel; and in that case, perhaps the metopes, mutules, triglyphs, &c. might also be done at the same time. But such ornaments as the modillion must be prepared in moulds, having loose sides and ends. It perhaps would be necessary, in such an order as the Corinthian, to have two wheels, one to prepare the way by compressing the compost and forming the mouldings plain, and the other to follow with the enrichments for those parts that require it; the architraves for windows, the mullions, transoms, and the various parts of the Gothic order, could all be moulded by wheels, and then bent into any desired form before the compost was dried. The shafts of columns should be prepared in a hard wood mould, made in three parts, so as to be more easily separated from the shaft. In half the diameter of the shaft, introduce it at the widest end, and then drive in the spindle, so as to compress the compost into all parts of the mould; when dry, withdraw it, and detach the sides of the mould. The base of a column may be prepared in a similar manner; the capital also, except in such as the Corinthian, which would be necessary to mould the leaves, &c. separately, and then attach them to the cap. Suppose it was required to make a model of a church with a Doric portico of six columns (say of one inch in diameter), and the site 18 by 30 inches; in this case, I should make the sides and ends in single pieces, by rolling out and pressing the compost behind two boards, in which state let it remain until dry; I should then draw upon it, and if a Gothic design, lay out the windows with transoms, mullions, &c.; glue on the moulded ones, and then piece the open spaces, which may be done as readily as upon paper, the position of the various parts, piercing openings where there were to be any. The compost cuts as clean as Bristol board, and with greater ease; and I have no doubt whatever that it would be admirably calculated for carving small statues, busts, &c.

The next step I took was to try the effect of a small model as exhibited in a miniature room, with the light admitted into it on the principle of the diorama. The objects were viewed through a lens, and the illusion was so complete, that by a little stretch of the imagination, they appeared as if of great magnitude. If circumstances had permitted my devoting more time to the subject, I should have constructed a model exhibiting-room, eight feet by six, with a movable platform in the centre, for raising, lowering, and turning the model round in any direction. The raising and lowering would shew the effect of the building upon a site more or less elevated, and also its appearance under various points of view; a little scenic representation, such as a background of trees, &c., would render the illusion complete. A set of columns (one inch in diameter), entablature, &c. of the various orders, would be very useful in lecturing, as a building might be erected before the eyes of the auditory.

You mentioned in one of the numbers of THE BUILDER, something about a museum of models, &c.; would not this papyrus compost, or something similar to it, be a suitable material for the purpose?

Very shortly after I had made my original experiments (seventeen years ago, at which time I was resident in London), I shewed specimens of it to many persons; and about two years ago I gave some of the powder, and instructions to prepare the compost, to a gentleman who resided and practised as an architect in this neighbourhood, but he has since left, and I have not heard whether he has used it or not. Of course, much depends upon the individual; if he has mechanical as well as other ideas, and sufficient energy of character, all obstacles will vanish before his perseverance.

Of course this rambling communication is not intended for insertion in THE BUILDER in its present form, but if any part of it, or the substance of any part of it, should be deemed by you to be of sufficient importance, I can have no objection to its insertion.

THE BUILDER is gaining ground in Hull, and I think so highly of it, and the kindly feelings in which it is written, that I shall take every opportunity of recommending it: I have already done so on several occasions. The work will be eminently useful in one respect; it will imbue the small (and large ones too) master builder with a better taste in architecture. They are at present the designers of our wretched street architecture, but when a purer taste prevails, they will, with materials of the same quality, and the same in quantity, but a better dis-

position in the arrangement of them, produce designs that will be not only more ornamental, but also more valuable, as increased respectability in appearance will result from an improved style of building.

I have kept paper shavings in water for months without any appearance of decay. The compost should be well kneaded, and if covered with a damp cloth, it may be kept in a working state for a long time; when dry, a piece of it the thickness of a shilling would be difficult to break with the fingers.

With my best wishes for the success of THE BUILDER,

I am, Sir, your most obedient servant,
HENRY LIDDELL.
York Parade, Beverley Road, Hull,
May 20, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—I am somewhat puzzled to understand Mr. Bernhard's logic in his last letter, inserted in No. 14; he, in the first place, positively says the plan for ventilation, &c. I gave in No. 10 is his, and then as positively declares that it will not answer, and that no copyist, as he pleases to term me and others, can carry it out with success; but why Mr. B. troubles himself about it, if it be not the thing, I cannot tell. The fact of the case appears to me to be thus: Mr. B. introduces atmospheric air into his apparatus, which he warms and distributes; so do I, and so have others, long before we were born; but the manner of doing it appears to me to be the point at issue; of course very much depends upon that, otherwise it may prove a failure. Take, for example, wood-pavement, for which several individuals have taken out patents, with but very slight variations, and all claim the pre-eminence. But time and wear alone will set the matter at rest. If such be the case in wood-pavements, why not in warming and ventilation? What I claim is, that mine is an original idea of my own, in applying the waste heat from the ordinary fire and making use of it, by means of the air-flue, to other parts of the building, and as the preventative of smoky chimneys.

I am happy to inform you, since my last, by means of the air-flue, in two cases I have been most successful, and both for gentlemen of high standing in the church and law. The first had one of Knot's patent descending stoves fixed in his hall, which unfortunately did not answer; he had some of the most eminent chimney-doctors from town, &c., to make it act, and after expending a considerable sum of money, all their efforts proved a failure, when, by mere accident, I had an interview with him, and he was so satisfied with my statement, that he gave it into my hands, to act as I pleased, and the cure has been completely effected, the trial being made by burning the common coal, which was completely burnt through. I also introduced ventilators from the hall to the staircase, which the warm air completely ventilated, &c. The other was a chimney to a lodge just built, the chimney not being more than twelve feet high, surrounded by large trees, which after much trouble and expense, I cured by the same means. Mr. B. seems to think very lightly of practical men, and that it requires a man to be a philosopher, and I know not what, before he is capable of using the knowledge he has gained by long study and practice, and that he has no right to use the highest of all gifts his great Benefactor has endowed him with, and which he never intended to be cramped or confined by any power, whilst kept in its proper and legitimate sphere, that is, the human mind. I assure Mr. B., regardless of consequences, I shall use mine in the best manner I am capable, at the same time taking care not to infringe upon the right of another. I thank Mr. B. for his information that some gentleman had been carrying out my plan, otherwise I should have remained in ignorance, at the same time wishing him every success. I also thank you, Sir, for the impartial manner in which you act towards all parties and for the means of communication you have afforded your class.

I am, Sir, your obedient servant,
Richmond, May 17, 1843. J. P. HOPE.

TO THE EDITOR OF THE BUILDER.

SIR,—Although much gratified by the report of the Master Carpenters' Society upon the Metropolitan Buildings Bill, I am somewhat disappointed in observing that they have done little more than touched matters of detail, and passed by, as if not within their province, affairs of much higher moment. If I trespass now, will you allow me space to draw attention to some provisions, which may affect, not builders only, but every possessor of house property, from peer to peasant.

It is on all hands allowed to be desirable that the present bill should be replaced by another, more in conformity with the times, and calculated to produce effects which were never contemplated by the existing law. Imperfect as it is, and smothered in its own redundancy of words, it has done much, nay! incalculable good; it has stayed the march of an

all-devouring element. Let us not then kick the dying lion, while we hail the rising king.

This being an exceedingly difficult subject for legislation, it may be requisite to recur to the first principles of all legislation, and base criticism and propositions of amendment upon "justice between man and man."

There are two adverse and yet united interests to be considered: the welfare of the public has to be consulted, and the rights of property to be respected; both are interwoven, and act and re-act upon each other. That well-digested measure which shall equally consult both, is likely to work best, to be respected most, and to be most cheerfully abided by, simply because the interest of the public and of the proprietors will be common.

In the first principle of justice, the bill fails. Both sides have not been heard. The gentleman who drew it up, actuated by the best motives, have legislated, in many things, with a very proper view to masses of houses about to start into being, but have strangely forgotten that London is "an old, very old" city, and that there are such strange interminglements of property within it, that their most beneficently intended measure may work the most bitter and cruel wrong. They have also very unaccountably forgotten that very many thousands of houses have grown up within the last seventy years, under a solemn act of the legislature, based upon a different system; and that, by subjecting them to the action of *ex post facto* laws, involving structural arrangements to which they cannot readily be adapted, the country will break faith with its own children.

If we look into the streets of the more ancient parts of London and Westminster, and compare them with clauses 20, 21, 22, 23, we shall soon perceive, that all attempts at improvement in widening many vile and narrow places, and in rebuilding old houses, will be paralyzed. How many houses in the best and most frequented thoroughfares, and on the most commercially valuable sites, have no back-yard whatever! and in how many would it not be absolutely impossible to leave a back-yard of one square superficial, and leave also sufficient space for a habitable house! Nay, Sir, look not to ancient structures; quietly ask the Government to try Regent-street, and all the costly improvements which sprung from the rebuilding of London Bridge, and ask them to guess how many orphans, widows, and, ay, peers and peeresses, would be sorely withered, if not absolutely ruined, by the effect of this measure. Add to the operation of these clauses, the effect of those which regulate the thickness of walls, especially as to third and fourth-rate houses (32, 53, 79, and 89), and of 66, which increases the bulk of chimneys in houses, which by the new law may cover 11 squares, 99 feet, as applicable to those which the present law has for seventy years forbidden to exceed three and a half, or five squares; and of 26, which interdicts building any house within fifty feet of any wooden building; and of that which condemns the whole of a wall, however sound three-fourths may be, if one-fourth be unsound. And think how instantaneously the selling value of any house, and every house, built either before the enactment of the present law, or strictly conformable to its provisions, but not conformable to a new law, will sink in the market. Indeed, Sir, one cannot conjecture what will be the depreciation of house property, if some righteous provision be not made for the protection of its owners.

I have been speaking of good property of all rates, upon which the blight will be the more deadly in effect in proportion as it is the more undesired; for I have chiefly spoken of those who have strictly obeyed the law, who have studied and promoted the amenities and decencies of life, to the utmost extent which the sites of their possessions allowed. I now address myself to a class of property which ought never to have existed; but to which the present possessors (I omit the original builders, for they ought to have been hunted down like mad dogs) have, for the well-being of the state, as rightful a claim as any emperor has to the thrones of his ancestors.

There are scores, perhaps many hundreds, of close, filthy courts, each with a row of small two-roomed houses, one room in depth, with no outlet whatever, and with only one or two privies at the end, exposed to passers-by, and common to all the inhabitants.

Clause 39 enacts that every house shall have its own privy, but it shall not be within the house. The owner cannot form water-closets, for that every piece of apparatus would be instantly stolen and converted into gin by some lurking vagabond. In nearly all such cases, it will be impossible to carry out the law, without destroying the property, and consigning the innocent owner to penury, and leaving the site open as a receptacle for the most revolting abominations.

There are but two other courses open in such cases: the one plain, honest, and straightforward.

Let the parish or the public buy the property at its just value, the bare "pound of flesh," and let it be sold again to the adjoining owner, if he please to take it, or be otherwise converted to some useful purpose. If the Government have not sufficient moral courage to enable them thus to look the difficulty boldly in the teeth, to grapple with it, and to strangle it; let them adopt the other course, and legislate so as to palliate the evil as much as possible.

It must be a very desperate case indeed which admits of no ventilation. A very simple one which occurs to me, is the formation of a lantern-light, with swing sashes, over every staircase; and let the landlord or his agent be compelled to see these sashes opened every morning; and, as to the privies, let them be decently enclosed, covered with a stone cistern, and have them flushed out every week, under superintendence of the police; and in those vilest cases, where no decent enclosure can be put, take the bull by the horns, pull down one of the houses, and convert its site into a court-yard, with one privy for each house, the whole covered with cisterns for a similar purpose; and, if there be no sewer, render it obligatory upon the Commissioners of Sewers to build one at the earliest possible period.

This part of the subject has led me to advert to the principle of compensation; and I may for a moment request your notice of this curious circumstance, that, although *alleys* (the drawer of the clause must have been strangely at loss for an appropriate term) are not to be made less than twenty feet in width, this bill will not only not lead to the voluntary widening of any one alley in the whole metropolis, but will to the utmost extent prevent it, by forcing the owners, by hook or by crook, to keep the property in such a state of stability as that it shall never need to be taken down,—burnt down it may be; and it is also curious, that while, in process of time, it will destroy the best and fairest property, I have been informed of at least one case, in which some of the most wretched will not be touched by a single clause in the whole bill.

I cannot but think, Sir, that if, instead of cutting new streets through thriving and industrious neighbourhoods, and destroying the marts of peculiar trades, and building smart-looking houses upon heavy ground-rents, and in which the tenants, in too many cases, at the year's end, barely escape with the skin of their teeth; the coal duty or any other duty were to be charged with the cost of widening to a workable extent, the narrow, densely-peopled lanes, courts, and alleys, and, in more stern justice, divested of any liberality, compensating the owners, a much greater and more enduring good would be achieved.

Be this so or not, the plain, common rule of fair-dealing between man and man, the heavenly charge, "Do unto others as you would have others do unto you," distinctly indicates that the introduction of the principle of compensation, in all cases wherein wrong may be done in carrying out a righteous object, is absolutely necessary, or—the wrong must not be done.

If you, Sir, deem this letter worthy of the consideration of the public, I may follow it by other remarks upon the principle of rating and its effect, and upon the structural details; for in these, as in the more general regulations, it is much to be regretted that no care appears to have been taken practically to enter into the questions of difficulty or advantage, but, slumberingly, to take up with some nice, gentlemanly, Utopian, abstract sort of notions, as to what is good to be done, rather than what could practically and uninjuriously be done.

A BRICKBAT.

TO THE EDITOR OF THE BUILDER.

SIR,—In your useful publication of last week is a paragraph, under the title of "Royal Institution," containing a notice of Mr. Faraday's Lecture on Light and Ventilation, delivered on the 7th of April, 1843. I have before me a Parliamentary Report of a Select Committee of the House of Commons, authorized by parliament in 1835, to examine such eminent scientific men, as from whom they might obtain the requisite information for warming and ventilating the New Houses of Parliament. Mr. Faraday was amongst the gentlemen examined, and he candidly confessed that he could give no advice how to secure pure ventilation, and he did not know a single room well warmed and ventilated. I should therefore very much like to see a more complete report of his lecture, as Mr. F. had formerly so honestly stated that he had no knowledge of the science requisite to direct the ventilation of rooms with certainty. Mr. Faraday, as well as Mr. Brande, told the committee, that all attempts to warm and ventilate the Royal Institution had entirely failed; and they, as well as several other scientific men, advised the committee to make experiments. Mr. Faraday said that only an architect sufficiently acquainted with chemistry and natural philosophy would be able to

discover the science required; as at present, science had not arrived so high as to warm and ventilate perfectly. Sir Robert Smirke, the only person who, through numerous experiments, had arrived at this point, to ventilate buildings perfectly (without how-point, to ventilate buildings the committee to have a ever knowing it), advised the committee to make a building erected for the very purpose of making experiments on warming and ventilation. At the same time, one of the members of the above-mentioned committee had, through the introduction of an M.P., a baronet, learned that a Mr. F. A. Bernhardt, architect, had taken out a patent for a new plan, discovered by him, for warming and ventilating buildings, and had put up the said plan in his own house for inspection. The said M.P. (Sir Hanbury Tracy) went to the said house, examined the ventilation very minutely, and was surprised at seeing the action of the ventilation with open doors and windows, as perfect as with closed doors and windows. To confirm the truth of what he had seen, he repeated the examination in company with his son, Mr. Tracy. After the second examination, Sir H. Tracy, as well as his son, was perfectly satisfied, and Mr. Tracy repeated his visit in company with the other commissioners selected to choose the best plan for the new Houses of Parliament. One of the commissioners was his father; the others were Sir Edward Cust, Mr. Little, and Mr. Vivian; and after the approval of the said commissioners the ventilation discovered and patented by Mr. Bernhardt, Sir E. Tracy introduced Mr. Bernhardt to the committee. Mr. Bernhardt's name is not mentioned in the printed report; and Mr. Percival, mentioned in the printed report, in the said editor of the *Polytechnic Journal*, in the said journal, No. 1. page 78, says,—"Mr. Bernhardt attended a committee of the House of Commons, in order to be examined touching the adoption of his plan, in the new Houses of Parliament. No doubt existed in the minds of the members of that committee that the architect was able to do what he said he could."

He was, however, asked for which secret he could. Now, his secret was his bread, for which moreover, he had paid the price of an English patent. Declining to make it known, he was nonsuited; as indeed he would have been by jobbery, had he made it known. The result is, that a man who has discovered the means of decomposing smoke before it leaves the chimney, is left to pine under the withering malaria of public neglect; and that the new Houses of Parliament are to be crowned with chimney-pots. Sir, I was present when a member of her Majesty's secret council, a nobleman of high rank, examined Mr. Bernhardt's ventilation plan, and I heard the noble lord say, "I have found every thing exceedingly satisfactory: I hope you will be the means of improving our atmosphere." These words were addressed to Mr. Bernhardt, on his leaving the house. Sir, I was present when Mr. Charles Barry, architect, examined the Earl of Lovelace's house, where Mr. Bernhardt's ventilation plan was in operation, and I heard the following words from Mr. Barry, when addressing the honourable Mr. Grey and other noblemen and gentlemen present at the time. He said, "Gentlemen, this is the most perfect plan for warming and ventilating buildings I have seen; and I will introduce the same in all buildings I have to build." Mr. Barry had just begun to build the new mansion for Mr. Currie, M.P., at East Horsley, and introduced the said plan in the building, where it proved as perfect and as much to the satisfaction of Mr. Currie as to Mr. Barry. Sir, I was present when Dr. Grant, an architect from Camberwell, Mr. Loudon, and several other gentlemen, examined Mr. Bernhardt's patent ventilation, in the dining and committee rooms in the House of Commons. This happened in April, 1838. Mr. Bernhardt shewed the said parties, that the atmosphere in one of the said rooms, about 8,000 cubic feet of air could be changed every five minutes; so that when the thermometer shewed 60° Fahrenheit, five minutes after only 50°, and so it was changed every five minutes. A waiter of Mr. Bellamy told the gentlemen that the cold ventilation was very advantageous for keeping the roast or boiled meat in a wholesome condition, and they made use of the dining-rooms for the said purpose when the members were absent.

This system of ventilating will be of great advantage to butchers, as well as to the public at large. The architect from Camberwell was much pleased, and said, "a better plan could not be found than this, to warm and ventilate churches, and he was sorry that the public were not made acquainted with Mr. Bernhardt's plan, through the medium of advertisements." He asked Mr. B. if he would allow him to form a company, assuring him that this was the best way to make his plan useful to the community. It is much to be regretted that the said architect was shortly after engaged by the former government, and thereby prevented forming the intended company. It is most cruel that the public have been deceived by writers and lecturers, with experiments on ventilation, without the requisite science, and that the public should be deprived of a wholesome and economical plan of warming

and ventilating by ignorant persons in power under the former government. A more simple, more effective, or more economical plan, for warming and ventilating buildings cannot be discovered. There is no necessity for keeping a fire to create a draught. There is no machinery whatever required. Nature acts like a *perpetuum mobile*, day and night, summer and winter, uninterrupted, whether the atmosphere be calm or stormy, or the temperature be high or low; and the discoverer of this useful science has said, that upon the plan introduced under his direction, it must necessarily act uniformly in every building, and with the same certainty in the worst situation of the building. Mr. Bernhardt says, there is no necessity for a manufactory creating noxious smells to be placed at a distance from other buildings, as mentioned in the new Building Act; but it is only requisite to possess the science of perfect ventilation, that is, it is indispensable to know the physical, chemical, and mechanical powers of nature, controlling the atmosphere and heat. Persons well acquainted with these laws, the materials constituting the atmosphere, and the combined action of these materials when united, are able to ventilate such buildings, as soap-boilers and other manufactories creating smells, in such manner, that the inhabitants of such buildings will not find the least difference between their buildings and others, except to the workmen engaged in the said business. The annexed letter from Dr. Grant will suffice to corroborate the foregoing statement respecting the perfection of the said ventilation; but the patentee has also stated, that had he been permitted to execute his plans freely, as others have been, he would have completed such plans without experiment, and secured a ventilation equal in power to that produced by a fire-gate eleven feet in diameter, without, however, any fire or machinery, or any cows upon the building. But Mr. Barry told Mr. Bernhardt that the Commissioners of Woods and Forests would not allow such expenses, as the said committee and dining rooms were only temporary.

Mr. Editor, as it is your intention to patronize useful science, and make the public acquainted with plans adapted to improve their health and general comfort, I hope you will excuse the length of this communication, and give early insertion to such portion, as you may judge suitable for your paper.

I remain most respectfully, yours, &c.

A FRIEND OF SCIENCE.

May 24, 1843.

COPY OF DR. GRANT'S LETTER TO MR. F. A. BERNHARDT, ARCHITECT.

SIR,—I was much gratified on Saturday last, in witnessing your mode of warming and ventilating rooms at the Speaker's house. The feeling of warmth and dryness of the rooms is particularly agreeable, and from your simple, but excellent plan, of keeping a constant renewal of the air, without producing draughts, must be greatly conducive to its purity and wholesomeness. Your plan of regulating the supply of warm and cold air seems to be excellent; and as one of the chief causes of foulness of the air in crowded rooms is the quantity of carbonic acid gas thrown off from the lungs of those breathing in the room, your method of causing this (which being heavier than air, falls to the bottom) to be carried off by holes at the bottom of the room, is good, and certainly more likely than any other I have seen to produce the effect of keeping the air in the room wholesome. I shall be very glad to hear of the general adoption of your plan, and in the meantime remain, &c.

NATH. GRANT, M.D.

21, Thayer Street, Manchester Square.

Miscellaneous.

THE LATE OUTRAGE AT MANCHESTER.—There were no fewer than twenty-three bricklayers arrested at Manchester on suspicion of having been concerned in the late outrageous attack on Messrs. Pauling & Henfrey's croft, and after an investigation, which lasted nearly four days, eight of them were committed on the evening of Monday last, before Mr. Maude, to take their trial at the next Liverpool assizes. Six others have been remanded, to afford time for further evidence to be obtained against them. The authorities are apprehensive lest another attack should be made upon the croft, but measures have been taken by them to secure the public peace in case of a similar outbreak. It appears that most of those who were arrested on this occasion belonged to a union called the Brickmakers' Operative Association, which held its meetings at a public-house in Manchester every Saturday night.

The new churches in Kentish Town, Brookfield, and Turk's Row, Chelsea, will be commenced very shortly; the designs for the two former, especially that for Brookfield, are very good, and we believe the plan for the new church at Chelsea has some pretension to rank as an ecclesiastical edifice.

We would respectfully direct the attention of our Country Subscribers to the mode we have adopted of signifying to them, when the period of their subscriptions expire, and when they become due—the substitution of a *blue* envelope to their paper instead of one of the ordinary nature.

THE BUILDER,

NO. XVII.

SATURDAY, JUNE 3, 1843.

Our paper has had little said for it of late; and we have meanwhile forborne to call attention to ourselves in any wise farther than the quiet performance of our duty seemed to warrant. We have watched the steady progress of its course, and listened to opinions, until we think we are justified in assuming this to be one of those points at which we may venture on a summary or digest, for the edification of our readers or for their amusement, as well as for some general reflections of our own.

We have not yet reached the point which our good friends in "the Row" assigned for our fatal climax, but we have passed over that which some of our class, some of our friends within the camp, predicted would be the period of our decease. Certain workmen, calculating with all the indifference to our fate which they would as to the wearing out of a tool or the burning of a candle, were so precise as to fix a sixteen weeks' existence for THE BUILDER. The sixteen weeks are just passed, and four more remain to carry it to the point at which the bookseller fraternity had doomed it. We are compelled to go on with a stoical indifference, even with this prediction hanging over our heads, and to await that period for the issue of imprisoned succour, which we may deem to be held in, or pent up, in denial to us.

And now we may give an account, in our usual candour, as to the way in which we have made progress in our new adventure. That it was difficult, and it would seem unexpected, we may judge from the speculations as to its continuance; and we put those speculations more to the account of a spirit of keen judging as to the general probabilities, than to any personal or particular indifference or objection to the work itself; indeed, it would be ungrateful in us to suffer a misunderstanding to exist as to our meaning on this score. But we have it to confess, that the work has taken a different turn to that which we calculated on, at least in some degree. Architects, masons, builders, and the higher class of the trades have supported us more liberally even than we had dared to presume upon; but the workmen have in the same ratio stood aloof. It is true that there are many reasons to account for this. We have not had those opportunities that we sought and still languish for, to render the journal of that sterling interest to them which they have a right to look for; but we mean that we relied in some measure upon, was their own co-operation. If the workmen, or any body of men, wish for benefits to result to them, they must put out a hand of their own to the planting, before they can expect to reap. We are well inclined to think that we have done our parts in a tolerable proportion, and should dislike it the worse if we could say as much for this particular section of our friends.

It is true that the times have been far from favourable in themselves, and that a great deal remains to be done to influence their general

circumstances, so as to assure to the workman a condition wherein matter of reflection and study should be plainly appropriate and welcome to him. There is a system, and particularly about large towns and in large works, that, for some cause or other, seems to deny to the workman the very advantages which it would be supposed were placed within his reach. Building, like too many other things, has become a matter so refined by the competition principle, that almost all the high considerations of mind and its privileges have been excluded from our calculations; and cheap work has been more sought after than cheap comforts, and cheaply obtained competencies, with their moralities and decencies. Hence the workman and his master have been far—too far removed from contact, and from the occasion of cultivating sympathies; and a system has grown upon us of gauging and squaring for gain, that, like all other similar principles pushed to extremes of action, has destroyed the very object aimed at. We could prove our case by a hundred references, but we suspect there will be none to challenge us to any such necessity. Workmen under this system feel too much of the imposition of toil and the severities and monotony of the division of labour; they have been rendered too much like machines, and dealt with as such; and the result has been, that so far from many of them wishing to apply to the study of any general science bearing upon their calling, they are too glad to get through a day's work in which they play a part so little, apparently to them, in reference to any great design or object: there appears little to invite them to, and little to promise of, advancement. This state of things is inimical to the well-being, if not to the security, of the community, and we shall take occasion to shew how and why we arrive at our conclusions. We have the means of remedy in hand, and we shall do our best to exhort to the use of them—for which we must crave a future patient and indulgent attention.

In last week's paper a small paragraph was inserted in the hurry of going to press, referring to a letter we had just received from the solicitor of Sir R. Morrison, Architect, of Dublin, complaining of alleged libellous matter in the letter signed "Cavetto," in the 11th number of this journal. Our correspondent was an anonymous one, and we had some hesitation as to inserting his letter at all, but wishing to correct a spirit, that we considered unbecoming of the subject treated on, as well as of all those who apply themselves to the discussion of matters pertaining to a distinguished art, we seized the occasion to deliver ourselves of the views which that letter suggested, and as we should think, in a manner perfectly to acquit us of any intention to wound the feelings of any man, and not only to acquit us of intention, but to guard us against the suspicion of any such thing. We believe Sir R. Morrison must be aware of this; but this does not satisfy us. However innocuous the slander (for slander we must and do firmly believe it to be), and however much more so we may have rendered it by our remarks. We must now call upon our correspondent to shew himself worthy of the pains we took in reference to his letter, and of the respect we paid him by our honest dealing with it, to shew himself also worthy of the class of which he is a member. We call upon him to avow himself at once, in such a way as to meet like a man the charge that is preferred against him, and if

he has committed a wrong, to make an honest man's reparation for it. This is the only way in which he can acquire a solid satisfaction to his own conscience in this business, to say nothing of the good he may effect by example to others, and by letting it be seen that all of the building class are far removed from assassins, who stab in the dark—or with those, equally wicked, who tamper with the reputations of their brethren.

NATIONAL EDUCATION.

Two lectures on the above highly interesting and important subject, have recently been delivered at the Marylebone Literary and Scientific Institution, by Mr. Bell, professor of elocution. The lecturer began by urging the necessity that existed for a comprehensive system of national education, especially among the poorer classes of society. The higher and middle classes can afford to have their children educated, and they generally are so, as a matter of prudent economy, that they may be properly and legally qualified for the lucrative professions, but the poorer classes, who are infinitely the most numerous in the community, are thrown, as it were, upon the wide waste of the world—the dreary gloomy wilderness of poverty, from which they seldom find a pathway into the better land of prosperity. After referring to the statistics lately furnished by Lord Ashley in his recent speech in the House of Commons, where his lordship proves the great dearth of religious, moral, and intellectual education among the working classes of this country, the lecturer proceeded to observe, that were the people well educated, they would, with few exceptions, be virtuous and honest, consequently the multitudinous penal functionaries would be unnecessary. To restrain and punish crime we have our judges, magistrates, police force, gaols, and all the costly apparatus for rendering effective our penal enactments, and yet the diminution of crime has not been the consequence of this costly and complicated establishment. With all this restraining and penal force, permeating and pervading every part of the United Kingdom, the amount of crime increases every year. Our prisons are kept crowded by the steady influx of offenders, and shoals after shoals of convicted depredators are dragged from our shores to expiate their delinquencies in distant lands, and in the most degraded slavery. The lecturer contended that the very humblest classes should be taught to read, understand, and write our common language. Reading and writing, a short system of accounts, grammar, and geography, are indispensable branches of education in the business of life, and every child in these kingdoms ought to be instructed in them. The elements of every branch of education can be much simplified, the letters and principles of the sounds of our language can be put into a small compass, and that with great advantage to the learner. A *First Book* for the elements of reading will not cost more than twopenny, a *Second Book* may consist of a collection of select sentences, fables, and little tales; the expense of this will not exceed sixpence. The transition from this to the Old and New Testament is not difficult. A copy of the Bible can be purchased for two shillings. Epitomes of grammar, geography, and arithmetic may be prepared and sold for sixpence each. A collection of extracts from our national history, natural history, &c., could be prepared for 2s. 6d. each copy. An abridgment of an English dictionary would not cost more than a shilling. Maps and globes, though expensive at first, would form a part of the furniture of a National School. Thus then, at an expense of less than eight shillings, a set of useful books could be provided for a child at a national school. These books, with a little care, may last a child during the whole course of his education. The lecturer proposed that the schools should be conducted on the principle of simultaneous action, a system of instruction which he had the honour to arrange, and which he had practised for many years. This system would enable a master, by his individual exertions during four or five hours each day, to instruct three or four hundred children in all the

common branches of education, and also to impart to them a greater quantity of knowledge in three months than could be obtained by twelve months' elaborate teaching by any other mode of instruction. The office of school-master should be made, in a pecuniary way, respectable; the public should see and acknowledge the respectability of the office by the appearance of the functionary himself and his family. The fixed salary and the reward for professional zeal and fidelity should make the emoluments of a metropolitan national school-master amount to at least 250*l.* per annum. The emoluments of a provincial master should vary from 150*l.* per annum to something near the metropolitan standard. No system of instruction, however perfect in arrangement, can work well in practice, unless the situations of masters in our national schools are well paid, and considered as objects of honourable ambition.

In conclusion, the lecturer made an eloquent appeal to the opulent classes to assist in extending the blessings of education: it was an object for the display of the noblest Christian philanthropy.

The subject was exceedingly well received by a numerous and highly respectable audience, and the oratorical ability which Mr. Bell shewed in the delivery of the lectures rendered them highly interesting and instructive.

NEW HOUSES OF PARLIAMENT.

House of Commons.—May 26.

LORD WHARNCLIFFE rose to answer the question which had been put to him on a former night by a noble and learned lord (Lord Brougham) relative to the proceeding with the building of the new House of Lords. Since the question had been asked of him, he had made inquiry into the reason of the delay in not proceeding with the building, and was informed that a certain description of stone necessary for a portion of the work had not arrived; but that the invoice had now arrived of the stone in question, and that the material itself might be expected soon, when the work would be at once proceeded with.

Lord Colborne thought it was impossible that the new House of Lords could be ready by the time specified next year, and it was fallacious to expect that the house for their lordships' accommodation would be erected as speedily as had been imagined.

Lord Wharncliffe said that the committee entertained a different opinion, after examining three or four witnesses, among whom was the architect himself, on the subject. There was no reason for believing that the House of Lords would not be completed in the time that had been mentioned.

Lord Brougham believed that his noble friend behind him (Lord Colborne) been in attendance on the committee, he would not have deemed it impossible that the new house could be erected in the specified time, for the witnesses described that it could.

Earl Fitzwilliam thought that his noble friend was impatient upon the subject—(laughter)—and he (Lord Fitzwilliam) must say, that in his opinion the new house would not be so comfortable for their lordships as the present one. Besides which, nine days out of ten it was quite large enough for the peers who attended, and he was not aware that any accession to the peerage was anticipated to require a larger house.

Lord Brougham—I am of opinion that the peers are quite numerous enough already, and indeed a part of them might be spared—(loud laughing). But I can only say, in reply to the observation of my noble friend, that if he would attend here in a morning—

Earl Fitzwilliam—In a morning!

Lord Brougham—If my noble friend would only attend in a morning, my noble friend might benefit by it—(laughter); and he would, I am satisfied, quite agree with me in thinking it was time that we had better accommodation in respect of the climate, for it cannot be described to this house what an inconvenience we experience on that account—(renewed laughing).

Earl Fitzwilliam—If I were to attend in a morning I might learn a great deal of law certainly, but I very much doubt whether it would be for the benefit of the suitor.



WINDOW IN THE NORTH SIDE OF BALSALL TEMPLE CHURCH, WARWICKSHIRE.

This is one of a series of beautiful windows of this truly interesting church. We are sorry to perceive, by a Coventry paper, that certain repairs are now going forward in that church, and particularly with reference to the glazing of these windows, in a very bungling and careless spirit. The conservators of that structure must be strangely dull to the emotions which their office excites to, having the custody of so noble a relic of the once renowned Templars, if they permit the necessary repairs to be deferred, or, when taken in hand, to be executed in an irreverent and slovenly manner; and we trust that this, with other remonstrances, may fall in their way, to avert from the church the calamity, and from themselves the disgrace, of any such apprehended dereliction of their duty.

TRINITY-HOUSE NEW CHAPEL.

THE new and enlarged place of worship required for the reception of the Corporation of Trinity-House and their resident and out-pensioners, the erection of which has been in progress during the past three years, is just on the eve of completion. The interior presents the appearance of a Grecian temple; and for chasteness of design, justness of proportion, and elegance in execution, will stand unrivalled by any other religious edifice in the town. The dimensions are, from the western entrance to the altar, 77 feet; breadth of the building, 37 feet; width of the aisle, 10 feet; height, 43 feet, from the pavement to the apex of the ceiling—a splendid piece of vaulted architecture, in which the graduating proportions of each panel and moulding have been most admirably observed. The pillars and pilasters by which the whole is sustained are entirely of alba veined Italian marble, the capitals of each having the marine emblems of a dolphin and an anchor inserted in the foliage. Beside these pillars, there are two circular columns, sixteen feet in height, and about two in circumference at the base, forming a frontis support to the semi-dome over the altar-table; and which, from their being composed of a native substance, demand a particular notice. Externally they are formed of the arborescent marble found on the Duke of Devonshire's estates, at Hartington, and have been prepared at the marble-works of Mr. Milnes, of Ashford, expressly for the Trinity-House. The body of each column is formed of grit-stone, over which a *revêtement* of many hundred pieces of marble is attached, by a strong and imperishable cement, in so scientific a manner, as to leave no doubt in the mind of the general spectator that each column is constructed of a solid block of marble, and their extreme

beauty excites the admiration of all who view them. The ground of the marble is a deep yellow, of various shades, intersected in different directions by red lines; it is susceptible of the highest polish, and the surface being richly arborescent, presents the most delicate appearances of foliage, &c., as if produced by the elaborate working of an artist's pencil. The oriel window in the rear of these columns is of stained glass, by a London artist, the central compartment presenting an impressive representation of the Ascension of our Saviour. The other windows are semicircular, and entirely formed of coloured glass, tastefully arranged by Howe, of Hull; the largest, at the western end, is emblazoned with the Royal Arms, those on either side displaying, in a similar manner, the armorial bearings of the Port and the Corporation of the Trinity-House. The windows, it will thus be seen, are but four in number, yet from the size of the last-named three and their lofty elevation, a powerful light is admitted, and which, being received through a medium of stained glass, acquires that subdued character so desirable in religious edifices. The altar-table is of pure statuary marble, supported by an ancient eagle elaborately gilded. The pulpit and reading-desk, together with the fronts of the pews and sittings, and a gallery over the west entrance, are of solid oak, excellently worked and brought to the highest degree of polish. The pavement of the commodious aisle is a curious specimen of the workman's skill, diversified throughout in rouge royal, black and gold, and white-veined marbles, it progresses from the western entrance in different compartments, the last forming a faithful sketch of the mariner's compass, save that the magnetic point diverges appropriately to the east, as attracted by the altar. The most approved hot-water apparatus for regulating the temperature of the building is carried through beneath the marble floor. The effect is excellent, and completes the designs of the architect, Mr. Lockwood.—*Hull Packet.*

INSTITUTION OF CIVIL ENGINEERS.

MAY 23.

SOME interesting specimens of unburnt bricks from the Pyramids of Dashoor (Egypt) were exhibited by Mr. Newton. From the description by Mr. Perring, who brought them to England, it appeared that they were made from the alluvial soil of the valley of the Nile, mixed up with chopped straw; that they were made with cavities in the sides, like the modern bricks, and that the interior of the Pyramids was formed of arches, the bricks composing them being either packed behind with pieces of flat pottery, or cut away to radiate equally from the centre. There existed at Thebes some extensive ranges of arches of about twelve feet span, the bricks of which they were built bearing the name of Sesostris, and consequently they must have stood uninjured upwards of 3,180 years; the arches were turned in concentric half-brick rings. Captain Handcock produced a brass and cone of his improved axle, which had been used under an engine on the Southampton Railway, and had run upwards of 21,000 miles; the brass scarcely exhibited any signs of wear, while a brass of an axle of the old form, which had only run 8,000 miles, was nearly one inch shorter than when it was first put on, besides having worn considerably into the journal and the box. He stated that the system was approved of by General Pasley, who would have been present to confirm the statement, but for an unavoidable visit to Spithead.—The first part was read of a paper by Mr. Mallet, M. Inst. C. E., on "The Action of Air and Water upon Cast and Wrought Iron and Steel;" but as, from its length, the second part was necessarily reserved until the next meeting, the whole will be noticed together.—The meeting was adjourned until Tuesday evening, May 30th, when the following papers will be read:—No. 620, the second part, "On the Durability of Iron Ships, the method of preventing their corrosion and becoming foul, by the application of a coating of alloy of zinc of varnish and a poisonous paint," by R. Mallet, M. Inst. C. E. No. 584, "Description of an Improved Arrangement of a Surveying Instrument," by H. Carr, Grad. Inst. C. E.

MANCHESTER.—On Friday, the 5th instant, the corner-stone of a new church about to be erected by the Manchester and Eccles Church Building Society, was laid by J. C. Harter, Esq. The site of the church is a plot of ground in the township of Cheadam, situate at the corner of Derby-street, Redbank, which has been purchased for the purpose from the Earl of Derby.

BRITISH ARCHITECTS.



THERE is an uncertainty as to the precise year when Gibbs came into the world, but we are inclined to consider it to have been about 1674 or 1675. He was a native of Aberdeen, of respectable lineage, and at the Marischal College received that species of sound education for which our northern countrymen were even at that period remarkable, and in later times have been still more conspicuous. Becoming, by the death of his parents, his own master at an early age, he quitted Scotland to seek in richer lands the initiative step to fortune, and with a predisposition for architectural pursuits, made his way to exercise it in the ready mart for taste or talent which London has always been supposed to offer. The new city had, when Gibbs first saw it, about his twenty-first year, just sprung out of the ashes of the great fire of 1666; St. Paul's was progressing towards completion, and the fifty churches of Sir C. Wren afforded both a fine study and a congenial stimulus to a mind so constituted. He was, however, one of those spirits who are restless in their desire to acquire varied knowledge, and, passing over to the continent, entered there into the practice of the profession, but under whom we are un-informed. It was while so employed in Hol-

land that he attracted the notice of the Earl of Mar, when visiting that country in 1700; this nobleman, interested by the talent and perseverance of the young Scotchman, became at once his patron and friend, recommending him to prosecute his studies at Rome; neither did the earl stop at mere advice, but furnished his protégé, over many years, with pecuniary means to cultivate at leisure an acquaintance with the classic styles.

When, about 1710, Gibbs made his re-appearance in London, he did so with singular advantages in his favour. Originally well educated, improved by foreign travel and a long familiarity with ancient examples, he at once started into practice under the auspices of the Earl of Mar, then possessing high court influence, without the ordinary difficulties that usually beset first efforts to establish professional reputation. Wren had already outlived the usual age of man, and Vanbrugh was labouring under unmerited obloquy, and, in contending with the bitter enmity of the Duke and Duchess of Marlborough, was fast losing vantage ground he might otherwise have successfully maintained.

The first building to be placed to the credit account of Gibbs is the quadrangle of King's

College, Cambridge; it is generally considered, particularly the Doric portico, as too diminutive in character, and too much broken up into detail; but we are not to judge him in this summary way; in this instance, he had been required to plan accommodation, of a given description, for the numerous inmates and attendants of a large collegiate establishment, to the exclusion of any attempt at grandeur, which in other respects would have been appropriate to the occasion.

But, whatever may have been the difference of opinion upon the merits of King's College, "the eyes had it," and our architect obtained a ready introduction to the commissioners, who still retained the superintendence of church-building in the metropolis, by whom his design for St. Martin's was preferred, and that edifice may be taken as a fair specimen of his ability. The very noble portico, the result of impressions produced by his familiarity with classic models, is generally admired, and we think deservedly so; by hypercritics, it has been designated a servile imitation of the portico of the Roman Pantheon; but, at any rate, he had the boldness, with far less appropriate material, to bring under the eye of his professional brethren an example that might serve good purpose, where little else than imitation is cultivated. The steeple cannot perhaps be considered entirely worthy of the splendid feature just noticed, though, since the church has been relieved from the mass of mean buildings that surrounded it, it must, as a whole, be considered one of the most striking architectural objects to which we have immediate reference. The interior is replete in all the proprieties of art, and in point of accommodation yields to none of the great number of churches of about the same date.

On the subject of this church we have the pleasure to lay before our readers the following original document, which we were favoured with permission to transcribe from the parochial archives by the competent authorities.

The Account between Mr. James Gibbs, Surveyor, and the Commissioners for rebuilding St. Martin's Church.

Mr. GIBBS, Dr.				£	s.	d.
1721.	June 12.	To cash per Mr. Keate, Treasurer	..	100	0	0
	Nov. 7.	To do. per do. ..	..	66	0	0
1722.	Dec. 21.	To do. per Mr. Drummond, Treasurer	..	100	0	0
		To do. per do. ..	..	5	10	0
1723.	June 10.	To do. per do. ..	..	100	0	0
	Dec. 18.	To do. per do. ..	..	50	0	0
1724.	21.	To do. per do. ..	..	50	0	0
1725.	Jan. 21.	To do. per Mr. Churchwarden Saucer	..	10	14	6
1727.	June 6.	To do. per Mr. Turner	..	150	0	0
				£632	4	6

Contra, Cr.				£	s.	d.
1721.	Nov. 7.	By model of the church	..	66	0	0
1722.	Dec. 21.	By alterations of do. ..	..	5	10	0
1725.	June 21.	By the plan for the east window	..	10	14	6
1727.	June 6.	By his trouble as surveyor to the church for six years	..	550	0	0
				£632	4	6

I do allow and approve of the above amount; and do acknowledge to have received of and from the Commissioners appointed by Act of Parliament to rebuild St. Martin's Church, by the hands of the above Mr. Turner, the sum of One Hundred and Fifty Pounds, in full of all debts, claims, dues, and demands whatsoever, as Surveyor to said Church, Vestry-room, and Tabernacle, and for all Draughts and Plans by me done for the said Commissioners and Parish.

Witness my hand, this Sixth Day of June, 1727.

Witness hereunto,

WILLIAM HEAD.

JAS. JEPSON, Clerk to Commissioners.

JAS. GIBBS.

An account of this description seldom gains publicity, and it is highly interesting, as shewing the rate of remuneration at which men of eminence were willing 125 years since to devote their abilities and services to public works.

The total cost of building St. Martin's church was thirty thousand pounds; of the interior fittings, bells, and organ, eighteen thousand pounds: the dates of its commencement and completion are fully set forth in the account.

We next find him engaged upon the church of St. Mary-le-Strand, a structure certainly inferior to St. Martin's; but we must also recollect that the architect, in thus occupying the greater part of a public thoroughfare, was cramped in his plans; St. Mary's therefore falls short in the character best befitting such an edifice; it is too much broken up, and encumbered to excess with mouldings, architraves, and ornaments. The spire, to us, is a pleasing object, and composed, as it is, of successive tiers, after the Roman manner, proves the leaning of Gibbs to the particular style which for so long a period he had had before him. In St. Mary's he may be said to have endeavoured to compensate the absence of

grandeur by a redundancy of ornament, the disadvantages of the site operating to produce this result.

About this time (1730), Gibbs was much employed in planning and executing numerous works, which, though of a very useful kind, are not sufficiently important to require particular notice. His next public essay was the Radcliffe Library, Oxford, which, rearing its elevated dome and clustered columns among so many Gothic edifices, enhances by variety the interest which a view of this ancient city never fails to inspire. The Radcliffe Library is remarkable for its cupola of a hundred and forty feet high, surmounting the circular space which contains the valuable collection of literature so called; the interior, nearly one hundred feet in diameter, is universally admitted to display great skill in the arrangement, and appropriateness to the purposes for which it was designed. Gibbs was, both personally and professionally, the favourite architect of both Universities; Cambridge, where he had, as a *début*, constructed the quadrangle of King's College, recalled him to build her senate-house and Royal Library.

We may not omit to mention that in Westminster Abbey there is an example of his con-

ception and taste in monumental sculpture,—the tomb of Holles, Duke of Newcastle. This performance has met with few admirers; it is perhaps too architectural, and in a style far from assimilating with the surrounding scene. In this tomb he has sought to accomplish the very difficult task of rendering intelligible at a glance the rank, attributes, and transition of the tenant to a state of beatitude, and has failed in the unity and simplicity which the art of sculpture imperatively demands.

Apart from his profession, Gibbs was a man of many acquirements; he had a taste for literature, and was accepted in circles where it is cultivated. Living and dying single, what to so kind a nature was lost of domestic enjoyment, found some compensation in the active career that led to moderate wealth; in his distribution of those goods of fortune, there is a trait that the cold delineations of sculpture would fail to commemorate—his gratitude towards the Earl of Mar. When that nobleman, whether from latent attachment to the house of Stuart, or from real or fancied indignities on the part of the new dynasty, suddenly quitted the precincts of St. James's to head the insurrection in Scotland in 1715, and the single battle of Sheriffmuir decided that there re-

mained for him no alternative but flight, and the abandonment of his rich hereditary patrimony; here the worthy subject of our sketch stepped in to avert the additional sting of poverty; and, retaining to the close of life the same sentiments, bequeathed to the only son of his early benefactor an estate of nearly 300*l.* a year, together with his plate and a thousand pounds in money.

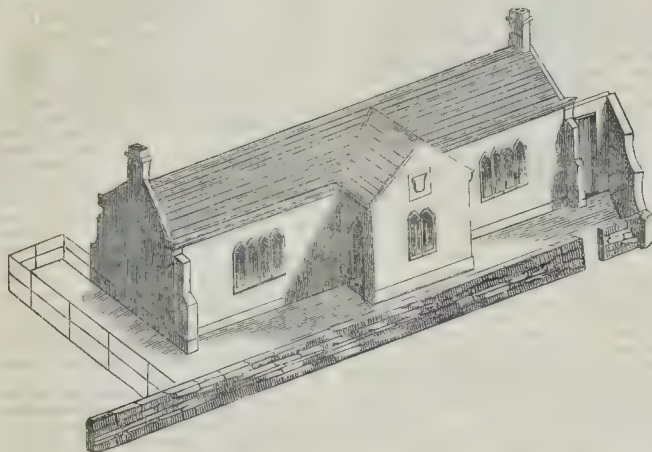
To the Radcliffe Library he left five hundred volumes, including one hundred scarce and valuable works on architecture, and some portfolios of his unemployed designs. He was

also a liberal benefactor to several public charities of London, and left substantial marks of esteem to many personal friends.

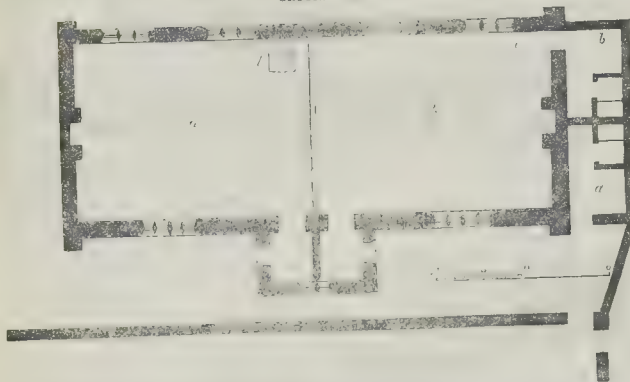
To those of our readers whose attention may be excited by this brief memoir to the works of Gibbs, we would say, that, in 1728, he published a volume on architecture, with many plates, which may be advantageously consulted by the student.

He died in London, after a lingering illness of five years, in 1754, and was interred in the church of St. Marylebone.

SUNDAY SCHOOL.



GROUND PLAN.



SUNDAY SCHOOL IN CHURCH TOWN.

TO THE EDITOR OF THE BUILDER.

SIR,—The parish church of Garstang stands two miles from the town of Garstang, in a small village called Church Town, which is rather remarkable, as Garstang must have been built at a very early period, and on the side of the great north road: the town was incorporated in the seventh year of Edward the Second. A new Sunday School has been lately built, adjoining the churchyard, at the expense of the present vicar, James Pedder, M.A., and which has cost him 320*l.*, beside the land. The churchyard is very large; and there are some remarkably large sycamore trees on the east and south sides. The school is built on the east and south corner of the churchyard. The style corresponds with the church, the windows with the upper windows of the church, of which a view is given in the *Gardener's Magazine* of last year, and which church must have been built at a very early period. The school has a most striking and interesting effect from whatever part of the churchyard it is viewed; here nature and art are truly met together. There is one ash tree 70 feet high, and nearly 6 feet in diameter at the bottom; it is completely hollow, and the inside of the main bole of the tree is occupied by jackdaws for their nests. Their entrance into the tree is about 30 feet from the ground, and there is no doubt but some of their nests are at the bottom of the tree, level with the ground, so that it is impossible for them to be come

at; and whether this tree has been excavated by the birds, or decayed, is unknown: the outside has no appearance of decay. The school is built behind three of those sycamore trees, and the entrance is from the churchyard. The inside of the school is 54 feet by 21 feet, and 12 feet high at the sides, and in the centre 18 feet; it is not seated, and is calculated for 200 scholars; it is divided into two parts by a folding partition, the one part for the boys and the other for the girls: it is well lighted. The superintendent's desk is placed at *d*, as shown in plan; a door is fixed in the partition near the desk, for seeing into the other part. The whole of the partition will fold back, so that the whole appears as one, when required. The Sunday scholars are taught by gratuitous teachers; there is also an infant school kept in it during the week. There are two entrances to the school, as shown by the plan, and each entrance is fitted up with every convenience for hats and cloaks. There are two privies, shown by *d* and *b*; one is entered from the front and the other from the inside of the school. It is built of brick; the windows and door-jambs are stone; the brickwork is rough, coated over and whitewashed yearly, which gives it a most striking appearance at this season of the year, amongst the green trees. The whole of the work has been done in the very best manner, to the entire satisfaction of the Rev. Mr. Pedder. Now as the education question is exciting so much of the public attention, you will, I hope, allow it an early place in *THE BUILDER*.

Garstang, May 20, 1843.

M. SAUL.

MATERIALS USED IN ARCHITECTURE AND KINDRED ARTS.

STONES.

Marble.—The class of rocks denominated *calcareous* are exceedingly numerous and abundant in nature; and of these, marble in its different varieties is one of the most beautiful. It is a granular carbonate of lime, varying in colour, texture, and hardness, and being susceptible of a fine polish, it is extensively used for building, statuary, decorations, and inscriptions. In dry and temperate countries, it is one of the most durable of substances, as is proved by the edifices of Athens, which have retained their polish for more than two thousand years. Severe frost, preceded by moisture, causes it to crack and scale; and great heat reduces it to quick-lime. Marble is wrought by chiselling, and by sawing with smooth plates of iron, along with sand and water. It is polished by rubbing with sand and water, and afterwards with putty and other soft substances.

Numerous stones of the calcareous class, more or less approaching to marble in their character, have been converted to use in different countries. The pyramids of Egypt are built of a greyish-white calcareous stone, enclosing shells. The Parthenon and other structures of Athens are of Pentelican marble, distinguished by slight green veins. The mosques of Constantinople are of a fine grained limestone from Pappenheim, the same which is now used in lithography. At Rome, a porous whitish limestone, called *tophus* by the ancients, and *travertino* by the moderns, is the material of the Coliseum, of St. Peter's church, and other structures. The ruins of Pestum are of a stone nearly similar. Paris is built with a calcareous stone very prevalent in France, nearly the whole range of the Jura being of that material. The Portland stone, of which St. Paul's and other edifices in London are constructed, is a calcareous rock called *oolite* by geologists. Of those finer calcareous rocks, constituting the marbles, many are found in Great Britain, particularly in Wales and the highlands of Scotland; but they are not wrought extensively, as they are not employed except for interior ornaments, such as chimney-pieces, and for this purpose they are excelled by foreign marbles of the pure white variety. The Parian marble, of which the *Venus de Medicis* is formed, is reckoned the finest of its kind.

Granite.—This is apparently the oldest and most deeply situated of all rocks, and is often found shot up to great heights among rocky materials of more recent formation. It is very hard and durable, and is obtained for the purpose of the architect or sculptor in larger pieces than any other rock. Granite is a compound stone, varying in colour and coarseness, but having generally a whitish-grey or mixed appearance. It consists of three constituent parts, namely, *quartz*, the material of rock crystal; *feldspar*, which gives its colours, and which is the material of porcelain earth; and *mica*, a transparent, thin, or foliated substance, which affords a flexible substitute for glass, when obtained in large pieces. Granite is chiefly used for building. It is split from the quarries by rows of iron wedges driven simultaneously in the direction of the intended fissure. The blocks are afterwards hewn to a plane surface by strokes of a sharp-edged hammer. Granite is also chiselled into balustrades, capitals, and other ornamental objects; but this operation is difficult, owing to its hardness and brittleness. It is polished by long-continued friction with sand and emery. There are large quarries of granite in the British islands, particularly near Dublin and Aberdeen; the stone from the latter is highly celebrated, and has been used in building Waterloo Bridge in London.

Porphyry.—This, like granite, is a compound rock, commonly consisting of feldspar and quartz; the former in more or less distinct crystals; there are, however, several varieties. The colour of porphyry is often red or green, and, when polished, is valuable for ornamental work, being superior to marble, on account of its greater hardness. This rock abounds in Egypt, in Mexico, and South America; it also exists in the vicinity of Boston, in North America.

Lapis Lazuli.—This is a stone of a splendid azure-blue colour, often mingled with small

crystallizations, and thready lines of a gold-like metal. The finest specimens are brought from China, Persia, and Great Bucharia. It is much esteemed for ornamental purposes, especially for pillars and inlaid work. The most superb exhibition of this rare substance is made in the celebrated marble palace built by Catherine, at St. Petersburg, for her favourite, Orlov, in which there are entire apartments inlaid with lapis lazuli. The great expense prevents it from being used to any extent in Great Britain, where, however, it is occasionally well imitated on wood by decorative painters. It is employed in forming the valuable pigment called *ultra-marine*.

Freestone, or, more properly, *sandstone*, consists of particles of sand, or silica, united by a natural cement and great pressure. It varies in colour from dingy red to yellow and greyish-white. The most esteemed for building is the yellow or white kind, and particularly that which possesses no tinge of iron. The best varieties are hard, but easily wrought by hammers and chisels, and are so close in texture as not to scale off or moulder through the influence of the weather. Those kinds which are inclined to softness should, after building, be smeared with a light varnish of oil, to fill the pores and prevent the encroachments of damp. The thinnest possible pellicle of white oil paint will be found to render sandstone indestructible by weather. Freestone is largely employed in Great Britain for fronts to public edifices and churches, but is not much employed in domestic architecture. The chief towns built of it are Bath, Edinburgh, and Glasgow. Near Edinburgh, and also in Fife, there are large quarries of this useful stone, suitable either for architecture or sculpture.

Trap.—The variety of this class of rocks, usually called *greenstone*, and in Scotland *whinstone*, is largely used in some places for house-building. It is a hard bluish substance, which breaks easily into square lumps, but is too brittle for polishing like sandstone. Quartz, feldspar, and hornblende form a variety of trap called *sienite*. All varieties of trap make excellent materials for macadamizing roads.—*Chambers's Journal*.

NEW PROCESS FOR MANUFACTURING LIME, &c.

A PATENT has been granted to William Edward Newton, of Chancery-lane, for "Improvements in manufacturing lime, cement, artificial stone, and such other compositions, more particularly applicable to working under water, and in constructing buildings and other works which are exposed to damp." (A communication.)—Sealed the 3rd of April, 1841.

This invention consists, firstly—in the formation, by certain new processes, of a hydraulic lime and cement, which has the property of becoming hard and solid, when under water, or exposed in damp situations. Secondly—in the application of the same principles to the hardening of soft stones, for the purpose of making hard artificial stones. Thirdly—in the employment of the same process for hardening wood, and preserving iron from the effects of damp, &c.

The following is the principle upon which the invention is founded, and the methods employed for carrying it into effect: the property which certain sorts of lime possess of being hydraulic, or hardening under water, is caused by a certain combination of the lime with silica, alumina, and sometimes also with oxide of manganese, and oxide of iron. The object, then, of this invention, is to facilitate the combination of the lime with those oxides, by means of agents not hitherto employed. Thus, in operating by the dry method, as is generally the case, instead of calcining the limestone or lime with sand and clay, the inventor, in order to facilitate the combination of the silica and alumina with the lime, introduces a small quantity of potash or soda, in the state of carbonate, sulphate, or chloride, or of any other salt of these bases, susceptible of decomposition, or becoming a silicate, when such calcination takes place. The salt of potash or soda, the quantity of which varies from three to six per cent. to the quantity of lime, is employed in the state of solution, so as to penetrate and mix better with the alkaline salt in the chalk or slacked lime. Calcination effects the rest in the ordinary manner.

In order to combine or incorporate more equally, by the dry method, the alumina, and the oxides of manganese and of iron, with the lime, the sulphates of these bases are first decomposed by the slacked lime, by making a paste with a solution of the sulphates, mixed with the lime. This paste, into which the sulphates in question enter, in the proportion of from six to ten per cent. of the lime, is then calcined, in order to produce a hydraulic lime. All sorts of lime are made hydraulic, by the humid method, by mixing slacked lime with solutions of alum or sulphates of alumina; but the best method consists in employing a solution of the silicates of potash, or of soda, called liquor of flints or soluble glass. A hydraulic cement may also be made, which will serve for the manufacture of architectural ornaments, by making a paste of pulverized chalk, and a solution of the silicate of potash, or of soda: in working with this plaster, it becomes much harder than ordinary plaster.

These same silicates of potash or soda, dissolved in water, will also harden chalk or soft and porous stones, and transform them, artificially, into hard stones. In order to do this, these soft stones, either rough or cut into their proper forms, must be soaked in a solution of the silicate, either warm or cold, and allowed to remain there a longer or shorter time, according to the degree of hardness which it may be necessary to give them; after which they must be taken out and left exposed to the air. At the end of a few days, stones, thus prepared, will have acquired a hardness equal to that of marble; and this quality in a little time pervades the whole mass; for if, for the purpose of polishing, the outer coat or surface be removed, the inner one, which at first is not so hard, will harden, in its turn, by exposure to the air. This takes place as far as the silicate has been able to penetrate. A more superficial hardness is obtained, by applying the solution of the silicate of potash or soda, by means of a brush. It is in this manner that walls constructed of chalk and mortar may be hardened. Sculpture, and various other objects which may be made or prepared in chalk, may be hardened, and afterwards serve for decorating buildings and other purposes, without the fear of their becoming injured by frost or damp. Chalk, hardened in this manner, may also be used as a substitute for the stones now employed by lithographers. Plaster models may also be hardened, by placing them, for some time, in a solution of the silicate; but it would be still better to add a portion of the solution to the paste, at the time of making the model, or using the plaster. The silicate of potash or soda is prepared by fusing one part of white siliceous matter with from one and a half to two parts of potash or soda, in the ordinary reverberatory furnaces, or in a glass-maker's or iron crucible. The solutions may be used of any density for plaster; but they should be weaker for chalk. In the last place, the inventor has found that the silicates of potash or soda, when dissolved in water, decompose spontaneously in the air, and cover the objects to which their solution has been applied with a strong covering or layer; therefore, by applying the solution of silicate of potash, or of soda, to polished iron, and allowing it to dry in the air, the metal is preserved from oxidation. By soaking wood many times in this solution, and allowing it to dry in the open air every time after it has been placed therein, it becomes so much penetrated with silica, that it acquires a considerable density and degree of indestructibility.

The solution of the silicate of potash is not the only substance which, by being injected into porous bodies, tends to harden them. A mixture, made from a solution of bicarbonate of ammonia, and of chloride of magnesium, may be successfully employed; or a mixture of the solutions of ammonia and chloride of calcium may be used. In these latter cases, instead of having siliceous injections, they are either magnesian or calcareous. Soft and porous stones may also be considerably hardened, and defended from the action of damp, by first well drying them, and then dipping or steeping them in sulphur, or some natural or artificial resinous or bituminous substance, rendered liquid by heat.

The patentee claims, firstly—the application of certain new means to change or convert all descriptions of lime into hydraulic limes

and cements, or such as become hard under water, or when exposed in damp situations, by combining these limes and cements with silica, alumina, the oxide of manganese, or the oxide of iron, either by the dry or humid method. Secondly—the manufacture of hard artificial stones from chalk, plaster, and all porous stones in general, by injecting into them, or imbuing them with silica, or the carbonates of magnesia or lime, by any of the above-described processes; or by causing them, by virtue of their porous nature, to absorb either melted sulphur, or bituminous, resinous, or fatty matters, properly liquified by means of heat. Thirdly—in the employment of the silicates of potash or soda, for making or forming a stony plaster or coating upon a variety of substances; thereby preventing iron from becoming rusty or oxidized, and rendering wood and other organic matters harder, and not liable to decay.—[Enrolled in the Petty Bag Office, September, 1841.]—*London Journal*.

CHURCH BUILDING ACT.

ON the 22nd ult., a meeting of the Society for Erecting and Enlarging Churches &c., was held at their chambers, in St. Martin's-place, Trafalgar-square. The Lord Bishop of Landaff was chairman, and there also were present the Bishops of Ely and Chichester, the Dean of Chichester, Archdeacon Hale, Revs. Dr. Spry, Dr. D'Oyly, and Benjamin Harrison; N. Compton, jun., J. S. Salt, J. W. Bowden, H. J. Barchard, G. Freer, E. Powell, T. H. Dickinson, M. P., James Cocks, S. B. Brooke, Esq., &c. The Secretary having read the report from the sub-committee, the meeting proceeded to investigate the numerous cases referred to them, and granted votes of various sums for the following purposes:—Towards building a church at Nutley, in the parish of Maresfield, Sussex; rebuilding the church at Hurst Pierpoint, Sussex; towards rebuilding the church at Llanllishir, Caernarvonshire; building a church at Maskington, in the parish of Ripon, Yorkshire; rebuilding the church at Newton Tony, Wiltshire; enlarging and repairing the church at St. Mary, at Marlborough, Wiltshire; enlarging and repairing the church at Binstead, Hampshire; rebuilding the church at All Saints, Dorchester; building a church at Little Milton, Oxfordshire; rebuilding the chapel at Elsieker, Yorkshire; repairing the church at Bawdsey, Suffolk; and building churches at Ashby-road and Montpelier, in the parish of St. Paul, Bristol. Certificates of the completion of the erection, enlargement, and repairing of churches and chapels in five parishes, were examined and approved, and warrants were issued to the treasurer to disburse the amount awarded in each case. After some further details of less importance had been disposed of, the society adjourned to its annual general meeting.

FALLING OF HOUSES.

About four o'clock on Sunday morning, the whole of the back part of the houses, Nos. 15 and 16, Summer-street, Back-hill, near Hatton-garden, fell with a most terrific crash. At the time of the accident there were no less than five families in the house (No. 15), making in all a total of 18 individuals, all of whom most providentially escaped. A poor woman, named Parker, who rented the parlours of No. 15, happened to be attending to a sick child, and was just in time to snatch her eldest son, a youth of about 12 years of age, from his bed, when the whole of the superincumbent weight fell in. The police were immediately upon the spot, and rendered every assistance. A young woman, named Harris, had a very narrow escape: she was precipitated from the second floor to the basement story, and was rescued by one of the G division, only slightly bruised. The case of the poor woman Parker seems to be peculiarly hard. Not long since a child of hers was burnt to death, and since that period her husband was killed by the falling of some timber in the mahogany-yard of Mr. C. Senwin, of Back-hill. The poor woman's goods have been nearly all destroyed, and the mangle, wherewith she has long endeavoured to support her family, now lies buried among the ruins. The estate has long been in a disgracefully dilapidated condition. It belongs to the relict of the late Captain Burton, R.N. It was the opinion of the neighbourhood last evening, that if the wind at all freshened from the quarter in which it is at present, the whole row of houses would come down before the morning. The inhabitants all moved away during yesterday, and, perhaps, a more providential escape was never upon record.

NORWICH.—The ceremony of laying the first stone of a new church at Lakenham, in this city, took place on the 25th ult.

ST. PETER'S CHURCH, LEEDS.



We are enabled this week to present our readers with a sketch of the plain, spacious, and venerable pile of the parish church of St. Peter's, Leeds. The name of its founder and the time of its foundation are unknown. The church is 165 feet in length and 97 feet in breadth; it is built in the form of a cross, with a tower 96 feet in height, rising from the centre on four massy columns with arches. The roof of the church, which is 51 feet high, is supported by three rows of pillars, terminated in pointed arches; and the nave displays a sort of singularity, in being divided into four aisles, which run from the transept

to the westend. The choir is spacious, measuring 88 feet by 60, and before the Reformation was divided into several distinct chapels. On the front of the gallery, opposite the pulpit, are the arms of the town—a golden fleece in a field azure, surrounded by a garter, on which is inscribed "Sigillum Burgi de Leedes, 1760," supported by two crowned owls, in honour of Sir John Saville. Over the communion table is a fine painting of the Last Supper, by Permentier; and on the ceiling of the nave is the Ascension, in fresco, by the same artist.

THE NEW HOUSES OF PARLIAMENT.

MR. BARRY'S report on the Houses of Parliament is an exceedingly interesting and able document of its kind. The architect does not limit his ambition to the merely satisfying the public, but is evidently anxious to be allowed to satisfy himself, and thereby bring public taste up to the level of his own; whereas architects have hitherto been rather too subservient—too patient of control; or, at any rate, too forbearing in claiming permission to carry out their own ideas without minute interference, although the doing so may occasion many deviations from the first design, during the progress of the work. It is true, the first design for a building ought to be thoroughly considered in every part, so completely matured, at least before the structure itself is actually commenced, as to admit of no further suggestions or improvements; yet this is not always possible, particularly in so very extensive and complex a pile as the "houses." However happy they may be in themselves, first ideas are not always the happiest of all that may present themselves to the mind from which they emanated. Besides, the time allowed for competitions is generally by far too limited. For study, properly so called, no leisure is allowed, none for careful re-examination, for patient revision and correction; what has been done must be submitted at once with all its imperfections on its head; nor are designs so produced received as mere essays of talent, but as definitive, as what must be either rejected or accepted, without alteration or attempt at improvement. The evil effects of such a system are but too obvious: its consequences betray themselves, more or less, in nearly all our public buildings; for while many which may now be called good might have been very much better, others, and among them some which have not cost the least, look like only so many crude and hasty sketches—"first studies" for things that have evidently received no further study, and, therefore, have scarcely been studied at all.

To such a system Mr. Barry stands opposed, claiming for himself, though he perhaps needs it less than any one else, the privilege of

an artist, to work up his ideas as he goes along, to touch and retouch where he considers it necessary, and to improve upon his first ideas, instead of being tied down to them too strictly. And if in this respect he seems to ask for a degree of indulgence and liberty denied to others, he has shown that he may safely be trusted with it; and the granting it may serve as useful precedent on similar occasions. Nevertheless, it must be confessed that his ideas are not a little elastic, for what he now proposes extends very far indeed beyond what either he himself or any one else contemplated. The enclosing New Palace-yard, and carrying on the west front of the building northwards as far as the corner of Bridge-street,—which being done, we presume there would be a front or range of buildings towards that street also,—would certainly be a very great enlargement upon the original plan. How far it would be attended with decided improvement in point of architectural effect is somewhat matter of doubt; for though so lengthened, that façade would be rendered more imposing as to size, it might also lose something of that effect and picturesque quality which characterized that portion of the first design.

We do not know what Mr. Barry now contemplates doing, should what he proposes be adopted; whether his intention be merely to continue that portion of the west side onwards to Bridge-street, or to reshape it altogether, and bring forward a new design for the whole of it, accommodated to altered circumstances; but the merely lengthening it would be apt to render it comparatively monotonous and flat, destroying that piquant effect of perspective and light and shade which would else attend the north-west view at the angle of New Palace-yard. Even now Mr. Barry's edifice is likely to prove in some respects a rather ungracious and overhearing neighbour to the Abbey; such an unusually lofty, massive, and richly-adorned structure, as the Victoria-tower is intended to be, will certainly not tend to set off that building to advantage in the general view, since the want of a central tower and spire, now evident enough, will then be doubly so; and in fact, unless that feature were

added, we do not see what particular improvement it would be to lay open a full view of the north side of the abbey to Whitehall, by clearing away (as Mr. Barry recommends) the houses between Parliament-street and King-street, because there would be nothing to catch the eye at such a distance, or to relieve the monotony of a mass of shade, and a nearly unbroken outline. Perhaps the Abbey will be under less obligations to Charles Barry than it was to James Wyatt, whose "Gothic" front of the House of Lords rendered even St. Margaret's Church a respectable piece of architecture in comparison with it.

We do not say that Mr. Barry is wrong—far from it—in consulting the effect of his own building as much as possible, not only in regard to itself, but as it will be seen in combination with objects; a point, by-the-by, that is seldom considered as it ought to be, more frequently not considered at all. One object there certainly is which materially affects the view of the east or river front of the "houses"—namely, Westminster-bridge, which, as those who have read the report are aware, the architect is exceedingly anxious should be rebuilt in the manner there explained and urged. We agree with him that it would be a decided and material improvement with respect to the bridge and the traffic over it, the bridge being at present inconveniently steep; and the lowering it and altering the character of its architecture would be a considerable improvement with respect to the "houses;" though hardly, we fear, to the degree that could be wished, because, supposing the roadway of the bridge were made perfectly level from end to end, it cannot be made at all lower than what it now is at its extremities, therefore would still be considerably higher than the terrace on which the "houses" stand. Could this last now be pulled up or elevated about eight or nine feet more, the effect of the river front, at least as seen from the bridge, would have been more stately; and though in that case the terrace itself would have been above the level of the general site (a very low one) on which the edifice is erected, there was nothing to prevent its being done (pecuniary considerations apart), had it been contemplated, at the very outset.

In comparison with some of the other improvements suggested by Mr. Barry, the rebuilding Westminster-bridge may be said to be in the fore-ground of his plans; for some of the others which he has in prospect are so much in the distance, that they are likely to remain for a long time to come, we suspect, entirely in the back-ground, whereas it appears to be almost matter of necessity that it should now be decided, with as little delay as possible, whether the bridge is to be re-modelled. The now proposed deviation from, and enlargement upon the original design by the extension of the west front of the "houses," must also be definitively settled, and it is important to know, if, in case the architect's wishes are acceded to, the public may expect to be made acquainted beforehand with his fresh design for the purpose. Such information ought to be afforded, because what is now so proposed very far exceeds a mere variation of his first set of designs, greatly exceeds also what was contemplated in the first instance, and the programme and instructions by which the competitors were guided at the time in arranging their plans for the best effect on that side of the edifice; therefore, reasonably or not, some of them may say that they would have been able to produce something very superior, and have proceeded quite differently from what they did, could they possibly have had any idea that such latitude would be granted to the architect of the adopted design in carrying out his plans, and such great increase of expenditure. That the last is very great indeed, cannot be denied, for it seems that the total amount of Mr. Barry's estimate is even now not less than 1,016,924l. 12s. 9d. Nor is that by any means all, for there remain some items not taken into that account—viz. for "pavings, furniture, and fittings, and for decorations by works of art;" items likely to add some hundred thousands to the sum total. For fresco painting, and that merely in the corridors alone, exclusively of larger and more elaborate subjects in the principal galleries and state apartments, there will be, it seems, about 26,000 square feet of wall to be so covered. In the halls and galleries, again, there will, in addition to the "pictures," pro-

perly so called, be a vast deal of pictorial embellishment, it being proposed "that all other portions of the plain surfaces of the walls should be covered with suitable architectonic decoration, or diapered enrichment in colour, occasionally heightened with gold, and blended with armorial bearings, badges, cognizances, and other heraldic insignia, emblazoned in their proper colours;" and, further, that both the flat ceilings and the vaulted or groined roofs should be similarly enriched, and have occasionally "gold grounds," with legends and heraldic devices in colours. All this, however, forms only one branch of the general embellishment. In addition to it there will be not a little required for sculpture and statues, carved work, painted windows, and marble and encaustic tiles for pavements. Unquestionably the architect of such a gorgeous pile has every reason to consider himself Fortunatus; but he seems also to think that John Bull is the possessor of Fortunatus's wishing-cap and purse; like another Napoleon, there is no such word as *impossible* for him. Should his ideas be realized to their full extent, the ultimate cost of the edifice will have to be expressed by millions in the plural number, which remark we must be understood as making in perfect good humour, and with-

out intending by it the slightest reproach towards so gifted an artist, and one whose labours are calculated to advance all the arts of design, and every branch of them, to a much higher footing than they have hitherto been upon in this country in modern times.

What we would now recommend on our part is, that the "commission" should now publish officially plans and drawings, fully explanatory of the additions so strongly recommended by Mr. Barry himself; and shewing by one or more perspective views from different stations, what would be the effect of the west side of the "houses," if executed according to the first design, and what that of the greatly enlarged and, perhaps, as greatly improved one. The same also ought to be done with regard to Westminster-bridge, and the general view of that and the "houses" from the river. No doubt such preliminary experiment would cost somewhat more than twelve-and-ninety; but the very utmost it could cost would be a mere trifle, not worth consideration on such an occasion, or if it should be, the over-nice economy shewn in that respect might cause the reproach of extravagance to fall upon the "houses" themselves, at least in the opinion of a great many people. —*Morning Herald*.

PORCH OF ADEL (OR ADDLE) CHURCH, YORKSHIRE.

IN No. 3, we gave a brief notice of a lithograph of this porch, urging our feeble commendation of the style and fidelity of its execution, by Mr. Nevins Compton, an architect, we believe, of Leeds. We have been tempted since that to give a reduced copy of his drawing, for the general gratification of our readers, in the hope that, while we extend the circle of admirers of this beautiful and interesting porch, we may not diminish the number of those who will prefer to possess themselves of the larger draught of Mr. Compton's. At the same time we will subjoin a few words on the subject of the edifice itself.

Dr. Whitaker, in his "Loidis and Elmete," says of Adel, that the true derivation of the word is from Ada, the first Saxon colonist of that place; originally Ada Hill, then Adhill, and, finally, Adle or Adel. From the Domesday Survey, we learn that the five manors of the parish had previously belonged to Alnard, a Saxon; but at the time of the survey were held by one Richard, under Earl Morton, to

whom they were granted by William the Conqueror.

Of the exact period of the erection of the church there is no authentic record; but, from the absence of any mention of it in the Domesday Book, it must have been later, though almost immediately after the compilation of that book. An ancient church is alluded to by Thoresby, following a tradition of the times, which he says stood upon "Black Hill," an elevated spot near the village, and supposed to have been the site of a Roman encampment, from the remains still visible. His words are—"It is a church of the most antique form that ever I beheld, and being built of small squared stones, like the Roman wall and multangular tower in York, I verily thought it the remains of some Roman temple till I found in it some Christian histories (particularly the descent of the Holy Ghost, in the form of a dove, at our Saviour's baptism) wrought upon stone in basso-relievo, but after so extremely rude a manner as sufficiently evinces their great antiquity."

The church is dedicated in honour of St. John the Baptist; and we found it, in the records of

the Holy Trinity Church of York, assigned with many others to Ralph Paganell, and afterwards we have mention of it as conferred by William Painsall to the monks of Kirkstall—this was in Stephen's reign—so that the erection may be assumed to have taken place in the latter part of the eleventh century.

The porch represented in this our engraving is a very elaborate specimen of the Norman period, distinguished by the usual grotesque heads and zigzag decorations, not only on the facias of the inner recessions of the five arches, but continued down the jambs to the ground. The capitals of the columns present very much of the aspect of the work of Indian and Persian art; animals forming a part of their decoration, as well as foliage, which forcibly suggest to us, that which we believe is daily being more and more made manifest, that our northern craftsmen had had their schooling in the far East, and had imported, with the Christian taste of their times, the habits in design of a Persian era and country, curiously blending both; for here we have mixed together the emblems of the Trinity and the Gospel symbols of the four Evangelists with the zodiacal signs, after the fashion of Tentyra and its time and district. It strikes us as not being unlikely that this porch was wrought at some distance from the spot it now occupies, and we should like to be satisfied on this head by an examination of the stone, and a comparison with that of which the main church is built; for the difference in the style of workmanship is so striking as to lead us to this supposition. By some, the porch is supposed to be of a later date than the church; but we think it more likely that the discrepancy has arisen on some such ground as that we have referred to.

MR. CHADWICK AND THE SURVEYORS.

At the present time, when the projected government survey is occupying so much of the attention of the profession and public at large, the following sensible article, extracted from a recent number of our contemporary, *The Architect and Surveyor*, will be read with much interest.

"There is no part of Mr. Chadwick's Report, in which he has meddled with professional matters, that is not full of blunders and misrepresentation. But if there be one part more objectionable than another, it is that in which he condemns the whole body of surveyors, and characterizes them as ignorant and incompetent persons. Adducing instances of incompetence in individuals who call themselves, or are in their particular districts called, surveyors, he arrives at the conclusion that the profession generally is unworthy of public confidence. This, however, does not in any degree surprise us, considering the general tenor of his remarks; but it might have been supposed, that, after all the encomiums he had passed upon the engineer who has the superintendence of the sewers of the Holborn district, and the frequent allusions he makes to the importance of employing engineers instead of surveyors, he would have left the contemplated improvements to their management. But not so; after having caressed and applauded them, he suddenly and slyly cuts their acquaintance, and prefers a corp of Royals.

"It has been shewn," says Mr. Chadwick, 'in respect to drainage, as well as good construction, that the economy and efficiency of the works will be according to the qualifications, the powers, and responsibilities of the officers appointed to execute them, secured by legislative means, and that new labour on the old condition, without skill, will be executed in the old manner, extravagantly and injudiciously.'

"If any one doubts the truth of Mr. Chadwick's dogma—that the economy and efficiency of works are according to the qualifications, the powers, and the responsibilities of the officers appointed to execute them—we would refer him to the Poor Law Commission. It is amusing enough to find a person identified with that commission talking of the necessity of a responsibility in public officers. In what public office, we would ask, is a man without responsibility, except in that of the commission? There is not a page in this Report, where allusions are made to professions and persons en-



ADEL PORCH.

gaged in them, in which the writer does not speak as one who feels that he has no responsibility. The qualifications of Mr. Chadwick and the commissioners may be all that can be desired by those who appointed them, their power no one doubts, but to talk of their responsibility!—they have none, and act under the full conviction of the fact, trampling upon public opinion, the claims of poverty, and the very principles of morality. Whoever may be appointed to carry out the system of drainage and sewerage which must be shortly adopted in this country, they ought to be qualified for their work, have sufficient power to enforce the law, and be made responsible for the performance of their duty, but it is not decent for a poor-law commissioner to make the remark.

"But engineers, or properly qualified officers, having the science of civil engineering," says Mr. Chadwick, 'could not be procured for every separate purpose in every part of the country, as is generally assumed in Acts of Parliament for effecting particular objects.

"From a consideration of the science and skill now obtained from these two corps (the Royal Engineers and the Sappers and Miners) for general service, some conception may be formed of the science and skill that might be obtained in appointments for local service, by pre-appointed securities for the possession of the like qualifications, but which are now thrown away in separate appointments at an enormous expense, where qualifications are entirely neglected.

"The officers of the Engineer corps have the execution and care of structural works, docks and dockyards, fortifications, military roads and barracks, in addition to the ordinary military duties. One captain of engineers fills the office of hydraulic engineer to the Admiralty, and to his superintendence is intrusted the construction and repairs of all the docks, buildings, and other public works.

"The officers of the Engineers have been distinguished for their services on some of the most important civil commissions. As collateral services which they have rendered to the public, may be mentioned the trigonometrical survey of Ireland, and that now in progress for England, under the Board of Ordnance, and also the geological survey. The levelling, however, and the whole of the detail of the trigonometrical survey in England is taken by the privates, corporals, and sergeants of the corps of sappers and miners, who have been instructed in geometry, drawing, and mensuration at the school at Chatham. The triangulation for the detail of this work is executed by the engineer officers, under the direction of Colonel Colby. The great majority of the surveys obtained under the Parochial Survey and Valuation Act from private surveyors have been inferior to the surveys executed under superintendence by the privates and non-commissioned officers of the sappers and miners, serving at a pay of 1s. 2d. to 3s. per diem. Out of 1,700 first-class maps received under the Parochial Assessment and Tithe Acts, not more than one-half displayed qualifications for the execution of public surveys without superintendence. Among the most satisfactory maps of the first class of parochial surveys were those by a retired sergeant of sappers and miners. The commissioners for the colonization of South Australia found it difficult to proceed satisfactorily with persons of the ordinary qualifications of surveyors or civil engineers for that country, and deemed it requisite to obtain the services of an engineer officer, with a suitable number of trained men, sappers and miners, under his command.

"It is difficult to keep within those bounds of expression which should regulate even the controversy of men of education, when one has to deal with a person who is so ignorant of the subject upon which he writes and dictates, as to lay himself open to the censures we must pass upon this part of Mr. Chadwick's report. This gentleman has so contrived to distort and misrepresent facts in the statements he has made in the very remarkable paragraphs we have quoted, that it is difficult to attack him upon a principle. It is not, however, our intention to allow him an escape under a subterfuge, and we will therefore consider his first data, if such his assertions can be called. There is an unintelligible jumble of statements in the paragraphs we have quoted, evidently intended to exalt the military surveyor or en-

gineer, and to lower the civil, in the estimation of the government and the country. The facts have no connection with each other, but 'the privates, corporals, and sergeants of the corps of engineers, and of the sappers and miners,' are placed in advantageous contrast with, and preferred to, the engineers and surveyors in private practice. The reporter has managed to express as many unfair and false statements in four paragraphs, as were ever written in the same space, from the days of the romancers to those which immediately preceded the establishment of a poor law commission. But the gist of the whole is, that the trigonometrical surveys by military men are better done than the plans by private surveyors under the Parochial Survey and Valuation Act. Can any thing be more unfair than such a comparison? In the trigonometrical survey, which the government ought, for reasons to be presently stated, to have committed to the hands of civilians, and not to the military, time was a matter of no importance; the pay was continued, and there was no inducement to haste; the means of existence were secured, and there was no possibility of loss. But the private surveyor had to tender at so low a price, that no man who could find any thing else to do would even compete for the employment. Not one out of fifty who did their work in a professional and accurate manner received the amount of their expenditure, and for this cause the work was frequently left to incapable persons, who assumed the name of surveyors for the occasion, and began to read a treatise on land-surveying, when their tenders were accepted. And yet, upon this evidence, Mr. Chadwick presumes to throw disgrace upon a profession, and to prefer the privates, corporals, and sergeants of the engineers, and the sappers and miners, to the surveyors in private practice. The only wonder is, that he did not avail himself of the surveys made for the Reform Bill, which would probably have been still more suitable for comparison, if it had been equally expedient to have quoted them. It is well known to the profession, that on that occasion many persons were selected as surveyors who did not even know that such an instrument as the theodolite was in existence. Many were distressed impoverished artists, who trusted more to the accuracy of their eye in sketching than to any qualifications they possessed as surveyors. There were some persons, to our own knowledge, employed at that time who had never seen a land-surveyor's chain, and we know one gentleman, who has since been intrusted with large public engineering works, who, when he had been himself rejected from want of interest, taught, for the sake of a few pounds, several applicants who had been more successful than himself, the first principles of surveying, and the use of instruments. The fact is, that the profession is impaired in the first place by the employment of uneducated and incompetent persons, instead of those who, by study and practice, have qualified themselves for their business, and the profession is then made responsible for all the blunders committed by those who, though they have assumed the name, and stolen the employment, have been destitute of the qualification.

"It is not to be doubted that there are quacks in all professions, men who are sheltered by a name, and gain by impudence what they are conscious is not due to them from experience. Such may be found even among the royal engineers and the sappers and miners, who, instructed, and at the same time supported, by the country, ought to have no other care than that of acquiring a superior knowledge of their professions. Architecture, engineering, and surveying are more exposed to the invasion of quackery than any other liberal professions, because no test of knowledge is required previous to profession. We are not advocates for any such exclusive system as that thought necessary for the protection of lawyers, surgeons, and apothecaries; we are not anxious that a certain term of apprenticeship and certificates from certain professors should be desirable; for the knowledge of the arts and the sciences on which these professions depend is frequently acquired by men from genius and persevering study in private spheres, who would be ornaments to the professions, and ought to be admitted. Some authorized body, however, for the examination of candidates, is necessary, and would prevent such unmerited imputations

as Mr. Chadwick has thought proper to throw upon the surveyors as a class. Whatever incompetence may be exhibited by a person who calls himself a surveyor, whether of roads, pavements, sewers, land, houses, or any thing else, is seized upon by the Poor Law Commissioners' secretary, as an evidence of the ignorance of the profession. Apply the same test to any other body of professional men, that, for instance, to which Mr. Chadwick himself belongs, and if the lawyers—counsel, attorneys, and solicitors—are not found much more incapable than the surveyors, we will confess that we have formed a very erroneous opinion of their qualifications. Why is the client daily put to the expense of opinions from pleaders, in such simple cases as that of suing for debt, if the solicitors of the day are competent practitioners of the law? And as to the costs of surveying, in comparison with those of the law, we challenge Mr. Chadwick to the examination.

"The question of expense incurred by the employment of surveyors is put by Mr. Chadwick in his usual unfair and inaccurate manner. After drawing a comparison between the military engineers and the civilians employed in the survey of land, he commences his comparison of the relative expenses of the two classes, by stating the presumed emolument received by surveyors of houses under the building acts, and the cost of 'a whole board of superior officers at the rate of pay to the officers of the corps of engineers.' Taking, as an example, the town of Leeds, he assumes that the average rate of increase of houses is 855 per annum, and of families, 940, 'which is two new houses and three-tenths per diem, which, if they were only fourth-rate houses, would be required to pay in fees 4l. 12s. per diem for two or three hours' service, at the ordinary rate of payment to private surveyors'; this statement we entirely deny, but will take another opportunity of disproving it. For this sum, says Mr. Chadwick, a board might be formed of one colonel, one lieutenant-colonel, two captains, two first-lieutenants, two second-lieutenants; or of one captain, two first-lieutenants, three second-lieutenants, one colour-sergeant, three sergeants, six corporals, twenty-two privates. From such a statement as this, any confiding reader would conclude that either of these military boards could be supported at an expense to the country of 4l. 12s. per day; but the slightest reflection will detect the error of the calculation. This is the amount of their pocket-money, the country providing them with bed and board. This is but one item in the calculation of expense; to it must be added the cost of erecting and maintaining barracks, of clothing, supporting, and educating the men, as well as of supplying them with the necessary instruments; all the time that has been lost in their education, during which they have been equally expensive, and could make no return of services, and also the number of those who, after all the expense, are never brought into any service by which the country is benefited one penny. If Mr. Chadwick will take these additional items into his consideration, and many others with which we will supply him when he feels inclined to correct his estimate, he will come to a very different conclusion.

"The fact is, that every civilian who enters practice as a surveyor has qualified himself for his duties, or is supposed to have done so, and is only paid for the knowledge and skill which he does or ought to supply. But it is not so with the military surveyor or engineer. For his support and education the country has paid, perhaps, many years before he is fitted for the execution of the duties he is required to perform, and not for his only, but many others, in fact, the whole body of men to whom he belongs, some of whom die, some are incapable of learning, and the greater number of those who remain after these deductions have no employment, or at least none which brings any profit to those by whom they are supported.

"But these remarks suggest another inquiry: For what purpose are the two military bodies, the Royal Engineers, and the Sappers and Miners, who are so highly extolled by Mr. Chadwick, supported by the country? It has been supposed that they were necessary for military services, which is the only pretence for retaining a standing army. If it be now found that this supposition is erroneous, why is the country any longer called to defray the heavy expenses incurred by their support? If

they can be employed in civil services, it is surely a fair argument that they are not wanted for military, and then, why are they not disbanded, and the public money saved, which, upon this shewing, is uselessly expended? That they should be admitted into civil service is as impolitic as it is unjust. It is impolitic, because it admits such a deduction as that we have suggested; it is unjust, because the man who has paid for his own education and supported himself in a sphere of life called professional, finds himself brought into competition with men who have been instructed, clothed, fed, and entirely supported at the public expense, and to which he has consequently contributed his share, and he is at the same time lowered to the rank, in Mr. Chadwick's notable scheme, of a private, or at best that of a serjeant in the Royal Engineers. Again we ask this reporter to carry into his own profession the doctrines he inculcates for reforming the practice of engineers and surveyors. Why should the bar be protected by restrictions, and the public be compelled to pay a counsel hundreds of pounds for conducting a case, when he might frequently obtain for as many shillings as good a head, and as good a speech, and that from a man who received his gifts from nature, and his knowledge from personal application, without being indebted to the public for a penny? If errors are to be found in the present system,—and in what professional practices are they not to be found?—they must be traced to the state of the law, and not be thrown upon the backs of the men who are oppressed rather than benefited by it.

"But, independent of all considerations as to the relative cost of employing military men in public services unconnected with their duties, whatever may be their attainments, we object to the practice, for the reason that it tends to restrict and cramp the energies of the man of science, and to introduce military control over the people. That Britain should have so long retained her high station in science, with so few encouragements from government, is not the least remarkable circumstance in her intellectual history. In other countries, the government has a difficulty in urging the people to scientific improvements, because all the men of science are more or less connected with it; but in this country the people are generally prepared for an intellectual advance before the government is ready to admit that it is desirable, and this because the men of science are in constant communication with, and form an important class of the industrious population. The opportunities of remuneration for their energies are already too few, being entirely restricted to the professions whose interests we represent, and those branches of commerce which depend upon mechanical or chemical investigations. To invade the legitimate employments of these men by a paid military force would destroy the last hope of every man of science who is in any way dependent on his bodily or intellectual labour for his support, and necessarily turn his attention to other pursuits, in which he would probably be more profitably employed for himself and his family, but less so to the country. In withdrawing an opportunity of support from this important class, a fertilizing stream of knowledge most beneficial to a country would be dried up, and the intellectual resources proportionally impoverished.

"Mr. Chadwick has exultingly pointed out the successful operations of the military engineers in the trigonometrical surveys, and, without waiting to shew that it was an improper employment for that body, cost the country a larger sum than if it had been intrusted to civilians, and deprived an equal number of men of the employment and patronage they have a right to expect from the hands of the government, we will give some other facts for comparison than those which Mr. Chadwick has been pleased to suggest. To whom, we would ask, are we indebted for the discovery of those principles upon which the now almost perfect science of geology is founded? William Smith, a surveyor, who belonged to one of the classes so despised by Mr. Chadwick, was the discoverer, not only of the great fundamental fact of the super-position of rocks and their characteristic organic remains, but he was the first to form a scientific classification, and to prepare a geological map of England. By whom have the most important contributions to this science been made? Who discovered and first

constructed the steam-engine, and by whom have the subsequent improvements and applications been suggested and put into operation, under all the disadvantages which, in this country, so fearfully impede the progress of science, and prevent its followers from reaping, without a fee to the government for their ingenious thoughts, the recompense of their labours? These, and a thousand other discoveries and improvements,—indeed, we may say, all that have been made in the present century, have been the results of that energy of thought which is common to minds of a high order when they have to struggle with the difficulties which surround them in the effort to gain subsistence, rank, and fame, and so rare when in their earlier career they have been rocked in the arms of indolence, and flattered by the possession of a station and competence for which they have not had the necessity to toil.

"But although we have felt it our duty to defend the surveyors, as a respectable and well-informed body of professional men, against the sweeping imputations of Mr. Chadwick, we are not to be supposed the advocates of that large class of persons to whom the name is sometimes applied, but who are not only ignorant of the first principles of a professional education, but are scarcely able to write their own names. Mr. Chadwick has, for his own purposes, chosen to confound these two classes, and to draw conclusions from the incapacities of one to the prejudice of the other. It has suited his object to place the surveyor attached to one of the Metropolitan boards upon the same level as a surveyor of roads or pavements in an obscure country parish. The term 'surveyor' is frequently applied to any person who has the superintendence and direction of others in constructive works, and although it conveys the idea of superior knowledge, it by no means points out the employment and responsibility of that class of persons who receive the name in large towns. The duties of the several professions connected with the art of building are much less accurately understood among persons of education living at a distance from the metropolis than might be expected. We have met with men of family and wealth who have supposed architects, till absolutely brought into connection with them, to be a sort of superior builders, and could give no other meaning to the term surveyor than that which they had been taught by their association with the parochial boards of their districts. The misapplication of the name has tended greatly to the detriment of a valuable class of men, and it has been Mr. Chadwick's policy to increase the confusion, and make them responsible for all the stupidity and knavery that are practised under their name. Many of the surveyors, fearing association with the classes to which allusion has been made, have lately called themselves engineers, but even this now honoured term will be gradually debased by the assumption of incompetent and unworthy persons, unless some mode of protection be adopted. In all the three professions, a higher standard of excellence is required, a more rigorous and a sounder education, and a proof of qualification before practice; and Mr. Chadwick will have done us some service without intending it, if his remarks should stimulate us to the accomplishment of these important means of self-protection."

GREENWICH PIER.

WE are unable to furnish our readers with any additional information this week beyond the particulars published in our last number. Little has yet been done towards removing the rubbish, and there are no signs of active and immediate exertions for reconstructing the pier. We are credibly informed that this delay is occasioned by the probability of this unfortunate disaster becoming the subject of protracted litigation between the proprietors and the builders of the pier.

Literature.

Archæological Magazine for Bristol and the West of England. London: Cunningham and Mortimer, Weale and Rivingtons; Strong and Davey, Bristol; &c. &c.

Who shall say that this is not the age of architectural advance, with heralds of its presence and progress saluting us at every turn? and this, although rejoicing in a wider title, is

one of those works that will necessarily come to be classed as exclusively, or all but exclusively, architectural. So much is required for the architect to know, so comprehensive, in fact, is the philosophy of architecture, that we shall have no man pretending to or wearing the title of an architect legitimately, and shall have nothing worthy of the name of current architecture, until the philosopher is united in such a man. To be less than this is to be the mere money-changer of old coins or a virtuoso; it may be, the curator of a museum of antiquities—the door-keeper to the Temple of Architectural Science. Archæological research, as proposed to be carried on and promoted by works of the class we are now contemplating, and by societies such as that of the "Bristol and West of England Architectural and Heraldic Society," with which this publication is connected, under its editor, Mr. T. H. Sealy, will lead to such a collection of facts concerning the old workings of the professors of the arts of design and construction, as to imbue the moderns with a clearer sense of the way of emulating or, if you please, imitating them. We want the key to the great secret of intelligence that lit up the minds of those giants, which, when possessed of, we may, without irreverence, assume to enter upon the vocation of duty which they so fitly and worthily discharged. That key must be "forged" out of the half-rusted and too long neglected fragments which, the great storehouse of archæology contains; they yield the best and soundest metal, and the gatherings of this magazine are valuable and most welcome. We are most glad of an opportunity of noting their receipt and of treating our readers to a sample both of a descriptive and an illustrative character.

There is an excellent article on Mural Tablets in Churches, containing a good deal of sound criticism; but what is said of the accident of circumstances, distinguishing our times from those which have preceded us, and generating in them totally different characteristics and requirements from those resulting from the present, is applicable, we contend, alike to style in art as to modes and fashions. Whether in memorial structures and erections, or in temples themselves, the Christian religion, under one set of circumstances, gave one character to the things under its influence, while, in another set of circumstances, it will give another. The purest sense of Catholic truth did not, without the bungling of ages, produce a congruous system of art; therefore art has it in her power to take right lines or curves, vertical or horizontal lines, and so blend them together as to produce her harmonies; as we see in the Greek column and its multitudinous vertical lines or flutings; the Gothic church, and its long extended ridge, parapet, string-courses, base lines, and down to the foundation, horizontal or vertical, all come under the mastery of the trained judgment. Art is of no religion. Religion is tied to no art, no more than beautiful nature. The richest landscape, the most fertile territory, have been enjoyed by the veriest heathens. The sun of nature shone luxuriantly upon them, and darkness and sterility have accompanied the truth. The sun of art alike shines, without favour to class or sect, and that creed multiplies itself that asserts an indissoluble marriage with, or dependence on, any style in art. Catholic truth takes cognizance of all perfect things, mental, manual, or mechanical; and even architects must make themselves acquainted with the living language of art as well as the dead; they must study chemical, mechanical, and natural science, as well as antiquarian lore; and what is being done for them, let us ask, to imbue their minds with a knowledge of that vital element of art which these former can alone supply? But we are running from archæology into architecture, and, like too many reviewers, writing an essay of our own instead of introducing the reader to our new acquaintance.

Next to the article on mural tablets is "a chapter on Church Building," very much to our liking. It has been called forth by a tract under this title, by Mr. George Godwin, whose energetic labours and well-displayed ability are familiar to many within our circle. He deserves thanks, even if it were for no more than this tract and the observations which it has elicited in the Bristol Magazine.

Bristol and the district of which it is so important a centre are rich in materials for writing

and illustration, and accordingly we find that St. James's Church in that city is commenced with, and a promise of plans, elevations, sections, and details to be given in a separate publication. We have next a notice of St. Catherine's Hospital, at Brightbow, from a paper read by R. Woodford, B.A., before the Bristol Architectural Society, of which that gentleman is the secretary. This engraving



of the seal, curiously enough, bears the figure of St. Mary Magdalen, and not that of its patroness, and the inscription round it de-

scribes it as the seal of the Hospital of St. Mary Magdalen, at Brightbow; but still it is maintained that the reference was to St. Catherine's, and that there was no other hospital in that locality.

In the next article, on Boyton Church, Wiltshire, we have an interesting description, from which we may quote the following:—

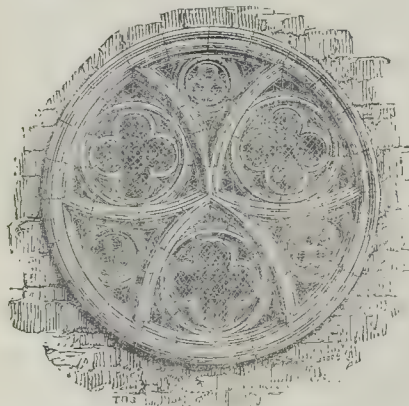
"The disposition of its parts is somewhat singular; the tower being situated on the north side of the nave, between a small chapel on its eastern side, and the sacristy upon the west. On the south side is an interesting mortuary chapel, opposite to, but considerably larger than that already mentioned on the north. The principal dimensions of the church are as follow:—the chancel is in length 33 feet 6 inches, and 19 feet in width; the nave, 49 feet long by 22 wide; the north chapel, 13 feet by 18; the south chapel, 26 by 18; the tower, 10 feet 6 inches by 11 feet, and the sacristy, 12 feet 6 by 10.

"The chancel has, at its east end, a three-light perpendicular window, the principal lights 5-foiled, with a slightly drop arch. The other windows are three small Early English lancet-headed ones on the north side, and two similar ones on the south. These have all drop arches on the interior. In the S. wall of the chancel are a piscina, and sedilia for priest, deacon, and sub-deacon, all Early English. The former has a trefoil arch, with a drip moulding, a circular orifice, and no shelf; the latter has likewise trefoil arches of equal height, with drips. The seats are in three gradations."

The two windows, engravings of which we here subjoin, refer to the Giffard chapel, which is the mortuary chapel on the south side above spoken of.



EAST WINDOW OF THE SOUTH CHAPEL.



WEST WINDOW OF THE SOUTH CHAPEL.

"In its principal features—a three-light window on the eastern side, and a circular one on the west—it is difficult to say whether the characteristics of Early English or of Decorated predominate. The mouldings, particularly those of the former, are Early English in their form, whilst the beautiful arrangements of the tracery belong to the latter

style. The centre light of the east window is higher and wider than the others; small shafts with bases and capitals are attached (in the interior) to the mullions and jambs, and from the capitals spring lancet arches to the side lights; the middle light has a stilted equilateral arch.

"The circular window is of a size and beauty

rarely met with in small churches. It is twelve feet in diameter, and the lower part comes within a few feet of the external ground. A drip on the exterior runs round the whole.

"On the south side of this chapel are three lancet windows, the centre one modernised; and beneath the easternmost a piscina and three sedilia, all of Early English work, and nearly resembling those in the chancel. The piscina has an octagonal orifice, beneath a trefoil arch, canopied, and is without a shelf; the sedilia have seats in gradation, whilst the heads are of equal height.

"It should be observed that the window towards the west in this south wall, as well as that at the south-west corner of the chancel, is what is now known commonly as a lyncoscope: so that if the opinion formerly published by the Camden Society, in reference to the object of these windows, be correct, an Easter sepulchre must have stood in the south chapel as well as in the chancel; and this would not appear unlikely, as the three sedilia sufficiently intimate that full services were performed in the chapel. But if the real intention of these low windows was not to enable persons from the exterior of the church to watch the lights burning at the sepulchre, but, as others have suggested, to allow lepers to witness the elevation of the host, another thing in this south chapel would be accounted for: the north side of the chapel, besides the pier and arches separating it from the nave, exhibits, at its eastern extremity, a doorway, at a height in the wall, which formerly gave access to the rood-loft—the staples for the hinges remain in the stone. A part of the wall on the eastern side of this doorway has been splayed away in such a manner as to admit of a glimpse into the rood-loft, from the window in question; and thus probably the rood itself was rendered visible to persons on the outside of the church. The same object would be gained likewise by the lyncoscope in the chancel."

(To be resumed.)

OUR CORRESPONDENCE.

TO THE EDITOR OF THE BUILDER.

SIR,—You may remember that an Act of Parliament was passed for the regulation of weights and measures, in which it was enacted, that the only legal stone-weight should be that of fourteen pounds. It wished to be as a law of the Medes and Persians; but the popular habit was found to be so strong, that, it is said, one of the most active legislators, almost the father of the measure, upon being shewn by the graziers, salesmen, and butchers that they could not buy and sell by the stone of fourteen pounds, was compelled to answer, "Well, you must not say so much a stone, but you may say, so much for eight pounds."

The Metropolitan Buildings Bill errs in the same way, and makes the uncalculated attempt to change the meaning of popular words and the terms sanctioned by popular habit. Thus, the word *alley* is, in future, to mean, not a long, narrow passage, but an avenue as wide as Watling-street, and through which a whole railroad train might pass without touching passengers two abreast on each side; and the term *first floor* is, in future, to mean the cellar; and that best part of a house, "a genteel first floor," is to be named the third floor.

Here, definition is attempted, but where legal preciseness of language is not only desirable, but definition is really called for, there it has been forgotten, as, for instance,—What is in future to be the strict legal meaning of the terms "warehouse," and "dwelling-place?" These are of large importance as respects the operation of the bill upon every description of building; and as definiteness of language is of much moment, it is to be hoped that clauses 20 and 23 will be so worded as that they may be readily understood by common people, for as to the first, it is absolutely incomprehensible, excepting that one may make a tolerably shrewd guess as to its meaning; and as to the latter, the first passage is so obscure, that it may even be held to interdict the letting for hire any house which has a dressing-closet, and almost every fourth-rate house that has ever been built; and whether the term "dog-kennel" is to prevent my lady Marchioness keeping a lap dog is by no means clear.

I now have reached one of the most momentous provisions of the whole bill,—the future system of rating.

The present system is, to rate by the superficial extent; to restrain by the height. The new system is, to rate by the height; to restrain by the superficial extent; the one being exactly the reverse of the other. The gentlemen who drew the bill doubtless believe that they have irrefutable reasons whereunto to justify the reversal of a practice of three quarters of a century; and under which they, I, and many others have been born and grown grey; but they can surely have never tried, upon paper, the working out of their principle, nor can they have recollected that the lode-stars of the mea-

sure are, the prevention of the spread of fire and the generation and extension of disease.

Try, Sir, to plan a new fourth-rate house, containing 11 squares, 99 feet, and to put in as many rooms as you can, just above one square each, to satisfy the law; and I shrewdly suspect that you will find it hold at least twenty-eight rooms; and if each of them be let to a separate family of the usual average of five persons, then a fourth-rate house may be legally occupied by one hundred and forty men, women, and children.

If they look but for a moment at the horrible depravity which must be expected to ensue, at the diseases which may be engendered and spread through such a living mass, at the demoralizing filthiness which will be forced upon them (for the bill requires only one privy for one house), at the imminent risk of the occurrence of fire, and at the chance of the walls of such a house falling, when gutted by fire, I cannot but think the legislature will see it to be irresistibly necessary that they should recur to the existing system.

They have but to ascertain what have been the inconveniences of the Building Act with respect to rating, and then it will be easy to provide a remedy. I apprehend the most open course is the increase of surface to be comprehended in each rate, and some reasonable limitation of the extent to which future additions, upon the ground plan, may be carried.

In commenting upon the provisions made as to construction, it may keep a wholesome check upon our views, if we consider the leading requisites of a good house; complete drainage, firm foundation, thorough ventilation, adequate strength.

Had the legislature to do only with unselfish beings, they need but to ask that every precaution should be taken to insure them all; and every respectable architect and builder might safely be trusted without further direction, if not from higher feeling, certainly from the bare circumstance of both being pecuniarily interested in building strong enough. But our wide-awake friend John Chinaman has a prudential maxim. "Never trust a man who builds houses to sell." There are wandering, reckless, speculating builders (as they call themselves), men who only build to sell, who must, on the part of the public, on the part of the proprietor of the soil, and on the part of purchasers, be restrained.

I cannot walk the environs of London without seeing at every turn houses built with the filthiest old bricks and bats, timbered with wormeaten or other thin and defective wood, and plastered with "billy-sweet;" but as smart as new pins externally. The floors tremble and windows rattle as you tread, while the winds and rains of heaven spin through in all directions; and, seeing these, I feel assured it is absolutely necessary, that both the substance of the walls and of the timbering should be defined by law; but law which, while framed stringently enough to check this cankerous evil, shall not unnecessarily cramp those who seek to act uprightly.

As to the needless thickness of a wall, with respect to the support of weight, and the resistance of fire—

It might be made matter of calculation, what vertical weight one course of fourteen-inch sound stock brickwork would bear uninjured, and from that to deduce how high a superincumbent wall may be built: as also, what quantity of fuel would be necessary to heat such a wall so thoroughly as to ignite wood on the other side of it. I dare say, all this might be satisfactorily arrived at. But without it, I apprehend that I may safely challenge the production of any instance of a sound fourteen-inch wall of thoroughly-burnt stock bricks crashing under any insistent weight, or of fire communicating through such a wall; although eighteen-inch walls of very bad place bricks have crushed under their own weight, and I well remember the dread experienced in passing, for examination, alongside a four-feet wall of similarly bad materials, which was crushed and split in all directions. I am satisfied that it is not thickness of wall, but soundness of material, that assures needful strength; and that a very thin wall will check fire was plainly shown by that furious conflagration at Hamburg having been stayed in one direction by a one-brick wall.

If this be so; if fourteen-inch walls are so strong for both objects, one plain provision, that there should always be one unbroken, unutilized sheet of fourteen-inch wall everywhere, between all contiguous houses, would be sufficient; and builders might safely be left to add, wherever they might see fit: but as all may not be equally skilful, or far-seeing, it may not be unnecessary to provide that, wherever walls exceed some stated height, say fifty feet, some definite portion, as at least one-fifth, should be two bricks thick; and for stacks of warehouses, or other commercial places of deposit, another half-brick throughout would render security doubly sure.

I would not suffer recesses, or chase, or flue, or

space for the end of timber, in any place to interrupt the entirety of the fourteen inches; and I will never libel "the craft" so much as to suppose for a moment that they cannot devise means of supporting the floors, and lying in the walls, and concealing soil-pipes, without wounding the party wall.

As to the chimney-breasts, if there be any well-authenticated instance of a house having been burnt in consequence of the breast of a chimney, or the wirths and rims of flues, in dwelling-houses, being only half a brick thick, then it may be prudent to insist upon thicker work. But, not yet believing that such proof can be adduced, I see no reason whatever for making them one brick thick.

With a solid fourteen inches between house and house, with half-brick wirths and breasts, there cannot be a hundred-thousandth part of the risk which attends muslin curtains; but it may by possibility be well to provide that kitchen chimneys, and those of other places where enormous fires are customarily made, shall have nine-inch breasts the whole height of the story to which they appertain.

There is, indeed, something altogether so oddly ridiculous in the framers of the bill requiring nine-inch wirths and rims, that I have a very wicked suspicion, some exceedingly funny fellow has been playing upon their easy credulity, and chucking in his sleeve at the monstrosities which would grow out of them. Heaven help the graceful combinations of the Tudor style, and save us from the "Victoria squabs!"

Doubtless some duller being, some "solid upon solid and void over void" man prompted the provision that chimney-breasts shall, in future, be carried up of equal width throughout, and interdicted corbeling over, excepting for one breast only in an upper story. I most respectfully entreat the promoters of the bill to examine any ancient cathedral, or to walk through their own baronial halls, or to contemplate their own machiolated towers, and satisfy themselves, as men of common sense, whether there be any insecurity in the principle of corbeling. As a very, very humble man, untaught in schools, unenlightened by travel, and possessed of very little mother wit, I yet assure them, and every practical bricklayer will do the same, that corbeling over, at the same time sideways from a breast and frontwise from a party wall, is attended by no risk whatever, in common mortar. Where a whole breast has to project from a wall, there a little more care is requisite. It is often done upon stone or iron. By your vile, scamping builders, it may have been insecurely done, but that is no just reason for wholly interdicting it. Stone, and cast iron, otherwise the fitter things for such a purpose, will flay under the joint action of fire and cold water. I much prefer corbeling with brickwork set in cement, a process which is, in fact, building a stone, and that, one which will not spall off in the fire.

Even were it as true as it is false, that corbeling cannot be made secure, there cannot possibly be any valid objection to springing an arch from sufficient piers, and carrying the upper breasts upon that. The allowing recourse to such an expedient would save from incalculable injury the narrow shops of London, and enable architects to avoid unsightly blemishes in the fairest rooms of the fairest mansions.

If these concessions be not made, the double stack in a full-sized first-rate must either be fourteen feet three inches in breadth, and four feet seven inches in thickness; or seventeen feet two inches in breadth, and three feet nine inches in thickness; and in inferior rates, the breadths alone will be less, but the thickness will remain the same. This really is too bad.

Differing as I do from the framers of the bill, I also differ from the "Master Carpenters' Society." Flues ought not to be carried up within the thickness of party walls. It is now done only by an unscrupulous evasion of the letter of the existing act, and ought not to be tolerated for an instant. It may be, it very probably is, true, that there is no well-accredited instance of a house having been burnt from such a cause, but it is no very pleasant affair to have a wall so hot as to blister off the paint, and almost to scorch your hand.

Requiring that no part of a party wall should be less than fourteen inches, it is also advisable that no external wall should be less than fourteen inches: first, because that it is necessarily weakened by the openings; next, because that with a nine-inch wall you cannot nail the joists on sufficiently; and further, because that a nine-inch wall will not resist a driving rain. I would even make the parapets fourteen inches thick, as they suffer most from the weather; and, remembering the righteous precaution of the Mosaic law, I would with all my soul insist upon their being carried up three feet above the gutters; lest I should have any man's blood upon my head. The legislature has not merely to consider bricklayers, whose daily habits render them secure, even without a parapet, but has also to protect females and children, who may, in terror, be endeavouring to escape from fire.

The bill intends to prevent the formation of recesses, and even blank windows in external walls; but it has been overlooked, that it is much better to form a blank where a window may at some future time be wanted, than to break a way through a solid wall. I take it, that very few builders would make blanks unnecessarily. The cost of additional labour generally counterbalances any petty saving of material. "De minimis non curat lex." It is paltry legislation, and had much better be omitted.

But, Sir, although I quite agree with the highly respectable gentlemen who are said to have drawn the bill, and whose better judgment has possibly been overborne by benevolence, but unpractised law-makers, that, in the abstract, no party or external wall ought to be less than fourteen inches thick; yet, it would be most oppressively unjust to require every honestly built fourth-rate house of the existing law, when rebuilt, to have fourteen-inch walls. They are wretchedly cramped already, and can ill afford to lose nine inches of space depthwise, and half that quantity widthwise (nine-inch chimney-breasts and wirths are altogether out of the field, the government cannot stultify itself by making such a law). As a middle course, I would very humbly suggest, that a choice might advantageously be left to the owners; either that they should rebuild with fourteen-inch walls set in mortar, or nine-inch walls set in cement. The space saved would repay the cost. The houses would be equally substantial and impervious to the weather; but, above all other considerations, the people will be satisfied that justice has been tempered with mercy.

I think that I have now arrived at the proper place for comment upon the materials to be used.

Willingly, and if building for myself, I would not allow any thing but new and sound stock bricks to be used anywhere; but it certainly requires very mature reflection, before one should absolutely prohibit the use of imperfectly burnt or place bricks in houses. They would not be entirely lost, it is true; they might be used in fence-walls, they might be sent out of the metropolitan district; but that would only remove the evil of bad building farther away.

Looking to one principal point of the bill, that the spread of fire and danger to passers-by should be prevented, I would suggest, for the consideration of better heads than mine, that it might be made imperative, that the party walls and chimneys, and the front (and flank walls, if they adjoin a public way) walls shall absolutely, and with no reserve, be built of none other than new thoroughly burnt or stock bricks, with such superior kind of brick for facing as the builder may please; but that, if the owner be unwise enough to use inferior or old bricks in the back walls and in partition walls, he may do so.

I doubt not, Sir, that there will be some exclamation of surprise at, and dissent from, my opinion as to old bricks. No one can deny that, lack of suction excepted, a clean, sound stock brick is equally as good, and it may even be better than many new bricks; but human nature, although in builders, is but human nature still; and if bricklayers do not know it, the public will tell them, that if once a clean old brick is allowed to be used, thousands out of cesspools and sewers will be spirited into a wall. It is a sad truth, but we must even gulp it down.

I am aware there may be some objection to the definition of the components parts of mortar by law; but I cannot shut my eyes to the very common practice, among disreputable men, of mixing garden mould or brick rubbish with a little lime, and calling it mortar. Our early ancestors, Saxons, or Norsemen, used lime and loam, and deemed it very good mortar; still I cannot think that much harm can ensue if the law say, that neither vegetable earth, nor any kind of rubbish, shall be used as a component part of the mortar to be used in building. The refuse lime of sugarworks or "billy sweet," might very advantageously be forbidden. It would much strengthen the district surveyors' hands.

I regret much the having again to differ from the Master Carpenters' Society; but, while I do so in all becoming humility, I also stoutly assert my right, as an Englishman, to my own private judgment, such as it is; and acting, I trust, upon a well-curbed exercise of that judgment, I distinctly say it is as absolutely necessary for the public welfare that the scantling of timber should be regulated by law, as that the thickness of walls should be so regulated. I do not go quite so far as to say the act *vicima secundo Caroli II.* should be the standard; although I am satisfied the errors of Sir Christopher Wren (who may fairly be supposed to have been then consulted), if errors they be, were on the right side. The errors of the present bill are altogether in the opposite direction. I should hesitate, if I were building on my own account, to use such slight scantlings as are set down for the floors; and as to those for roofs, so little care has been taken, that purlins and rafters may have fifty feet

bearings, if they would only be good enough not to break.

So far from agreeing with brother chip's criticism, I would earnestly recommend a judicious simplification of the scantlings of Charles the Second: but I must admit that it is sufficiently ridiculous to limit the bearing of the joists to fifteen feet, as the bill seeks to do; and I quite agree that cast iron shoes and stone corbels are not the most unexceptionable expedients, nor are they much to be recommended.

It is true that the district surveyors would have considerably more labour thrown upon them, if scantlings be defined; but that may be much diminished by providing that no part of a house shall be plastered until they shall have inspected the timbering; and that every facility for their so doing shall be provided by the builder, under a penalty.

Although "Miles's boy" has said, "It's of no use talking, Mr. M—, the bill shall pass, and in its present state," with all the respect I have for that sharp young gentleman's authority, I cannot think that the legislature, having as yet heard but one side (their own officers), will adopt King Jamie's maxim, not to hear the other, lest it should puzzle them.

With your kind permission, Sir, I purpose taking up that ugly, complex question, "old party walls," in another paper, and beg to subscribe myself,

Your most obliged servant,
A BRICKBAT.

TOWN HALL, COLCHESTER.

TO THE EDITOR OF THE BUILDER.

SIR,—I beg to forward you the following answers to your correspondent's inquiries, published in No. 15 of THE BUILDER relative to the competition for the New Town Hall, Colchester.

And remain, Sir, your obedient servant,

A COMPETITOR.

First.—A limited number of designs were submitted to Mr. Tite, but the exact number I am not aware of.

Secondly.—That gentleman selected from the number submitted to him one, to which the first premium was awarded; and afterwards, not considering any of the remaining designs of the limited number submitted to him worthy of a premium, he selected from the whole number two others, to which the second and third premiums were assigned.

Thirdly.—The author of the design which obtained the first premium distinguished his drawings with a seal, bearing a crest with an elephant's head.

Fourthly.—The three premiums were paid respectively to the authors of the three designs, as selected by Mr. Tite; and the second competition was not advertised publicly, but the authors of the three premium designs were communicated with, to know whether they would furnish gratuitously, together with all necessary attendances, amended designs, embodying certain alterations, as required by the committee; each party submitted a second design, and the one selected and about to be executed is by the gentleman to whose design the third premium was awarded in the first competition.

[We have received several letters on this subject, in answer to the queries put by "One of the original Six," in our 15th number. The present selection we have made (with no disrespect to the other writers), as it appears to us to meet the allegations set out in the clearest and most succinct manner.—Ed.]

TO THE EDITOR OF THE BUILDER.

SIR,—I shall esteem it a favour if any of your numerous and talented correspondents would inform me, through the medium of your much-approved and useful publication, what would be the probable expense of pulling down the old church of St. Dunstan in the West, and building the new one which has recently been constructed. My reason for asking the question is, the heavy burthen which it has imposed on the inhabitants. The organ and the window of stained glass in the rear of the altar were gifts, and the old bells, statues, and marble tablets, and other ornaments of the old church were worked into the new edifice.

Some architects have asserted that such an edifice, allowing for the sale of the materials of the old church, which produced 1,200*l.*, might have been built for 8,000*l.*, and much better than the one built for 10,000*l.*

An Act of Parliament passed in the year 1829 for rebuilding this church, and the trustees appointed to carry its provisions into execution were empowered to purchase all the houses on the west side of Fetter-lane to Clifford's Inn gateway, and thence along the north side of Fleet-street to Messrs. Præd's bank; and it was on those conditions that the inhabitants consented to the act.

The corporation of London gave to the trustees

8,000*l.* towards rebuilding the church, that the new one might be set back, to widen that part of Fleet-street; and they borrowed, at interest, the additional sum of 26,000*l.*, secured on a rate, called "the new church building-rate."

The trustees purchased none of the property in Fetter-lane, nor in Fleet-street, only a couple of shops in the nook closely abutting the old church, yet they immediately put the parish under an extraordinary rate (in 1829, new church building-rate) of two shillings in the pound, at which it was continued till 1836, when, the parish being rack assessed, it was reduced to one shilling and fourpence in the pound, at which it now continues.

The letting of the pews and catacombs has produced on the average 400*l.* per annum, and the sale of land to the Law Life Assurance Company, and other property has realized 3,000*l.* more.

In those various ways about 95,000*l.* have been raised for this small structure.

I should mention that there are other rates for the current expenses of the church, namely, the "churchwardens' rate," the voluntary rate, and 500*l.* per annum taken from the income of some charity estates belonging to this parish, for the alleged repairs, &c. of the church.

Under these circumstances, should any of your correspondents be kind enough to favour the inhabitants with their opinion of the probable costs of the structure, they would confer on the parishioners a great obligation. I am, Sir,

Your most obedient servant,
A RATEPAYER.

London, May 29, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—The following solution of the question of your correspondent, W. J. P., may perhaps not be unacceptable, and if so, is quite at your service.

I am, Sir, your obedient servant,
D.

In drawing a weight up an inclined plane, it is evident that we have to overcome the friction produced by its pressure on the surface, as well as the tendency of the weight to slide down the plane. Now, the friction of course varies, *ceteris paribus*, as the pressure producing it, that is, the cosine of the angle of inclination of the plane, and the tendency of the weight to slide down, vary as the sine of the same angle. The resistance to be overcome in moving a weight upon a horizontal surface is the amount of friction and adhesion produced by its pressure upon that surface; let this amount be represented by f , where w denotes the greatest weight we are able to move upon a level. We then have the following equation:

$$f \times \cos. a + x \sin. a = f w,$$

in which x represents the weight required, and a the angle of inclination of the plane. Now $\cos. a$ is the same as the horizontal length of the plane divided by the length of the inclined surface, and $\sin. a$ is the same as the vertical rise divided by the same length; so that, in the present case, we have, supposing the amount of friction and adhesion to be overcome in moving a weight upon a surface to be one-tenth of the weight.

$$\frac{x}{10} \times \frac{40}{10124} + x \times \frac{1}{40.0124} = \frac{2240}{10} = 224$$

which gives $x = 17923$ lbs. = 16 cwt. 1*lb.*, the weight required.

The amount of friction and adhesion, here taken as equal to one-tenth of the weight, will of course vary much circumstances; being, as we experience, very much greater with a rough carriage on a soft road, than with a well-built carriage on a road of hard materials.

HOLY TRINITY CHURCH, BROMPTON.

TO THE EDITOR OF THE BUILDER.

SIR,—I had not had the pleasure of reading THE BUILDER until it was mentioned to me by a professional friend, that, in noticing my works at Holy Trinity Church, Brompton, you had, by some mistake, attributed them to another architect. Your highly useful magazine having thus been brought to my knowledge, has afforded me much gratification in the perusal, and convinced me of its great and general utility to the profession. I feel obliged for the handsome manner in which you have corrected the error, and also to inform you that means are in progress for obtaining the requisite funds for a general improvement and remodelling of the church. I may also add, that the public are indebted for the new altar-screen and chancel window to the munificence of one of the churchwardens, who also contributed the sum of 50*l.* to the side windows. The same public-spirited gentleman has also offered to subscribe 100*l.* towards the projected alterations of the exterior, as soon as his neighbours will come forward with a corresponding liberality, to insure the necessary amount.

The design which I have prepared for improving the church provides new buttresses and ornamental parapets, with a complete remodelling of the tower, and the addition of a lofty spire. It has received the approval and sanction of the vicar and churchwardens, and also of the Bishop of London; and we have good hopes that, by the spirited efforts of Mr. Irons, assisted by his wardens and parishioners, we shall, in your words, "render the church, what a sacred edifice, raised in this vast capital to the glory of God, ought to be."

I shall feel pleasure in shewing you the design for these projected improvements.

By a mistake in your last number, you have named the church St. Mary's, instead of the Holy Trinity. I am, Sir, your obedient servant,

JOHN BLORE.

8, Michael's-place, Brompton-square,
May 25, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—Our attention has been called to a letter inserted in your number of the 13th May, in which Mr. F. A. Bernhardt refers to some work done by us at Whitecross-street Prison.

We beg to state that it was pursuant to plans submitted to the proper authorities by Mr. Coote, of Mornington House, near Clifton. Two cylinders only were erected, as they were found to obstruct the passage of the prisoners. Subsequently, these were removed, and a mode of ventilation by another application of the same principle has been accomplished. This also, which we are assured gives full satisfaction, was superintended by Mr. Coote.

We have neither leisure nor ability to conduct a public discussion on a question purely scientific; we know, indeed, that Mr. Coote claims for his lady the merit of this invention; but we would never presume to decide between Mrs. Coote and Mr. Bernhardt, both so ingenious, and so enthusiastically devoted to the pursuit of science.

We will only add, that had Mr. Bernhardt favoured us with a call, we would cheerfully have given him any explanation.

We remain, Sir, your most obedient servants,
DEANE, DRAY, & DEANE.

Finsbury Iron Works, 86, Chiswell-street,
May 25, 1843.

Miscellaneous.

REBUILDING OF HAMBURG.—The anniversary of the lamented fire has just passed, and although the site still presents much of that wretchedness consequent on the very great destruction of property, yet much more has been done in removing the ruins and old materials than might have been expected. New and bold lines of streets are now set out. The paving is commenced, and the new buildings in several parts are being rapidly prepared to receive their roofs, and will probably, towards the close of the ensuing summer, be fit for habitation. The government of the city has, within a few days, determined on constructing a new and improved means of sewerage in that part of the town to be rebuilt, and has voted 70,000*l.* for that purpose, intending that the whole works shall be completed in about eighteen months. It is also proposed to erect gas-works for the city, and we believe this is a matter that will be thrown open to competition of capitalists, under certain conditions, by the senate.

MONUMENT TO THE LATE EARL OF DURHAM.—The committee appointed for erecting a monument to the public character of the late Earl of Durham, met a few days since in Newcastle, for the purpose of deciding on the plans to be adopted, from the great number sent in from architects resident in London and other parts of the country. After a full consideration of the various plans submitted to their notice, the committee determined to recommend the adoption of a design by Messrs. J. and B. Green, architects, of Newcastle-on-Tyne. It consists of a Grecian temple of large dimensions, and is said to be admirably adapted for the situation on Pensher Hill, which has been selected for its erection. Pensher Hill is visible from the great North road, and is a tolerably central point between Newcastle, Durham, and Sunderland.

METROPOLITAN IMPROVEMENTS.—The square that is being laid out and planted on the Marquis of Westminster's Fmlio estate, called St. George's-square, is eleven hundred yards long and eighty yards wide. Each house in this square will command a fine view of the river. It is only a short mile from the new Houses of Parliament.

The Queen Dowager has given 20*l.* towards rebuilding the parish church of Radipole, Dorset.—*The Archaeological Magazine.*

The new royal summer pavilion in Buckingham Palace gardens is, we are informed, to be adorned with frescoes by Stanfield, Edwin Landseer, Eastlake, and Unwins, to whom a commission has been given by Prince Albert.

THE BUILDER,

NO. XVIII.

SATURDAY, JUNE 10, 1843.

NEW BUILDING ACT.

WE have for some time held aloof from the discussion of this measure, seeing that it was in able hands, and that our readers could have the benefit of a full report of that handling, through the favour of those who did us the honour to recognize our columns as a fitting medium of publication. We have in the first place given the bill itself as first printed, with our own general comments upon it; and since that time the question has been practically considered and scrutinized by several parties, but particularly by the Master Carpenters' Society, as set forth in our Fifteenth Number. We are pleased to be able to give with this week, the report of another influential body, the "Metropolitan Improvement Society." This society was formed about a year or so back, for the purpose of promoting the objects implied under its title, and comprises the names of many noblemen and gentlemen, and several professors, distinguished for an active and successful pursuit and patronage of those branches of art and science involved in the matter of which they take cognizance. A society like this would therefore be expected to apply itself diligently to the question of the Building Act, and accordingly we find that an "Executive Committee" has been formed, and to it we are indebted for a report, which, as it is pointed and brief, we give entire.

At the same time we take occasion to remark, that we think some of the commentators on the Bill are disposed to be somewhat over critical. A bill that meets every case in this complicated crisis of the Building Act, is not even to be hoped for; and many of the provisions that are sought to be ingrafted on the proposed enactment would operate, we fear, to impede its working, or to render that working inefficient. If the views and objections of every party are to be met, there would be no end to the voluminousness of the draft; and to postpone the measure until a grand inquest can be held to determine upon a principle of general and uniform application, would be to wait till something much nearer doomsday. The truth is we are entered on a new era in building art, and it will take many years and great efforts, private and public, to fit ourselves to it; but meantime we must have regulations. There are minds pregnant with inventions applicable to building, that will effect as great a revolution in that, as we have experienced in the engineering and machinery sections. Whatever Crompton, Arkwright, or Watt accomplished in their way, is destined to be equalled, if not exceeded, by the workings of men now on foot or forthcoming; and all nature, some would say all art, is in correspondence with them. During the architectural sleep of the last three centuries, a new world has been forming, concoctions and deposits have accumulated; towards which man, like the little coral insect, has been industriously contributing all unconsciously. And we are just on the eve of emerging from the barbaric efforts of a people whose dependence has been on this or that foreign or distant aid in all our efforts at design and structure. But we cannot stand for this, the wants of the day are pressing, and we had almost said this bungling, or apparent bungling, in legislation is necessary to bring us on the morrow. Inconsistency we have,

and shall have abundance of, and our wisest efforts abound in it; the great advantage of a move is to give some keen, sharp-sighted looker-on a view of some new play, or to awaken his mind to the sense of a previous blunder, but we cannot stand still. Like the Israelites in the desert, we are journeying to a settled country, and leaving that of bondage and darkness. Our legislation is one of shifts and expedients, and it cannot help being so. As to settling down at once upon the working of some great principle, it is absurd to expect it; the period of gestation and labour must be gone through; however, we do not for all this say, take the proposed Building Act as it is—we cannot be so far misunderstood—but we do say this, do not attempt too much.

In the objections to the cumbrous machinery of fees, to the great staff of surveyors, &c., we coincide; the grand thing, however, for which we contend, is a properly-constituted Board of Reference, and to vest in them sufficient discretionary power, minimize the fees of reference, so as not to offer a premium for vexatious and frivolous appeals; and let this court or board be a stipendiary one, let the nomination be with the profession—the confirmation alone with the Government.

THE UNITED SOCIETIES OF CARPENTERS' ANNUAL DINNER.

This festival, for so we feel inclined to call it, took place at Highbury-barn on Whit-Monday. This is the eighth anniversary; and although the numbers attending were not so numerous as on former occasions, owing probably to the depression of the times, the respectable character of the company, and the excellent arrangements of the stewards, were such as to compensate in some degree for the falling off we have alluded to. Perhaps many would not regard it as a small affair after all, with 260 guests at the dining-table, and 800 persons joining in the subsequent dance. It was a gratifying sight to witness the mixed assemblage of the wives and children of the workmen enjoying with their protectors the pleasures which their foresight and care had provided, for after dinner the whole party paraded the grounds of the tavern, and then joined in the in-door arrangements, which consisted of speech and song intermixed, and the enlivening airs of a band of music, until 9 o'clock, when the dance commenced.

The chair was ably filled by Mr. Brailey, and the principal speakers were Messrs. Taprell, Blewitt, Prior, and Butler, whose plain, common-sense oratory found its way to the feeling and apprehension of their hearers.

What was most edifying and consolatory to witness was the orderly deportment of all even to the conclusion. Their sober and temperate demeanour marked them out for an example to the class, not only of their fellow-workmen, but to the superior citizen; and we could not help feeling a species of regret lingering within our breast, that the time seems not yet to be come, when the masters of such independent, and therefore trustful and faithful men, can extend the little reward of mixing with, or presiding over these or other feasts, in which the kind and generous feelings are so successfully cultivated.

Let us hope, however, that the day is not far distant when the concessions of the workmen to the convictions of their reason and the principles of justice will be regarded as entitling them to that same meed of consideration which all who generously conquer themselves have awarded to them. We know what

has been done by them in voluntarily abolishing what were thought to be vexatious restrictions of the workshop, impeding and inconveniencing their masters in some instances very seriously. They have also laid aside the regulations and abolished the constitution of their "Trades' Unions"—the oath of enrolment and the secret conclave are matters of history, in which they did but imitate their "betters" (P). Even Manchester has come to the resolution of recommending the dissolution of the old trades' unions. Now, we believe there are about 5,000 members of the United Societies of Carpenters, all, or most of them, enrolled either as benefit clubs or building societies—allowing, many of them, 12s. per week to their unemployed brethren in the winter season, and in some cases finding employment for them in making articles of joinery, which are either sold or laid up in reserve for the houses to be built by the particular society.

But we must bring our observations to a close for the present; and it may not be out of place to add that the Society of Smiths and Farriers held their annual dinner and meeting at the same place and time as the United Carpenters, and conducted themselves with equal propriety and good sense.

THE ANALOGIES OF ARCHITECTURE AND POETRY.

THE elegant arts have all their origin in that deepest and most mysterious of fountains—the human heart. Like streams descending from the same perennial spring, they sometimes wander over the plain in widely divergent channels; but, for the most part, they hold on their way in parallel courses, and, by a thousand lateral branches, are perpetually intermingling their waters. Some of these streams may, in certain cases, be dried up, while the rest continue to flow on with undiminished activity; but, generally speaking, a change in the force or volume of any one of them will correspondingly affect the residue, and the tide of all will ebb or flow together. The vicissitudes of some one of the fine arts may thus be indicative of the condition of the rest, and may serve to connect that condition with causes to which it is not obviously referable. Analogies, it is true, are not proofs; but they will often suggest proofs to the imagination, or at least a method of obtaining them: and we think a true conception of architectural or any other art must be materially aided by the numerous and diverse lights which a wide range of analogies must necessarily throw upon it. The analogies subsisting between architecture and poetry are neither so numerous nor so strong as those which are to be found in some other departments of art; nevertheless, they appear to be susceptible of a development calculated to clear up much that is mysterious in architecture, and productive of much curious and useful information. Such a development, however, would be an undertaking incompatible with the limits to which we are at present restricted, to say nothing of obstacles of a still weightier kind; and we must content ourselves with a few scattered and hasty hints, which constitute the whole we are now able to offer.

It is, we believe, very well ascertained that metrical preceded prose composition: and the cause of this remarkable circumstance has been, with great plausibility, supposed to be a desire to distinguish the fruit of thought and reflection from the frivolities of ordinary conversation. Before the invention of writing, the only expedient by which it seems possible careful composition could be distinguished from vulgar discourse, consisted in the adoption of some peculiarity significant of art and premeditation, and which, by the difficulties it presented, might certify the skill of the person by whom those difficulties had been surmounted. It would appear, therefore, to be a natural event in the progress of society, that poetry should precede prose; and, by a reference to history, we find that in the early ages of the world even the laws were reduced to verse. Homer and Hesiod long preceded

Herodotus; and in almost every country of which history has preserved to us any record, the oldest writers appear to be the poets. The most ancient buildings, too, of every country of which we have now any memorial, appear not to have been erected for any purposes of mere comfort or utility, but to gratify the passion of mankind for grandeur and renown, or to fulfil some object of devotion. In this way it appears probable that architecture flourished as an art before the erection of buildings for domestic purposes had made any considerable progress; so that in architectural as well as in literary composition, the difficulty appears to have preceded the familiar and easy.

The architecture as well as the poetry of Greece were the spontaneous produce of the soil, and both reached a pitch of excellence which has never since been surpassed. The science and useful arts of the Greeks were, no doubt, imported from the East; but their fine arts were an indigenous production. This is, perhaps, in a great measure due to the restricted intercourse which in early times subsisted between Greece and other parts of the world, as well as to the sentiment prevalent in that country, that every thing barbarian was unworthy of imitation. The Greeks studied no foreign language, and were unacquainted with any foreign literature; and their poetry was, therefore, a truer reflection of nature than if it had come to them through a thousand successive delineations, each inferior to its prototype in power and beauty. The Pelagic ballads, like the ballad poetry of every nation, were the immediate offspring of the joys or sorrows or aspirations of the people; and these grew by degrees into the Epic, Tragic, and Lyric forms of poetry. There was no change in substance, however: the same opinions and the same emotions continued in unabated activity, and the Greek poetry remained as strictly national as when its minstrels knew little beyond the bounds of Attica and the Peloponnesus. In the most refined Grecian architecture, again, the insignia of a ruder era continued to be copied with scrupulous fidelity. The dovetails and iron hoops upon the columns, which were necessary in the original wooden buildings, continued to be copied in buildings of stone; so that, in the height of its perfection, the Greek architecture retained its primitive features—elevated and refined, it is true, but still unchanged in all its distinctive characteristics.

The Romans copied the architecture and literature of the Greeks; and both were to a certain extent modified by them. Any great change, however, must have appeared neither necessary nor desirable—the customs, climate, and religion of the two people being so nearly identical. When Constantine, however, after the introduction of Christianity, transferred the seat of the empire from Rome to Byzantium, the construction of a large number of churches became necessary; and as Byzantium had no pagan temples to supply the materials, an opportunity was afforded for distinguishing the Christian from the Pagan edifices, of which advantage was taken for introducing numberless innovations. The Roman basilicas, with their long vaultless avenues, were suppressed, and the form of the Greek cross, in the plan of the churches, was generally adopted. The ancient styles being thus fairly broken through, an infinite number of fantastic devices were adopted; and these, after a few centuries of gyration, settled into the Gothic style of architecture. In Rome, however, this revolutionary passion did not attain any high pitch; and there are no churches of note to be found there of any style intervening between that of the primitive basilica and that of the modern antique.

On the revival of classical studies throughout Gothic Europe, the poetry which had previously been representative of the true sentiments of the people, acquired an artificial and exotic character which it has never since entirely lost. Heathen gods and muses appeared in the poetry of Christian nations, and the democratic language of ancient republics was copied by feudal aristocrats. It was only the forms, however, of antiquity which were borrowed; the chivalrous spirit remained unchanged, but the dress and ornament of classic ages were adopted, instead of new modes being permitted to spring spontaneously from existing sentiments and customs. Tasso's Jerusalem was in all its outward characteristics a

Grecian epic, but his heroes were Christian warriors and churchmen, and throughout Italy, where this affection for antiquity began, an abundant introduction of Hellenic forms was looked upon as a mark of refinement. Concurrently with these indications, the architecture of the ancients began to be extensively introduced, and the construction of St. Peter's, and numerous other magnificent edifices, about this time, revived the affection for the architecture of the ancients throughout the nations of Europe. In England, however, the Gothic still continued to flourish, and our literature nearly up to the time of Shakspeare remained untinged by foreign innovations. About the time of Elizabeth, fantastic combinations of chivalrous feeling and classical pedantry began to prevail; and at the same juncture our architecture began to exhibit a species of transformation, of which, John of Padua, and other adventurers were the instruments. But in spite of these indications, we should be disposed to set down this era as being the climax of that progress in architecture and literature which began about the times of Chaucer and William of Wykeham, and ended with Shakspeare, and the architecture of Henry the Seventh; and which has never yet been surpassed in this country. There is no part of our literature, or of our architecture, that is so national; and although it may display occasional vices which do not attach to a later period, there is none distinguished by so many virtues.

These analogies are not, we think, accidental, and a further inquiry will show that they extend down even to our own times. Inigo Jones and others introduced the Italian style into England, about the time of Ben Jonson. Dryden and his successors remodelled our poetry on the classic model. The innovations thus introduced reached their greatest altitude in the hands of Pope and Sir Christopher Wren, from which time they have been gradually declining. The declension, however, has been extremely slow; and the transition to a new state is probably not as yet much more than half completed. The engaging fancy of Collins, and sublime genius of Gray, failed to achieve any great change in poetical composition, simply because the fullness of time had not yet come, and the exertions of Vanbrugh and Sir W. Chambers, to adapt the predominating architectural forms more completely to our wants and uses, have almost entirely failed from the self-same cause. The public mind had sunk into a kind of lethargy, and was satisfied with that negative species of excellence which consists in the absence of all offensive characteristics. The French literature, which had been slower in its growth than that of other European nations, reached its maturity at this period, and consequently acquired almost faultless elegance at the expense of originality and strength. The desire to make it classical made it timid and imitative, and deprived it of the charm of nature. The commotion, however, which preceded the French revolution, put an end to this state of things. An avidity for strong emotion succeeded to the desire to avoid disgust, and the effect of the agitation of men's minds upon literature became more visible as the time of the explosion approached more nearly. Rousseau and Goethe by their works of fiction began to exercise a powerful influence over the public imagination, and in our own country the poignant lines of Pope and his followers began to lose their charms, and gave way before the animating stanzas of Scott, and the soul-stirring poetry of Byron. In architecture, the change corresponding to this change in literature has not yet taken place. It is still in a state of elegant imbecility; but a revolution is, we believe, at hand, and is foreshadowed by our poetical mutations, to which our architectural proficiency appears to be inseparably bound, though the length of the tie may occasionally vary. Both, in fact, are merely modes of one elementary principle, and this principle is itself affected by almost every conceivable modification in the state of the community. Neither the poetry nor the architecture of the times of the Hepharchy could become popular at the present day, though there are manifestly some qualities both in the buildings and poetry which delighted our ancestors, which must continue to please in all ages. The contemporaneous condition of the public feeling will exercise a powerful influence on particular

modes, and even independently of such accidents, revolutions in taste will sometimes occur from the mere influence of satiety. Men in course of time become tired even of excellence, and will have a new fashion, even though it should be a worse.

It is needless to dwell, however, on such speculations, for none of our readers, we believe, will be inclined to dispute that an affection for novelty and strong emotion does not constitute one of the ruling features of the present age. This perpetual aspiration for something new has been manifested in architecture, though not by any means to the same extent as in those arts which deal in less costly productions. Indeed, the expense and durability of architectural works make the art in the strictest sense of the word a conservative one; every one is disinclined to introduce innovations which may fall to earn public approbation, and which, if unsuccessful, cannot be remedied without a great expenditure. In the smaller class of works this objection does not equally apply, and in such works new styles of decoration should, we think, be introduced as frequently as possible by way of experiment. It is thus only that architecture can be made a progressive art, and an art which is not progressive must necessarily retrograde. In all attempts at improvement, failure must of course from time to time occur, but even failure will minister to a further progress—often more effectually than uniform success. We believe that at no time in our history would architectural innovation be more favourably received than at present; the poets have already prepared the way, and the public mind was never more intent on that onward progress which flows from the worship of perfection.—*The Artizan.*

BUILDING REGULATIONS BILL.

Report of the Executive Committee of the Metropolitan Improvement Society, on the Bill introduced by the Earl of Lincoln and Sir James Graham, entitled "A Bill for the better Regulating the Buildings of the Metropolitan Districts, and to provide for the Drainage thereof."

In considering the above measure as submitted for legislative sanction, we should examine—

1. The object of the Bill.
2. The proposed means of effecting the object.
3. The subordinate details.

The object of the Bill is not simply to extend the operation of the existing Building Act, and to clear up the ambiguities complained of in its various clauses. The present Bill is almost entirely a new measure, of which the leading principle is, that all new houses shall be stronger built than was required by the former Act: to which end the most minute regulations are prescribed with regard to the solidity of foundations, the thickness of walls, and the scantlings of the timbers to be used in floors and roofs.

Of the spirit and intention of the measure no one can disapprove: the framers of the Bill were doubtless desirous of providing better habitations than the present for the humbler classes of the community; but the whole of the clauses to which the new regulations refer, appear to be founded upon a misapprehension of the power of Parliament, and of the kind of improvements most needed in the dwellings of the poor.

It should always be borne in mind that the Legislature cannot compel builders to erect expensive houses for tenants who have not the means of paying a remunerative rent. Any serious and needless addition, therefore, to the cost of third and fourth-rate houses, is almost equivalent to a prohibition of this class of buildings; and before such a prohibition is sanctioned by Parliament, it would be well to look at the consequence.

The humblest tenements now erected in the suburbs find occupants, because the accommodation they provide, however inferior, is, after all, better than that of the cellar or garret in which the same families formerly resided. Put a stop to the building of small houses—the tendency of the present Bill—and what follows? Families occupying garrets and cellars must remain in them; and thus to many thousands in London, who have no better

place of abode, the Bill would prove a great calamity.

This argument more especially applies to the cottage tenements (usually consisting of two rooms and a back shed), of which some hundreds of streets in the suburbs of the metropolis, inhabited by the working classes, are composed. By the new Bill, each of these tenements is to be styled a fourth-rate house, upon the erection of which a fee of 4*l.* 4*s.* is to be paid the district surveyor, and in the materials of which, the new Bill requires that from 30*l.* to 50*l.* shall be expended in the walls and floors more than the amount rendered necessary by the existing Act. To do this, the builder must either raise his rent above that of existing tenements (in which case his houses would remain empty), or he must endeavour to save the money by economising in the doors, the windows, the shutters, the staircase, the closets, the coal-shed, or the water-cistern; depriving in this manner the future inmates of some of the conveniences most essential to their health and comfort. It would be most unwise to make this sacrifice for the sake of increased solidity in the inferior class of buildings, which are not designed nor required to last as long as a nobleman's mansion; nor need the sacrifice be made for the sake of greater security against fire, because it is a well-known fact, that fires rarely occur in third and fourth-rate houses, owing to the circumstance, that among the poor a room containing a fire or lighted candle is never left.

The direct tendency of expensiveness of construction to discourage building—to cause ruinous houses to be only put in repair that would otherwise be pulled down, and to crowd an increasing population in confined limits, shews the extreme importance of avoiding in building regulations all restrictions that are not absolutely necessary for the security of the public; and also of diminishing, as much as possible, existing charges now affecting buildings, or building alterations and improvements. This was the excellent design of the repeal of the timber duties; but the object is wholly lost sight of in the present instance. The framers of the Bill have overlooked the propriety of rendering the machinery by which the new regulations are to be enforced less expensive than the old, which might easily have been done by a consolidation of offices, and have proceeded upon the opposite principle—increasing the cost to the public of the old machinery, besides creating additional offices under the new.

By the present Bill it is proposed to more than double the fees of district surveyors, paying them at the least two guineas for every one guinea they now receive, and to give in numerous cases ten guinea fees to a new class of officers to be termed official referees. The nature of the burden this will impose upon the public may be ascertained by a very simple calculation. It appears from the population returns that in the ten years between 1831 and 1841, there was an increase in the number of inhabited houses of 66,335 in the four metropolitan counties of Middlesex, Kent, Surrey, and Essex; the greater proportion of which were houses built in the suburbs of London.* A charge of four guineas (the fee for a fourth-rate building) upon each of these houses, would amount to 278,607*l.*; but this amount does not represent the half of what would probably be paid by the public: to obtain the exact sum it would be necessary to add the fees paid upon old houses pulled down and rebuilt, the fees upon alterations and repairs, and the difference between the fees for the lowest and the highest class of buildings, some of which (buildings intended for any public object)

amount to the enormous sum of 491. 7*s.* upon each building. With these the local taxation imposed by the Bill upon the metropolis cannot be estimated at less than 50,000*l.* per annum.

The intention of these charges is, we may presume, to give a greater stimulus than at present to the exertions of district surveyors in the discharge of their duty; but it is obvious upon a moment's reflection—first, that high fees, alone, will not secure this object; and, secondly, that much higher salaries than district surveyors will realize under this Bill might be secured (supposing high salaries to be required) by a consolidation of offices; and to the great advantage of the public service. For example—under the existing system, and that which is proposed by the Bill, two surveyors are appointed at the public expense to attend to the drainage of the same house—the district surveyor and the surveyor of the commissioners of sewers; but one surveyor, if a properly qualified person, would be equal to this duty, and to divide it, is to divide the responsibility, and to cause the work to be sometimes slovenly or inefficiently performed. Local taxation might be diminished, and yet the office of public surveyor be raised in value and importance by combining under one head the duties now exercised by surveyors of highways, parochial surveyors, and surveyors for the assessment of rates and taxes. There appears no reason to doubt that the difficulties which would attend any plan of immediate general consolidation, might ultimately be overcome; but the present Bill does not take a single step in that direction.

It is a further defect, that, notwithstanding the high fees to be paid district surveyors, no provision is made by the Bill for securing the appointment of only competent officers. There is to be no Board of Examination, no certificate of qualification, and the kind of skill required for the office is not specified. The candidate is not required to furnish proof that he is acquainted with the mathematics of architecture, with the science of trigonometry, or with the use of the spirit-level: it is only necessary that he should call himself an architect, and be above thirty years of age! The natural result will be, as heretofore, that candidates will make no effort to render themselves especially fit for the duties to be discharged, but will rest their hope of election upon the activity of a canvass, or upon their personal connections among the magistrates with whom the appointment will rest.

This deficiency in the Bill cannot be too strongly deplored. The success of the wisest measure of legislation is entirely dependent upon the local administration; and the most important provisions of an Act for Building Regulations must necessarily fail of their effect, if left to surveyors owing their appointment less to merit than patronage, and whose interest as private architects may sometimes be opposed to their public duty.

It is a glaring fault of the existing system, that an architect, who cannot avoid having a disposition to interpret an Act of Parliament in his own favour, is allowed to be the district surveyor for his own works: it is also a fault that the duties of the office are often discharged by deputy. The remedy in both these cases would be to appoint, instead of numerous surveyors chiefly occupied with their own private business, a few only, at fairly remunerative salaries, to give up their whole time to the public.

Among the details of the measure there are many which call for a careful reconsideration. Some of the clauses involve false principles of construction opposed to the chief object of the Bill,—increased strength and solidity. Thus clause 43, which enforces a girder in every room above fifteen feet square, is a return to the old and objectionable practice of throwing the whole weight of a floor upon one part of a wall, instead of distributing the weight equally over every part. Clause 82 requires that joists and girders, instead of being let into a wall at a sufficient distance from the flues, shall, if the wall be a party wall, rest only upon iron shoes and corbels—the weakest principle upon which a floor can be supported; and the mode proposed of estimating the rate of building by the height of the walls without including the rooms in the roofs, offers a premium upon the construction of curbed roofs, unsightly in appearance, and without any direct bearing.

It may also be remarked that owing to verbal omissions in the clause relating to the scantlings of joists and girders (43) a house with fire-proof floors could not be constructed; the usual way being to place joists of half the customary thickness upon brick arches supported by iron girders, and the Bill making no exception in their favour. The Bill contains numerous inaccurate or ambiguous definitions, calculated to produce much confusion, of which a striking instance may be observed in clause 14—relating to public institutions. As the clause now stands, every building used for "purposes of instruction," or as "a place of diversion and resort," is an eighth-rate building, which would include infant schools and beer-shops; and upon each of these 491. 7*s.* would have been paid in fees to district surveyors and official referees.*

A general characteristic of the Bill, is an attempt to legislate upon minute points, which cannot be embraced within an Act of Parliament without leading to vexatious, and yet unnecessary interference. Thus, by clause 62, no shop-front is allowed to be higher than 15 feet; that is to say, not so high as two of the most attractive shop-fronts in London—one at the corner of the Quadrant, the other in Ludgate-hill: and by the same clause, no sign or notice board can be placed above 18 feet from the ground, however firmly secured in the building—to the great inconvenience of numerous parties occupying a first and second-floor for business purposes, especially in the city.

By clause 93, a party wall condemned by the official referees as "decayed and ruinous," and as "not sufficiently secure against fire," is yet not to be pulled down till after the expiration of six calendar months, from the date of the first notice to the owner or occupant!

Clause 27 gives to any two magistrates the extraordinary and questionable summary power to declare any trade a nuisance they may deem to be such, and to inflict a penalty of 50*l.*; and generally by the Bill, powers are given to "any two justices of the peace," which would be better entrusted to the stipendiary magistrates of the police offices, or to a special tribunal.

One of the clauses relating to drainage would inflict a great injustice upon landlords. Clause 37 throws the entire expense of building new sewers upon the landlord, without regard to the beneficial lease which may be held by the tenant. The clause as it stands would affect the value of even ground-rents. This is doubtless an oversight, as a different provision is made in the case of party walls; but other clauses relating to drainage are open to very serious objection. The expenses of making drains is one of the principal reasons why innumerable houses in London are left without any effective drainage; and these expenses are all increased by the present Bill. Clause 41 proposes to do away with nine-inch barrel drains, which have always been considered sufficient for third and fourth-rate houses. Clause 38 requires that every cesspool shall be made to drain into a sewer if within 100 feet, although there may often be no accessible means of communication; and the Bill makes no provision for securing adequate supplies of water to the drain; and without water the drain could not be trapped so as to prevent the escape of the foul gases generated in the sewer. By clauses 38 and 42, a superintendence over drains and cesspools is given to parish overseers, in addition to that of the district surveyor, and that of the surveyor to the commissioners of sewers. This divided jurisdiction could not be otherwise than injurious, and the small builder would probably, in many cases, become himself an overseer to facilitate his objects.

As a commission has been appointed by Government to inquire into the drainage of the metropolis, it appears exceedingly desirable that the whole of that part of the present Bill which relates to this subject, should be referred to the commission; and perhaps the proper course would be to postpone any new legislative measure for building until the commissioners had reported what changes may be required in the existing drainage laws. For

* Inhabited Houses, 1831.		
Middlesex	180,493	
Kent	82,134	
Surrey	80,670	
Essex	57,152	
		399,859

Inhabited Houses, 1841.		
Middlesex	207,670	
Kent	93,517	
Surrey	93,375	
Essex	67,602	
		466,194

This is exclusive of the cities of London and Westminster. It is to be regretted that there are no means of comparing the increase of houses in the metropolis, as the boundaries of what is called the metropolis have never been legally defined.

	£. s. d.
* Fee as for a first-rate building	7 7 0
Additional fee	10 10 0
Fees to official referees—Ten guineas each 31 10 0	
	<hr/>
	£49 7 0

obvious reasons, whatever legislation may be necessary for the drainage, survey, and repair of streets and highways, it should precede that which may be needed for houses erected on the same ground; and the machinery required for the one object might possibly be rendered available for the other.

As the existing Building Act, with all its imperfections, has worked well for a number of years, there is no strong necessity for its repeal or amendment at the present moment.

The committee therefore recommend, that the society should take such steps as it may deem desirable to procure the postponement of any new Building Regulation Bill until after the report of the Drainage Commission.

In conclusion, they would express their opinion of the objects the most nearly connected with the sanitary improvement of the metropolis, and the general comfort and convenience of its inhabitants. Those objects the Committee believe to be less increased solidity in buildings, than better supplies of water, and better ventilation, in crowded neighbourhoods, with facilities for constructing efficient drains at a cheap rate—objects not to be attained by throwing the entire onus upon builders or landlords, but by works executed, in part, at the public expense, the payment for which should be spread over a long term of years, so that a fair share of the burden would be borne by posterity.

ON TUDOR ARCHITECTURE.

TO THE EDITOR OF THE BUILDER.

SIR,—Without seeking to decry the merits of the classical styles of architecture, and far from wishing to claim an undue importance for a particular style, it must yet be admitted that the Tudor, or as it may be emphatically called the Old English, style of building is adapted for every variety of structure, from the humble gate-lodge to the stately palace. It has also the advantage of belonging to the soil, whereas the other styles are importations. In the Tudor, one is not fettered, as in classical styles, by the necessity of windows and other features ranging in cold and formal propriety, nor is uniformity, so essentially an element of beauty in those styles, necessary here. It is not hence to be inferred that a gothic building should not be regular—on the contrary, there is always a certain charm, more especially to the general observer, in a regular design, if not too stiff, whatever may be the style, and whilst we should guard against the affectation of an irregular outline, when only produced from caprice, it must be confessed that, when it arises from circumstances, and it is judiciously composed, the effect is very pleasing; and herein the Old English style has an advantage over others, inasmuch as it admits of such irregularity. It brings also into notice many features which, in the classic styles, are studiously attempted to be kept out of sight, often, it must be confessed, with want of success. Thus, where the imitators of the Grecian style flatten the roof, or conceal it behind an overwhelming attic, the Old English builder brought it boldly into view, giving it a lofty pitch, adorning it with ornamental ridges, and causing to spring from it the tall and slender chimney shafts, charming the eye by the diversity of their forms, joining usefulness to beauty, and putting to shame the pigmy garden-pots which are stuck upon modern roofs, and which generally require some metal tubes of monstrous design to cure the defects of smokiness. In an imitation of a classical building, we seldom see more than a repetition of formal windows, as large for a closet as for a room; or if much more is attempted by way of design, the wall is broken by "thin slices of pilasters," or more ambitiously by half-columns, which do not always occupy in a façade the position which an ancient architect would give them: thus I have seen the centre of a new square composed with four meagre pilasters placed between two half-columns on each side. In a Tudor building, how many varieties of windows may be introduced—here, a single light; there, a window of two, three, four, or more bays, in each case suiting the internal arrangement. It is not necessary that a window below should have one above like it, or one at all, and *vice versa*. whilst the oriel, either overhanging or carried up from the ground, will always give a pleasing variety to a design. Then the chimneys, now springing from the roof in rich clusters or singly, now corbelled out from the face of the wall, or carried up from the basement with deep setting-off tables, and in each position appearing exactly where they should be. But the principal charm in this style, and a feature essential to the integrity of a pure Tudor design, is the gable, the natural termination of a roof, especially to one of the high pitch required by our climate, and no one who has an eye to appreciate

the beautiful old mansions of this country, but must be struck with the picturesque appearance of a building in which gables are prominent; whilst there is a very unsatisfactory look about a mansion in which none but horizontal lines appear, broken only by an embattled parapet, and with the roof perhaps lipped off. The gable admits of many forms, and may be terminated by pinnacles or heraldic animals, and if windows are not required in the roof, long panels or quatrefoils, or shields with coats of arms thereon, may be aptly introduced.

As breaking the force of the wind, and adding materially to the strength of a building, gables have the advantages of usefulness joined to their pleasing effect, and as the humblest dwelling must have a roof, so it may be made picturesque by carrying up gables, and where the upper story is contained in the roof the internal arrangement is much improved by placing the windows in the gable ends.

PHILIP TUDOR.

London, June 1st, 1843.

(To be continued.)

RECTORY HOUSE, EAST CHURCH, ISLE OF SHEPPY.



SURVEY OF LONDON.

At a meeting of the surveyors of the metropolis, held on Tuesday last, at the Gray's-Inn Coffee-house, at which the injustice of employing a military staff for the execution of the survey of London and suburbs, in preference to educated and responsible men of the civil profession, was fully discussed, it was resolved that an association of surveyors be formed for the purpose of proposing to contract with Government for the execution of the work. The meeting was adjourned until that day week, Tuesday the 13th instant, at three o'clock, P.M., when measures will be finally arranged in fulfilment of the views of the meeting.

Communications may be addressed to the hon. secretaries, J. Bailey Denton, Gray's Inn; and J. O. Browne, Furnival's-Inn. Gray's-Inn Coffee-house.

CARPENTERS' BENEVOLENT INSTITUTION.—EXCURSION TO BASINGSTOKE.

On Whit-Monday, as we had already apprized our readers of the intention, the above-named excursion took place, with a view to the benefit of the funds of the Carpenters' Benevolent Institution. About eighty to a hundred of the friends and members of the institution availed themselves of the occasion to secure the enjoyment of the day and to promote, at the same time, the good cause. The only regrets were as to the shewy character of the day and the paucity of numbers in attendance; but we find all similar societies suffering just now, and no doubt from the same cause—the general depression of business.

ROYAL COMMISSION OF FINE ARTS.

Her Majesty's Commissioners hereby give notice:—

1. That whereas various statues in bronze and in marble, of British sovereigns and illustrious personages, will be required for the decoration of the new palace at Westminster, artists are invited to send models to be exhibited for the purpose of assisting the Commissioners in the selection of Sculptors to be employed.

2. The models are to be sent in the course of the first week in June, 1844, to a place of exhibition hereafter to be appointed.

3. The specimen or specimens, not exceeding two in number, to be sent by each artist, may be either prepared for the occasion, or selected from works already executed by him within five years prior to the date of this notice.

4. The works may be ideal or portrait statues, or groups, but not relievi. The sub-

jects are left to the choice of the artists. The materials are to be such as are commonly used for models and casts. The dimensions are to be on the scale of an erect human figure, not less than three nor more than six feet.

5. The invitation to send works for the proposed exhibition is confined to British artists, including foreigners who may have resided ten years or upwards in the United Kingdom.

6. Artists who propose to exhibit are required to signify their intention to the secretary on or before the 15th of March, 1844.

By command of the Commissioners,
May 26. C. L. EASTLAKE, Secretary.

WATERMEN'S AND LIGHTERMENT'S ALMSHOUSES.

THESE almshouses are situate at Penge, near to the Croydon Railroad, in a delightful and very healthy situation, and there are forty-two houses finished in the Elizabethan style in white brick faced with stone, and are most ornamental to the neighbourhood. The houses are all occupied by old watermen and their wives or widows. The Watermen's Company are not able to allow the inmates at present more than 5s. per week for married persons, and 3s. 6d. for single men and widows, beside their accommodation of coals; but they hope, as soon as they shall have paid off all their debts on the building account, to be able to afford some additional comforts to the poor inmates.

SEVERN NAVIGATION IMPROVEMENT.

A SPECIAL meeting of the Commissioners was held on the 24th ult., J. Benbow, Esq., in the chair, for the consideration of various important matters in connection with the works; twenty Commissioners were present. The reports of the Committees of Works and Finance were read: the first stated that the eminent contractors, Messrs. Grissell & Peto, had offered to execute the whole of the works for 139,850*l.*, and the Committee recommended the acceptance of their contract, as being far more safe and likely to be efficiently performed than by dividing the work into several contracts; the other report briefly recited the circumstances attending the Staffordshire and Worcestershire Canal Company's obtaining their Act for advancing money towards the Severn improvement, and went on to shew that, in consequence of certain liabilities which had already been incurred by the commission, the total amount of the works would exceed the sum specified in the Act, and that therefore it would be necessary to apply to Parliament for power to raise a further sum of 30,000*l.* The liabilities alluded to were:—expenses of obtaining the Act, 12,690*l.*; purchase of land, 10,000*l.*; interest, 6,000*l.*; management and

miscellaneous, 6,000*l.*; making a total of 34,690*l.* already incurred, which, added to Messrs. Grissell & Peto's estimate of 139,850*l.*, would leave a sum of 24,540*l.* to be provided for, inasmuch as the Act only gave power to raise 160,000*l.*

J. S. Pakington, Esq., M.P., moved the adoption of the reports, and stated that as the Staffordshire and Worcester Canal Company were willing to advance the further sum of 30,000*l.*, it was necessary that every guarantee should be given them by the application for another Act in the next session.

J. E. Strickland, Esq., seconded the resolution.

In reply to Mr. Spooner, Mr. Waters read the items of the present liabilities, which he stated did not include the expenses of the former application to Parliament.

Mr. Cother was afraid that, in case the application for another Act failed, the Commissioners would be personally responsible to the contractors; but Lord Hatherton, as chairman of the Staffordshire and Worcestershire Canal Company, stated that if the Commissioners then present should record their approbation of the proceedings hitherto taken, and of the intention to go to Parliament again, that Company would be so far satisfied as to give every necessary guarantee to the contractors. The reports were received and recorded.

Mr. J. W. Lea then moved, and Mr. Gutch seconded, a proposition that the Committee of Works be instructed to accept Messrs. Grissell & Peto's contract, or any other party of which the Committee might approve, subject to such conditions and securities as the Committee might think fit.

R. Spooner, Esq., objected to the motion, on the ground that all public works of such a kind ought to be opened to public competition.

Lord Hatherton spoke highly in favour of Messrs. Grissell & Peto, observing that nothing was so effectual a guarantee for the due execution of the works as the excellent character enjoyed by those contractors, and their high standing in the commercial world and in society generally.

After some observations on the same subject by Mr. Cother, Mr. Whitcomb, and Mr. Spooner, Mr. J. B. Payne inquired why the sum now stated had so far exceeded the original estimate; to which Mr. Cubitt replied, that the Parliamentary expenses were much greater than had been expected, and that the expensive lock at Diglis and the heavy works at Upton had not been contemplated in the original estimate.

The motion was then adopted, as also was one moved by T. C. Hornby, Esq., and seconded by Mr. Spooner, authorizing the Committee of Works and Finance to obtain the necessary Act for power to raise 30,000*l.* Mr. Spooner, however, would not pledge himself that the Company he represented (the Birmingham and Worcester Canal) would not oppose the application. After thanks had been passed to the Chairman, the business concluded.

Literature.

Student's Guide to the Practice of Measuring and Valuing Artificers' Work. London: Weale, 59, High Holborn.

Of course it will be understood that this is a builder's book, and that it is *building artificers'* work that is referred to. We are the more particular as to the right exposition of the title, because the book is in another respect strictly what its title implies, namely, a *STUDENT'S GUIDE*; by this we mean that it is not in our opinion designed for absolute practical reference, but for initiating the student in the theory of measurement and valuation.

The advertisement page of the work explains that—

"The following work was originally written expressly for the rising student by an eminent architect and surveyor of upwards of fifty years' experience, but the manuscript having been left at his recent death in an imperfect state, it has been carefully arranged for publication, with much additional matter, by Mr. Edward Dobson, who was educated in the office of an active measuring surveyor, and who is the author of 'A Statistical Account of the Railways of Belgium,' to whom I am also indebted for the correction of the proofs.

"It is anticipated that this volume will fill the

wide space between the student and the practical man, by removing the perplexing difficulties which hitherto have been a barrier to his advancement, and which can be appreciated only by those who aspire to be correct and efficient men of business, in the profession that they may desire to follow."

"Measuring and valuing," it is said in the preliminary observations of this book, "is not the most pleasant of an architect's duty, more particularly when it is one to which he does not feel himself perfectly competent. It is therefore strongly recommended to the student, that after he has acquired sufficient knowledge of construction for making out working drawings correctly, he should attend to the rules, by which in due time he may become qualified to measure and value the work when performed."

"The disinclination often felt by young gentlemen of education for the study of these rules, and of the mechanical part of the profession, make it the more necessary to impress on their minds the absolute necessity of studying these essential qualifications, which can only be done, with any probability of success, by commencing at the lowest, and rising gradually to the higher departments. If the student neglects the operative part, he must never expect to be capable of making working drawings without incurring the ridicule of the mechanic; and when he commences business on his own account, if he also neglects the measuring department, he will be obliged to employ persons to make out his specifications, and to measure and value his works when completed. The expense incurred by thus employing others to do what he is incapable of, is a minor consideration, for it is imperative on the young architect to reflect that he will be the responsible agent between the gentleman and the builder, and that if, during the erection of an edifice, he allows the work to be insecurely performed, or suffers his employer to be imposed on, not only is his character at stake, but he is also amenable by the laws of his country (and very properly): so that following the profession of an architect, not being duly qualified, may be attended with the most serious consequences: for whether an architect allows his employer to suffer from inattention on his own part, or from the ignorance or dishonesty of the persons employed by him, it is precisely the same in effect, he being professionally employed, and receiving his commission on the cost of the building, which is paid him for designing, directing, and superintending its construction, and seeing that the whole is performed in a proper and workmanlike manner, examining and passing the accounts, and making every arrangement for their final settlement. Consequently, in case of failure in any respect, he is answerable, from whatever cause it may arise, except the improper interference of his employer. Independently of this serious responsibility, if he does not qualify himself in the operative part, it is impossible that he can ever follow his profession with any comfort or satisfaction. Even in passing over or through his own buildings, he is obliged to be most careful of giving any directions, fearful lest he should commit himself before the common mechanic, who very soon discovers if the architect has practical knowledge, and consequently in what manner the work may or must be done, and acts accordingly.

"It may be stated that architects of extensive practice cannot attend to all these things themselves. True; but be it remembered, that young men do not very soon get into such practice, particularly if they are not well qualified; and when they do, it is the more essential that they should perfectly understand the practical part of their profession,—that they may select proper assistants, and having chosen them, that they should know from their own experience if they perform their duty with ability and integrity.

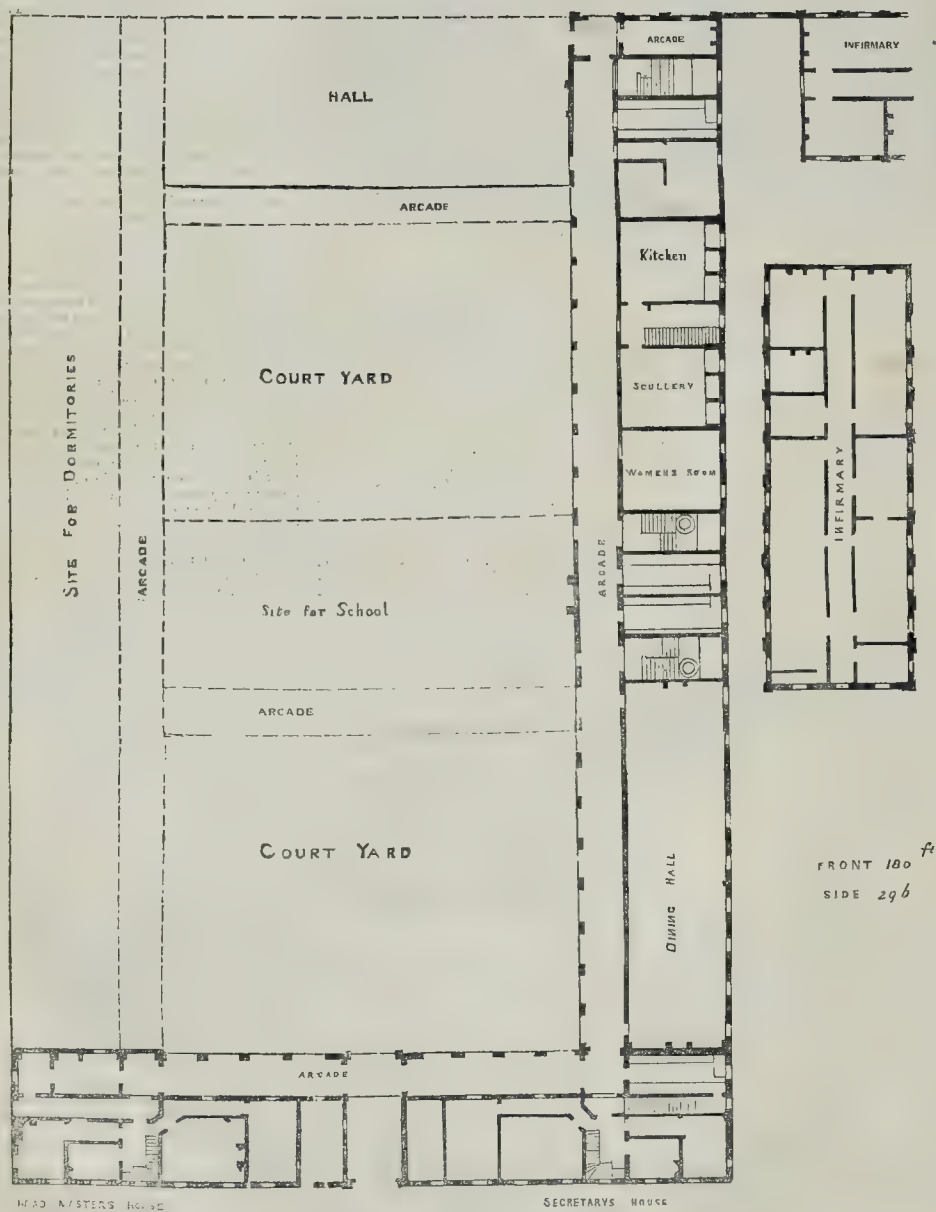
We have quoted at length in the foregoing extract, because we admit the force and justice of the views propounded in it. By some it may be urged, and is urged, that the architect is one thing, and the surveyor and valuer another; and the practice in London being to separate these functions, and to vest them in two distinct parties, many architectural students of this metropolis conclude that the necessity for their being acquainted with the modes of measuring and valuing work is done away with; but we take leave to assert that unless a man be that sort of genius possessing a kind of intuitive or instinctive skill in the question of workmanship and labour, he cannot launch far into the sphere of the genuine architect, without the acquisition of this knowledge upon rule and principle; and so we hail the appearance of this book, and invite the student's particular attention to it.

The most notable feature of the work is what is called the *decimal constant*; but while it seems to approximate to a perfect theory, it

is like many other things of similar promise, defective when applied to practice: it has, however, great merits, which we will endeavour to explain.

What is meant by the "constant" in this book, is the fixed expression of value for any particular kind of work; and we are not prepared to say that the decimal expression is the best in theory, but we are sure it would take long, very long, to reduce it to general practice. Englishmen are so used to fractional denominations of a day, and to speaking of so many hours, the quarter, or half of a day, that it would be a labour as difficult as to teach the whole science of admeasurement, to bring them into the decimal notation, and to accustom them to say decimal .25 or decimal .5 of a day, otherwise the principle is valuable; for instance under the head of CARPENTRY, and "labour on fir timber," we have the constant '168 opposite to the item "*cube fir truss framed*." This '168 is the decimal expression of that part of a day in which the labour on a cube foot of fir timber in the way of truss framing would be accomplished; and by multiplying the decimal number by the rate of wages per day which a carpenter receives, or is charged for by his master in the bill, the value of the work per foot, and in like manner per yard, per square, per rod, and so on, is ascertained. At first sight, too, this plan seems admirable in another respect, since it appears to set up a standard, or "constant" as it is called, for determining the rate *per foot*, yard, square, or rod all over the kingdom—so that by multiplying the "constant" of labour by the varying price of labour in different districts, you would seem to have a general price-current for all districts. This is not, however, exactly so; for we have found, and it is well known among architects and builders to be the fact, that there are many classes of work done in London at as cheap and sometimes a cheaper rate, paying 5*s.* a day to the workman, than in the country where only 3*s.* 6*d.* may be the rate of wages. This arises from the system pursued in the metropolis and most large towns, and in large establishments, of what is called the principle of "*division of labour*;" for instance, in a London shop, one man is kept at one description of work, in which he acquires a superior proficiency, while he may be unskilled in the general routine of his art, and for that work which he is confined to, he establishes by his "*habit of skill*" a minimum standard of time which not one workman in a thousand in the country could be honestly and fairly tried by; the consequence is that, by multiplying the constants for London work by the scale of country wages, you fall short of the cost, and, indeed, of the value. So we perceive that correct theories fall out in application to practice. With these exceptions, however, the principle is valuable, and it is greatly more so when we consider that the assigning of "constants"—the requiring of the student to make his table of such for the district in which he may be placed—leads him into a proper business-like method, and out of the absurd and parrot-like formula which too many fall into, who quote and affix prices as if they were matter of guess or memory—whose heads, on such a subject, are little better than our tablets, on which are enregistered the "*constants*" only of an arbitrary custom or practice. On the whole, therefore, we can say of this work, that it is a valuable addition to our library of instruction, if not of information. The principal technical terms are given in each department of work; methods of taking the dimensions, and the order or rotation in which they should be taken, are pointed out; the system of abbreviating words by the use of initial letters; the form of an abstract, and the bringing the quantities into bill. The different trades treated on are bricklayer and slater, carpenter and joiner, mason, plasterer, smith and ironmonger, plumber, painter, glazier, and paper-hanger. There are seven plates given in the work to illustrate the various modes of measurement prescribed, and some useful though brief instructions on concrete making; and tables of materials, by which the quantity in any particular work may be calculated.

LEDBURY.—Earl Somers has given the site for the proposed new church at this place, in addition to a subscription of 500*l.*



ROYAL NAVAL SCHOOL, DEPTFORD.

The first stone of this erection was laid on Thursday, by H. R. H. Prince Albert. A numerous company assembled to meet his Royal Highness, who arrived about twelve o'clock, and was received with a royal salute from a party of Horse Artillery, stationed in an adjoining field, as well as with loud cheers from the spectators. His Royal Highness was met at the gate by the president of the institu-

tion, Admiral Sir C. Ogle, Bart., and the members of the council. The royal standard was hoisted on the pavilion, and the splendid band of the Royal Marines, which was in attendance from Woolwich, played "God save the Queen." His Royal Highness having been attended by the officers of the institution to the place where the stone was to be laid, the council and head master were presented to him. The Lord Bishop of Rochester having offered up a prayer, the act of incorporation, a scroll attesting the act of laying the foundation with the coins usually employed on such occasions, were then enclosed in a vase, which was presented to His Royal Highness, and by him placed in an aperture in the stone, which had been duly prepared for the operation. The trowel and mortar were then given to his Royal Highness, who went through the usual forms of manipulation; and having applied the level and bevel, finished the ceremony by three blows with the mallet (made from a beam of Lord Nelson's ship, the Victory), and pronouncing the stone to be completely and properly laid, amidst the hearty cheering of the company.

Six scholars of the first class advanced, and Master William Drew, son of Lieutenant Drew, R.N., addressed the prince on behalf of the scholars, and expressed their gratitude for his kindness and condescension.

His Royal Highness then returned to his carriage attended as before by the Governor and Council, and departed amidst the same demonstrations of loyal attachment with which his approach had been welcomed.

The erection of the building is committed to Mr. Shaw, the well-known architect of Christ Church. It will present a handsome front of red brick and stone, in the style of which Sir Christopher Wren was so warm an admirer, in various specimens of which Mr. Shaw has already established his superiority. A portion of the fabric will be ready for occupation in August 1834; and besides the requisite rooms for masters, matrons, museum, library, &c., accommodation will be provided for 200 boys.

OUR CORRESPONDENCE.

WARMING AND VENTILATION.

TO THE EDITOR OF THE BUILDER.

SIR,—I perceive with pleasure that the subject of warming and ventilation is likely to be discussed in your pages, and do not doubt that your readers will be benefited by a thorough discussion of the merits of the various systems which have been proposed, to attain these desirable purposes.

Having paid some attention to the subject, and having like the rest a favourite system, I shall be glad to furnish a description of its principles and application at a proper time; however, as you have now a system before your readers, introduced by the author himself, namely, Mr. Bernhardt, I should propose that only one plan form the subject of the discussion at a time, and that when that is exhausted, another be introduced and examined in like manner; I think upon this plan, that much good might result, as these subjects are now allowed on all hands to be of first-rate importance to all; but certainly especially so to those to whose care the construction of our buildings is intrusted.

And may I presume to suggest, also, Sir, that the discussion be confined to warming and ventilation alone: let there be a desire to elicit truth and discard error from all sources, even from our own minds; and above all to refrain from finding fault with each other's logic or grammar; for these are not to be expected from the practical men from whom we are likely to elicit the most useful truths; if we gain facts from the sense of their meaning, what more do we want? It is not a subject easily exhausted, for it embraces a circle of sciences, very imperfectly understood, physiology, chemistry, pneumatics, hydrostatics, hydraulics, pyromonics (heat), mechanics, and so on; all these enter largely into the subject; so that if we have facts, we can do very well without logical or grammatical criticism or angry feelings. I hope these remarks will not be taken amiss, as I should much like to see THE BUILDER a vehicle for truths and facts only, connected with the glorious old art of construction, and its readers and correspondents a fraternity similar in unity of spirit to those united bonds of Freemasons described in the letter of Vindex, page 193. But to return to Mr. Bernhardt's system, which I hope that gentlemen will see the necessity of laying before your readers (if he wishes it to be a public benefit), for the purpose of being discussed. I beg to state that, so far from being satisfied that it is either "a wholesome or an economical system of warming and ventilation," I will undertake to

prove from what Mr. Bernhardt has published that it cannot be either the one or the other, which I will do, if allowed, in your pages, unless Mr. Bernhardt shews by principles and scientific facts in your journal that I am mistaken.

The proposition to be considered appears to be this: What is the system by which the most wholesome and economical ventilation and warmth may be insured, in all situations and in all circumstances, for large buildings?

I hope Mr. B. will meet this with facts and principles, and not with great names; no one has a greater veneration for really great men than I have, but I do not think that one with the "memorable

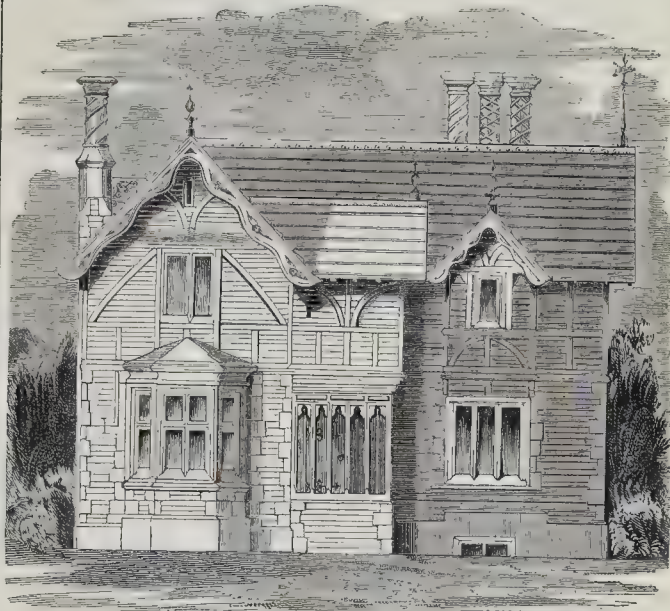
report of 1836 before him," should ask me or any other mechanic to have faith in great authorities upon this subject.

I think also that Mr. B.'s fear is ungrounded, "that the public will be deceived by men unacquainted with the laws of nature governing fire and air;" as it is those who do understand these laws, as far as they are known, who would feel interested. I hope therefore that he will comply with Mr. Hope's wishes, and shew that he does really possess this desirable science.

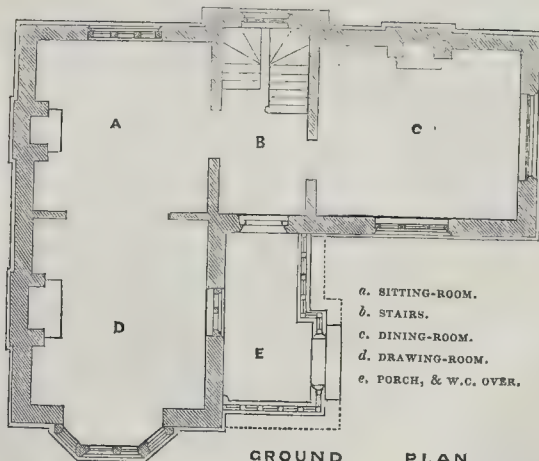
I am, Sir, very respectfully,

GEORGE SPENCER.
5, Hungerford-street, Strand.

WOODEN ARCHITECTURE.



ELEVATION.



GROUND PLAN

- a. SITTING-ROOM.
- b. STAIRS.
- c. DINING-ROOM.
- d. DRAWING-ROOM.
- e. PORCH, & W.C. OVER.

TO THE EDITOR OF THE BUILDER.

SIR,—As you were kind enough to insert my former design for "Wooden Architecture," I am induced to forward you another on a larger scale. You expressed a wish for the ground plan to a clear scale, to my former one, but I regret that through illness I was compelled to neglect complying with your request. I trust this will prove sufficient apology.

The present design is for a house or cottage, consisting of six rooms, with kitchen and cellarage on the basement floor, and water-closet (W C)

marked on the plan in dotted lines, on the one-pair floor.

The ground floor is to be faced with best stock, with stone quoins and dressings; the one-pair to have oak posts, quarters, cills, leads, &c., and filled in with stock, same as ground floor, or rough-cast. The roof covered with old red tiles, with tile ridge cut in pattern.

Should this be as much worthy a place in THE BUILDER as the other, I shall feel greatly obliged.

I remain, Sir, your sincere well-wisher,

A YOUNG ARCHITECT.

ST. NICHOLAS'S CHURCH, NEWCASTLE.

TO THE EDITOR OF THE BUILDER.

Sir,—Not having seen any answer to Mr. George Walheim's letter, dated May 1st, in the subsequent numbers of your "magazine," respecting the date of the erection, &c. of St. Nicholas's Church, Newcastle, I beg leave, for the sake of rendering information, to forward to you the accompanying extract from "Briton's History of Architecture" concerning it:—

"The church is supposed to have been erected in 1389, and the steeple added in the reign of Henry VI., but its history, says Mr. Hodgson, is very obscure. Brand, in 'History of Newcastle,' i. 263, ascribes it to Robert Rhodes, whose name appears on the ceiling of the belfry."

Would it not be as well for your correspondents, when passing their approbation or censure upon any building or edifice, to give their remarks a little more in detail; and for the edification of those who may not be quite so proficient as themselves, point out where the beauties or blemishes (as the case may be) are to be found?

As to say (for instance) "that unhappily the spire of the little church of St. Dunstan's, London, is an entire failure," even though softened down by the words "as compared with the church of St. Nicholas," is rather too sweeping and condemnatory without some further explanation; and I for one should be glad to know in what its failure consists.

Should therefore Mr. George Walheim have this brought home to him, he will through your magazine reply, for surely "one good turn deserves another."

I am, dear Sir, yours truly,

I. B.

THE ROYAL INSTITUTE OF IRISH ARCHITECTS.

We have received from Dublin another anonymous letter on this subject, taking up the defence of the Institute. The writer is very indignant at the attack, "wanton as it is unjust," he says, which appeared in the eleventh number of THE BUILDER; and stigmatizes the conduct of the writer of that letter, in his "presuming to criticize a science which requires a well-studied mind, a vivid imagination, and a sublimity of thought to appreciate, and still more to follow." We do not exactly see the logic of this, considering how just a sentence immediately follows on these words:

"But this, Sir, is not the grossest blunder; he represents our 'city knight' as a builder's clerk, by the way of adding degradation to contumely, without ever recollecting that he was tacitly lauding the man he meant to abuse, for as a member of the profession, ranking high as he does, it shows his talents and application in the stronger light. Your correspondent perhaps thinks that an architect should be born with a pencil in one hand and a Corinthian column in the other."

Our correspondent goes on to say, that the Royal Institute of Irish Architects, in endeavouring to assimilate their proceedings to their sister society, could not have a better archetype, and in forming themselves into that Institute, could have no better reason than the neglect the members of the profession had suffered for years. Unanimity still prevails amongst its members, and they still meet as often as their business requires it.

The conclusion of the letter is too much akin to that personality and abusiveness which we had to complain of in the former letter; and we must therefore make a resolution once for all, which we now set upon to exclude such matter from our pages. In doing this we but shew our respect for our correspondents, in throwing a shield between them and their self-antagonism—for no man finds a greater enemy than his own passions.

HISTORY OF LABOUR IN BUILDING CRAFTS.

(Continued from No. 16.)

The history of Freemasonry has yet to be collected from among the widely-scattered sources where its continuous existence is recorded, and an able execution of such a work would amply repay the labour bestowed upon it. Recently the title of "Freemasons of the Church" has been assumed by a society instituted for the cultivation and promotion of the principles of ancient architecture; which promises, by the scale of its establishment, and the ability of its officers, to effect something like a revival of a fraternity that may be said to have expired with its last practical Grand Master, Sir Christopher Wren. In speaking of that eminent man, it is, however, necessary to say in ex-

planation, that although there was about his mastership the lustre of professional appropriateness, yet the society of FREEMASON-BUILDERS had long before lost its integral value, having merged into that which under the same title has acquired recognition and celebrity throughout the civilized world, by the adoption and practice of universal charity and brotherly love. I must entertain an opinion that the older fraternity met the fate of its extinction in the suppression in England of the ancient religion. That the Church had always promoted architectural science, is evident in the magnificence of her temples and colleges still remaining, and in the ruins of religious houses, which survived the order for razing them only by a massiveness that precluded its accomplishment. Many churchmen were themselves associate Freemasons, and there are still extant several edicts especially for the encouragement and protection of that body; but leaving for the present those imposing structures to tell their own tale of the proficiency of the hands that reared them, and of the piety that originated and supported them, I revert to the more immediate information these papers are intended to convey. The reigns of the princes of the Norman line, and of the first Plantagenet, may truly be termed those of unmitigated oppression; the absolutism of royalty over the nobility was re-enacted with threefold severity upon the people, still the effect of freedom from vassalage enjoyed by the few, was already becoming evident in a rapid and flourishing growth of this class in maritime towns, and in localities where foreigners carried on the limited mercantile operations of the period, for Englishmen had not then arrived at either the right understanding, or pecuniary ability to engage in these transactions. The bowyer,* and the smith, or armourer, were then the topping artificers; next in importance were the ship-builders of the Cinque Ports; then followed the native weavers of coarse woollens, and tanners of leather, and lastly the group of handicraft trades, the majority of whom were employed in building, or work connected therewith.

With the Romans came the elements of constructive science, and though the development of its principles was retarded or suspended by the abandonment of Britain by that people, the introduction of the Saxon power, and the subsequent struggles between the latter and the Norman conqueror, it had never become extinct. The extension and perfection of handicraft trades was naturally dependent upon general prosperity and the increase of disposable wealth, but to which the despotic and turbulent times we have alluded to were a bar; and there is good ground for a conclusion that the condition and remuneration of the ordinary workman was precarious and unsettled until about the accession of Edward I., in 1272. We gather much curious as well as authentic information from a roll of expenses, preserved in the Tower, of the ninth and tenth years of the reign of that king (A.D. 1281 and 2.). He was then assembling a fleet and army at Ruddlan Castle, Wales, for the purpose of attacking Llewellyn, prince of that country; the stronghold, so called, requiring repair, a considerable body of workmen appear to have been assembled for the purpose, and this record is the earliest upon an extensive scale as to acquainted with, affording conclusive evidence as to a fixed or current rate of wages; it possesses also further interest, by enabling us to judge of the comparative value of labour, or service, as between soldiers, sailors, and mechanics. The entries in this roll are very numerous, but I select such only as bear upon my subject.

"On Friday next, after the feast of the Assumption of the blessed Mary, at Rothelan, paid Master Richard Leningham, receiving 12d. by the day for his wages, and the wages of three overseers of twenties, each receiving 6d. by the day, and sixty-three carpenters, each receiving by the day 4d., going to Anglesey for sixteen days, viz. from Sunday the 23rd of August, to the 7th day of September, each day being reckoned—18l. 16s. 0d."

"Sunday next, after the Feast of the Assumption of the blessed Mary, paid one master mason, receiving 6d. per diem, and five masons, receiving each 4d., and one workman, receiving 3d. by the day, for their wages from the said Sunday to the Saturday next before the Feast of St. Matthew the Apostle, for twenty-eight days—3l. 7s. 8d."

"Sunday 24th day of October, at Rothelan, to David de Waltham, receiving 4d. per diem, and to one Plasterer, receiving 4d. per diem, and nineteen workmen, each receiving 2½d. per diem for their wages from Sunday, on the Feast of St. Luke, to the next day before the feast of St. Martin, for twenty-three days—5l. 6s. 4½d."

"Saturday, on the Feast of St. Ambrose, paid to William the plumber, receiving 12d. per diem for his wages, from Sunday the feast of St. Benedict, to Sunday the 18th of April, for 29 days—11. 9s. 0d."

"Thursday, 27th August, paid to Robert Giffard,

* Maker of the ancient English long and cross bows, and arrows.

for the wages of eight constables of cavalry, each receiving 12d., and of 857 archers, each receiving by the day 2d., and of their forty-three captains of twenties each, receiving 4d. per diem, from Tuesday the 25th day of August, for the seven following days—55l. 6s. 0d."

"Friday next, after the Feast of the Assumption of the Blessed Mary, at Rothelan, paid to forty-seven sailors of the king, conducting the king's ships to Anglesey, for their wages from Sunday the 23rd day of August, for seven days, each receiving 3d., excepting seven, each of whom received per diem 6d.—4l. 14s. 6d."

"Tuesday, the Feast of Saint Michael, paid to 120 carpenters, and one overseer of twenty, and the constable, overseers of twenties, smiths and others being accounted for, for their wages from Sunday 28th September, to the 3rd day of October, each day being reckoned by the hands of Master P. de Brampton, 15l. 5s. 0d."

The last entry makes no distinction of the rate paid to each class, but I have transcribed it from the circumstance of smiths being mentioned, which shews that trade to have been current, and that they were necessary to the repairs going on at Ruddlan. It is very probable that this large body of workmen were brought together by *impressment*, as we find to have been the case a century later, at the rebuilding of Windsor Castle under William of Wykeham. Forced labour for the king's service was the longest continued feature of arbitrary power in England, and co-existent with it was the forced supply of provisions for the consumption of the royal household, the latter imposition not having been entirely abrogated until the coming in of the Stuarts.

From the minuteness of other entries in the roll quoted, there is reason to suppose that the rates of wages specified were the entire equivalent for labour and services performed, there being no entries for provisions supplied to the workmen or soldiery; it affords therefore a standard by which we may estimate the condition 560 years since of the labouring classes, but to render this starting point of my inquiry intelligible, the comparative value of money, the mode of living, and other incidents bearing upon the subject must be taken into account; previous to entering upon this section, I will, however, give another extract from a parliamentary roll, under date A.D. 1301, thirtieth year Edward I. This ancient document relates to a subsidy granted by Parliament of one-seventh of the goods and chattels of the laity to the king for the purpose of prosecuting war against France. Here also occurs an enumeration of the usual handicraft trades, and the officers of the crown appear to have executed their exactness, no personal property whatever being exempted; even the tools of workmen were subjected to inspection and valuation, in money or to suffer a sale. A single transcript will show both the vigilance of the tax-gatherer of 1301, and the description and estimate of a carpenter's tools at that period:—

	s. d.
"A broad axe	0 5
Another	0 3
An adze	0 2
A squire (square)	0 1
A navorer	0 1

Total

What the tool called a "navorer" may have been I cannot pretend to explain, having heard no satisfactory rendering of the term. In the same roll the tools of blacksmiths are variously estimated at from two to five shillings, and other trades in proportion.

If we calmly consider the circumstances of the trades at this remote period, we shall find notwithstanding that oppression was slow in relaxing its gripe, and the strong hand was ever ready to menace and to strike, yet the very necessities of the nobles, and the large number of retainers attached to them, rendered the whole in a measure dependent upon the working classes; the latter were but as a fraction constantly engaged in internal or external warfare, an array which in its lofty bearing scorned assimilation with the followers of peaceful occupations; but in this marked separation of interests lay the future strength of the trading community; the equipment of the kingly and baronial forces, the requirements in building and repairs, and increasing demands for domestic and personal convenience, in dwellings and attire, induced employment and a fixity of wages, which the aristocracy could not evade. Thus the minority grew up to importance, and included in their acquirements glimmerings of the educational knowledge essential to science and trade, while the higher classes were yet steeped in ignorance, and intent only upon the maintenance of the feudal system, to which they clung with an insane hope of perpetrating that hateful tyranny.

Resuming a consideration of the roll of expenses

kept at Ruddlan, we gather that systematic superintendence and fixed wages already prevailed, and that the building crafts obtained 4d. per diem, their overseers, or master workmen, receiving 6d., and another fact of some importance, viz. that the wages of the artificer doubled that of the military archer, and was one-fourth more than that of ordinary seaman on board the king's ships. I am not at present aware of the existence of any contemporary documents of a less public nature that would enable us to decide whether there were average rates, applying generally; the older records are mostly of this kind, or those of the expenditure of the great abbeys and monasteries; and next in succession are the household books of the nobility, which are of a much later date. But, with or without the confirmation desirable to establish uniformity, it must be decided that Edward I. paid liberally for the repair of his castle of Ruddlan; in coming to this conclusion we must bear in mind that the pound sterling of that period contained as much in weight of silver as three pounds of our present coin, and that money was nearly ten times its present value; further, the wants of the working classes were limited by habit and example, and the list of readily purchasable commodities confined to those of the first necessity. I might here also institute something like a comparison in the price of corn and cattle, but it would be less certain, less applicable and instructive than at a subsequent stage.

VINDEK.

(To be continued.)

THE NEW BUILDING ACT.

TO THE EDITOR OF THE BUILDER.

SIR,—I quail before this portion of the task which I have set myself, conscious that, whatever may be the difficulties attendant upon making a prudent and practicable law for the erection of new buildings, they are as nothing compared with that of legislating upon the complicated question of party walls.

With no guide but the average portion of common sense, and the average perception of right and wrong, having taken to my task, I will endeavour to criticise with candour, and also to bow submissively to that correction which my rash attempt may provoke and deserve.

My reasons are worth just what they are worth; but I will give them, because that, as they form the basis of my deductions, the superstructure must follow the fate of the foundation; and if my assumed basis be wrong, others knowing it may avoid similar failure; and, laying down surer premises, may arrive at more correct conclusions.

In the defining clause 3, and again in clause 78, it is said, the term "party wall" shall comprise all walls which shall be used, or intended to be used, as a separation of one building from another; and also all walls which shall stand upon ground not wholly belonging to the same ownership or occupation.

The latter portion of the clause describes that which is honestly a party wall. The first portion declares that to be a party wall which may really be an external wall, wholly on one man's ground, but of which use has surreptitiously been made by his neighbour.

Where inference of age and style mark the difference of property; where there either are no timbers lying in or bearing upon the wall, on one side, or where, if timbers are inserted, they are manifest encroachments; or where original plans, or boundary stones, mark the extent of an owner's ground, it would be exceedingly unjust to deprive him of his land by a declaration which is untrue. Where there is reasonable ground for doubt, let each party have the benefit of the doubt, and divide the land. But, as the rights of property ought to be protected, not violated by statute law, it would be very easy, and it would be a legitimate object of inquiry, to provide that, before adjudicating upon the state of a wall, as a party wall, the official referees should first ascertain and decide whether it be a party wall or not; and in fair protection of property, an enactment is also called for to prevent any person surreptitiously building against an external wall and using it as if a party wall. Probably the easier course would be to insist upon an external wall being built against the first erected external wall, as thereby the boundary of the land would be preserved; and, looking at the reckless character of the kind of persons who are apt to make such surreptitious uses, either the protecting penalty should be heavy, or full and efficient power should be given to the aggrieved party to enter and destroy the building so soon as it should be discovered.

As the first clauses (90 and 91) of the new Bill, which touch "old party walls," contain the words, "insufficiency of thickness," it will be well at once to observe, that those words are probably meant mercifully to meet the case of ancient walls erected

prior to 1774; and which may well be insufficient both as to the existing and the intended law; as well as to guard against such untoward results as that unjustifiable interpretation of the present law, which holds, that if but a foot of an old party wall be insufficient in thickness, the whole wall, however sound it may be, is to be condemned, as unsafe against fire; and that the law would not be satisfied by rebuilding only that deficient portion, and making it of such substance as the rate would require—an interpretation which but too forcibly shews the perversity, not to say innate wickedness, of the human mind: a conformity to the letter, but a gross violation of the spirit of an Act which was intended not to produce evil but good. But, exclusive of these, in another view the provision becomes absolutely necessary, as in palliation of the injustice of an *ex-post-facto* law, which will render almost every party wall in all London insufficient in thickness; and not only make that, in future, unlawful which is just barely lawful now, because that it was before uninterdicted, but unlawful, because that it has been strictly and honestly built according to law.

In fact, the two apparently parallel clauses (sec. 23 of 14 Geo. 3, cap. 78, and clause 90 of the Bill) mean very different things, and, therefore, it is necessary to ascertain how such thickness will be added by the Bill to existing Act of Parliament walls, according to their several rates, premising, however, that the new and old rates resemble each other as apples resemble pumpkins.

In first-rates an additional half brick will be required in and through the roof.

In second-rates, an additional half brick will be required above the second floor of common people, or the fourth of the new dictionary.

In third-rates, an additional half brick will be required from the ground line (new second floor) up to the second floor (new fourth floor).

In fourth-rates, an additional half brick will be required from the ground line (new second floor) throughout.

So far being cleared, I will proceed to a comparison of the parallel clauses of "the Act" and "the Bill."

Take 14th Geo. 3, cap. 78, sec. 23. A sound party wall, against which an external wall may have been, or may be, built, may remain as a party wall, so long as it shall continue sound, although it be insufficient in thickness, until both the houses shall be rebuilt, although at different times.

If one owner A has built an external wall against the party wall, he is not to lose his property therein; but when the other owner B rebuilds, B shall either not build upon more than half the ground, or, he shall pay to A the fair value of half the materials, and of the ground upon which that half stands. If either of them is desirous of buying or selling, and they cannot agree as to price, the price is to be settled by a jury.

(But if B's house exceed the fourth-rate, or be four stories in height, and the old party wall be not two bricks thick in the basement, and one and a half brick above, then the party wall must be rebuilt, although A has built an external wall against it.)

In this enactment, the building an external wall against a party wall is considered to be an act purely voluntary, and provision is therefore made that the builder shall not suffer loss in consequence of his own good nature.

Also take 14 Geo. 3, cap. 78, sec. 39. If a party wall between two old houses (i. e. prior to 1774) be only nine inches thick, and the houses be third-rates or upward, if the owner A intend to rebuild, he is to give three months' notice to the adjoining owner B, and after such three months have expired, A may enter and rebuild. I do not recollect an instance of this, but from the omission of all words as to payment, it would appear to be at the sole cost of A, and I believe that it is so held. Probably on that account the clause has, however, seldom been acted upon; and it has also been considered safer to pass through a regular form, and obtain a certificate of condemnation—at least I have heard that reason assigned by a district surveyor.

Take clauses 90 and 91 of the Bill. No old sound party wall is to be condemned on account of insufficiency of thickness; but if one owner A rebuild, he is to build an external wall against the face of his own party wall, without thereby losing his property in the wall or in the soil.

But if, in cutting away the footings or the chimney-breasts, he should, in the opinion of the surveyor or of the owner or occupier of the next house, injure the wall so as to render it ruinous, he is to rebuild it wholly at his own cost and reinstate all finishings. When the adjoining owner B shall rebuild, he is not to build his external wall against A's external wall, without first paying A for half the materials and half the land, either under a private agreement, or under the award of the official referees.

By this enactment, the act of building an external wall against an insufficient party wall is to be made compulsory.

There not being an index to the Bill, it is possible that I may have overlooked some provision to meet the very common case of an ancient party wall sufficiently thick, and more than sufficiently thick in the greater part, but surmounted by thinner work, or even not passing through the roof; but as this clause stands, I fear it is quite open to a perverse interpretation, that, in all cases, an external wall must be built. This defect, however, is so obvious, and so easily remedied by an appropriate enactment, that I shall take the clause really to mean those cases only wherein the wall is wholly too thin.

In such a case, should the party wall have been built, under the 14th Geo. 3, originally of legal thickness, but rendered illegal by a new law, the effect of the enactment would be most grievous wrong, and in fourth and third-rate houses might lead even to the abandonment of their sites.

Should the party wall, however, be only insufficiently thick, because that the intended new house is to be of a higher rate, its effect would not be of that character—may, it would be just, excepting on this account: the penalty of having to rebuild the whole wall and to make good all fittings—if, in cutting off the footings or taking down the chimney-breasts, any injury should be done to the wall (the owner of the adjoining house not only being a judge in his own case, but vested with power to become executioner, and to pull down and to rebuild the wall himself, and to recover the whole cost)—is so heavy, that no man in his sober senses would attempt to do it; and, as a necessary consequence, he would have to build wholly without touching either chimney-breasts or footings, and to abandon so much ground, and to leave a hole for the vilest filth; the which may always remain, for the law is only to provide that he shall be obliged to sell the bare half of the party wall. (It might, indeed, be matter of curious argument whether the district surveyor, who should superintend the cutting down of the chimney-breasts, would not be *particeps criminis*.)

So that, even if there ever had been any wrong done by the enactment of the 14th Geo. 3 for such cases, which has never been pretended, the wrong to be done by that of the present Bill will be much heavier.

The justice of the case appears to be this, that if the sound old wall should have been built under and agreeably to the 14th Geo. 3, cap. 78, the new house being both in height and extent the same as its predecessors, the wall shall still be capable of being used as a party wall, so long as it shall continue sound; but if the new house be either higher or more extensive than the old, and the wall be, in consequence of such increase, rendered insufficient in thickness, although sound, as it would be unjust to force the expense or annoyance of rebuilding it upon the next adjoining owner (B), then might the owner of the intended new house (A) be required to build an external wall on this wise:—

He should build piers of some defined width and thickness, in proportion to the depth and height of the house (reckoning chimney-breasts, if any, as piers), close to the face of the party wall, and cutting off its footing for them, and turn arches between the piers at least in every other story, and build a solid fourteen-inch wall above the top of the adjoining house, unless his neighbour should consent to windows being formed, but which windows should never be capable of being deemed ancient lights, but only lights upon sufficiency.

The party wall would thus remain, in the entirety of its character, as a party wall, as to materials and soil, so long as it should continue sound, or until B should rebuild. Whenever rebuilding should become necessary, B should rebuild the wall at his own cost, and take all the old materials, but A should make good his own finishings, and pay for half the thickness of the wall, so far as he would touch it, that is, in the arched recesses or openings through his own external walls.

There would on either hand be no positive injustice done, for the little loss B would sustain in only being paid for the spaces between the piers, would not outweigh the inconvenience A would sustain by having his house laid open, and having to reinstate his finishings. It would be as nearly as possible a drawn battle.

Thus would both properties be preserved entire, no discrepancies would grow up between title-deeds and actual property; and, above all, a fruitful cause of quarrel and heart-burning would not arise; and there would be no official referees to pay.

This suggestion is offered in much deference. If it be not wholly good, it seems somewhat better than the provisions of the Bill, which, instead of remedying the evil attendant upon a stupid interpretation of the present Act, would be productive of injury, injustice, confusion, and bickering.

Take 14 Geo. 3, cap. 78, sec. 38, as to defective

or ruinous party walls, which are of sufficient thickness.

If both owners cannot agree, the one (A) is to give three months' notice to the other (B). A is to name two surveyors on his part, B is to name two surveyors or able workmen on his part. If they meet and agree that it is ruinous, they so certify; but, if B should not name two persons, A has to name two others in addition to the first two, who are to view and certify within six days.

If, however, they should not agree, the magistrates are to appoint one other. The five are then to meet within six days after notice; and, if the majority certify that it is ruinous, or unsafe against fire, a copy of the certificate is to be left at B's house, and another filed with the clerk of the peace.

The business then has to wait until the then next general or quarter sessions for appeal. If the justices, upon hearing evidence, affirm the certificate, their decision is final, and, in fourteen days afterwards, A may pull down and rebuild.

The whole process will occupy five or six months.

The besetting vice of all this is, that the surveyors or workmen are partisans, not judges. Had the law provided that three district surveyors (not one of the district) and none other should view and certify, it is highly probable that not half a tithe of the injustice, as to the condemnation of party walls, which has been perpetrated under the guise of law by partisans, would ever have occurred.

As to the loss of time which ensues between the first notice and the final condemnation, it is no good cause of complaint. Can it for a moment be maintained that three months is too long a time for the tenant, upon whom the notice is served, to find out the owner, who may be abroad, or under some legal disability, and then for the owner to consult with his professional advisers? Rather is it a time to be maintained, or increased, rather than abridged.

Take clause 93 of the Bill. As to decayed or defective party walls.

If the owners cannot agree, the owner who intends to build (A) is to give six weeks' notice of his intention to the adjoining owner (B). It is then to be referred to three official referees, who, within ten days after the six weeks, are to view and certify if all, or any part of it, be ruinous, or insecure against fire. A copy of the certificate is to be delivered to B within three days; and filed with the clerk of the peace. But A is not to begin to pull down without B's consent, until six months from the date of the first notice.

So that no time is saved. The introduction, however, of three skillful, unprejudiced men, as surveyors, is a very great and valuable improvement.

But it is defective in so far as there is no appeal. Whether three men are sufficient for all the metropolis, or whether it be fit that any three men should be invested with such power as is to be vested in the official referees, may be matter of future consideration.

Take 14th Geo. 3, cap. 78, sec. 40. If there be no party wall, but only one or two timber partitions between houses, if either owner intend to rebuild, he is to give three months' notice to the adjoining owner; and, after the expiration of the three months, he may pull down and rebuild.

Take clause 94 of the Bill. Timber partitions may remain until one of the houses shall be rebuilt, or one of the fronts be taken down one floor, or one-fourth of the front above the second floor (ground floor). But, if either owner should desire to replace such timber partition by a party wall, he shall give six months' notice, and may then after begin to pull down and rebuild.

In thus replacing a timber partition by a party wall, independent of the dislocation of the timbering of both houses, and the hastening of their destruction, there will be this evil:

Being ancient, the rooms are low, it may be only seven feet. The party wall, built by A, against the will of B, will be built to suit the existing heights; the chimneys will also be so rebuilt. Suppose that B's house be subsequently destroyed by fire. In rebuilding he must make the rooms eight feet high at least; he may wish to make them ten or twelve feet clear. To do so he must cut away the chimneys at the risk of rendering the wall ruinous, and that having to rebuild, wholly at his own cost, that which was unfit for his purpose, and was built against his will; or he must abandon it wholly and lose his ground; or, it may well be that the party wall built of due thickness by A, for the then existing height, is too thin for the same number of stories in a modern house, and B must build low rooms again or lose his wall and ground.

In such a case as this, A might well, for his own whim, be obliged to build an external wall against the timber partition, and B be obliged, at once, to pay for half its materials and the ground on which it stands.

Take the Bill, clause 102. If an owner intends partially or entirely to pull down his house, he is

to give one month's notice to the adjoining owner of any other house separated from his own by a party wall, if such party wall shall not be ruinous or defective, and may then pull down and rebuild; but he must shore up and secure the adjoining house, both on the outside and inside, and make good any damage done to it.

This, at first sight, reads well, yet does it require very serious consideration; for, if I be not mistaken, it is contrary to the holding of the ablest judges, who say that every man is bound to protect his own property, upon receiving sufficient notice. The grievance on the one hand, of having to shore up and to spoil a newly-decorated house, to be annoyed by workmen, and to pay the piper besides, is so heavy, that protection is seriously needed. On the responsibility and cost thrown upon the builder of a house, and the probability of being called upon to do much more work, as reinstatement, than has been injured; and the almost inevitable occurrence of a bitter quarrel, if not a lasting enmity, for "trifles light as air," are things of no little moment. To do as much right, and to avoid as much wrong, as possible, it might be advisable to render it imperative upon the re-builder to perform all external shoring, to make good all external injury, and also all internal injury, if the walls should yield and fracture occur, but to leave the next owner to do as he may think fit internally. And, fairly to protect the re-builder against all undue claims, it would be well to give him power of entry upon the adjoining premises (with a peace officer, should that be requisite), to take account of the state of the place prior to beginning to pull down; for it is marvellous to hear of the unfounded claims which are, from ignorance, often conscientiously made upon builders.

Clause 98 of the Bill, as to intermixed properties, chiefly varies from sec. 33 of 14th Geo. 3, cap. 78, in placing the official referees in place of the intervention of a jury, to hear evidence, to determine the sites of party walls and the arrangement of party arches, and to award compensation where it may be justly due, and in not allowing the builder to begin until six months after the first notice.

The appointment of experienced, uninterested, professional men, instead of inexperienced, not to say partial, jurymen, is a manifest improvement, but the stipulation as to time needs some revision. It has happened, and may happen again, that one building has fallen, and left the intermixed rooms of another house in extreme jeopardy; and the lawyers may again hold, that the first-mentioned house could not be called ruinous, because that it had altogether fallen down and become no house at all, and that the law did therefore not apply to the case. To leave the house of a person who may desire to set uprightly, but lacks authority, in such a state for six months, would be so grievous an injury, that it is fairly to be hoped the promoters of the Bill will at once correct the clause, so as to make it meet such cases, and give the public prompt and cheap justice.

As to clause 99 of the Bill. If it really be wise to rate houses by the height only, then the law, to render itself effective, must necessarily interdict them from ever being increased in height. But I strongly think that the principle of rating by the height only is shown to be unwise, by the very circumstance of such interdiction being necessary.

A prudent man, just beginning the world, may, upon a confined piece of ground, build a fourth-rate house, with its fourteen-inch walls. As years roll on, his business and his family increase; space becomes necessary. The narrow limit of the ground forbids increase upon the plan, and he cannot add another story, because the party walls are not two bricks thick; he cannot add another half or whole brick, drawing courses and bonding the new to the old, for that is forbidden by clause 19; he cannot pull down and rebuild the party walls, there he is stopped by clause 90; and the only resource left is the building external walls against both the party walls, at a sacrifice of ground, at the loss of valuable space, and at the fearful risk of injuring the party walls by cutting off the footings and chimney breasts (for it is evidently contemplated that to build a fourteen-inch wall between the old chimney-breasts ought not to be allowed) and having to rebuild them at his own cost.

To guard against such a disastrous consequence, and in almost every case to escape from the onerous provisions as to party walls, it may be found a prudent and advantageous course to build every one of a row of houses wholly with external walls. I am sure it would be so if each house should be as large as the intended law will allow; but in the third and fourth-rates of the existing Act it would be a cruel alternative.

Sensible, Sir, that upon so dry, albeit so important a subject, I have trespassed already too much upon your space and the patience of your readers, I will, with your leave, endeavour to consider the momentous question of payment for party walls in another paper. It is too important to be curs-

rily treated; and I beg to express a hope that every builder who may have thought my scribbling worthy of attention, will bring all the best energies of his mind to bear upon the subject, that he may be prepared calmly to consider, and disinterestedly to arrive at a just conclusion, either with me or against me.

I am, Sir, your much obliged servant,
A BRICKBAT.

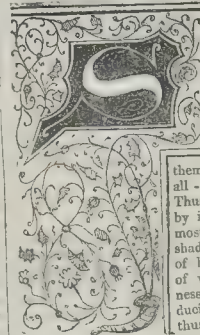
TO THE EDITOR OF THE BUILDER.

SIR,—I hasten to offer you my promised assistance, by sending a paper on "The Cross" for insertion in your periodical. As the subject is not strictly architectural, it remains for you to decide whether it be suitable to occupy the honourable situation allotted to me, and so to figure in THE BUILDER. Your well-wisher

June 1st, 1843.

P.P.

THE CROSS.



O thoroughly were the minds of our Catholic forefathers imbued with the spirit of their religion, that whatever work they undertook, trifling or of great moment, they left behind them some traces of its all-powerful influence. Thus, their architecture, by its simplest forms and most elaborate decorations, shadowed forth the articles of belief, the hateful-ness of vice, and the blessedness of virtue, thereby inducing contemplation, and thus becoming the mother of solemn and holy reflections.

In the middle ages, churches were almost the only books by which the people were instructed; and they contained the representation of their faith, and the lives of pious saints and martyrs, in characters the least difficult to be comprehended, viz. in the glowing lights, frescoed walls, chaste sculpture, and other imagery with which they abounded.

Nowhere is this zeal of the church for the religious welfare of her children more plainly evinced than in the continual introduction of the emblem of salvation wherever it could be placed with propriety. The cross surmounting the heavenward-pointing spire signified, that through it alone could be attained the mansions of eternal bliss. On the summit of the high-pitched gable, it proclaimed a building dedicated to a holy worship; and oft, when all around was dusky and dim, it rose in sharp outline on the evening sky, reminding the returning peasant of his evening devotions, and filling his bosom with calm and peaceful thoughts.

Under what sign could the Christian more reasonably desire to repose in his last and lowly bed, than beneath that of his redemption? How much more impressive, because more unpretending, is the simple floriated cross on the coped coffin of the twelfth or thirteenth centuries, than the proud and gorgeous tomb of the Tudor period, rich in all that art can bestow. The contrast is between humility and pride. Not only was the cross used for consecrated places and purposes, but in many transactions,—it ordinary life, and in a variety of situations,—it witnessed the most binding public treaties and private contracts; it formed the boundary-stone of civil and ecclesiastical property,—that sacred landmark which we are so expressly forbidden to remove; it reared its humble form in every market town, where busy crowds so oft assembled; by its presence to preserve them from the little dishonesties of trade, and to carry the restraining spirit of religion into their daily walks and transactions; lastly, it afforded rest and protection to the weary traveller, and often, at the same time, surmounted a well where he might refresh himself with gushing waters. This last is beautifully noticed by Sir Walter Scott in "Marmion."

"Behold her mark,
A little fountain cell,
Where water, clear as diamond spark,
In a stone basin fell;
Above, some half-worn letters say,
'Drink, weary pilgrim, drink and pray,
For the poor soul of Sybil Grey,
Who built this cross and well.'"

It will be unnecessary to dwell long on the antiquity of the use of the cross. Let it suffice to state, that the walls which beheld the devotions of the primitive Christians, when bloody persecutions compelled them to worship God in the catacombs

of Rome, were decorated with it amongst other symbols of faith. In Aringhio's *Roma Subterranea*, several are represented that were painted on the sides of these sepulchres, some of which are shown as if richly adorned with jewels. The lamb and cross also occurs; but the most decided are those on lamps discovered in the sarcophagi; in this case a small figure of the dove is occasionally found seated on the top. If any more decisive proof than this be required of its early use, what St. Chrysostom says regarding it will perhaps be sufficient:—"We paint carefully the cross on our walls, doors, windows," &c.



Subsequently it was the glorious privilege of Constantine the Great to exalt it from a despised and degraded thing to the highest point of honour and veneration, by his adoption of it as the royal standard; thus teaching his subjects to lay aside their prejudices, and treat with reverence that which they had previously abhorred. His pious mother, Helena, also, in a great measure advanced its interests by her zealous exertions for the discovery of the true cross. Thus it continually gained in reputation. And when St. Augustine landed in England, and preached to our Saxon forefathers the truths of the gospel, Bede tells us, "he had a cross borne before him with a banner, on which was an image of our Saviour Christ." Before the general erection of churches, we have authority for supposing that prayers were said, and the sacraments administered, at the foot of crosses either raised for the purpose, or in commemoration of some remarkable event; for we learn, that before St. Oswald erected a wooden cross when he was about to engage with Ceadwalla, no church or altar was known to have been raised in the whole kingdom of the Britons." Shortly after that of Hexham was built, originally in a crucifix shape.

From this period crosses appear to have been placed on various occasions throughout the kingdom, gradually changing as the architecture of the age progressed; from the monolithic column covered with rude sculpture to the elegant stony and pinnated structure of the fifteenth century; many must have fallen victims to the fanatical rage of the Puritan rebellion, when some of our noblest monuments of art perished or were irrecoverably defaced by a hot-headed populace, and many still remain shorn by the hand of time, and often by wanton neglect, of all remnants of their original beauty. It is now, however, our task rather to shew their different sorts and applications—rather their increase, progress, and final demolition. In so doing we shall class them under three general heads, viz.:—

1. **MEMORIAL.**—Including all such as commemorate particular persons or events—as monumental and sepulchral crosses, those raised after a battle, or in confirmation of a peace, &c.

2. **DISTINCTIVE.**—When they point out situations for certain purposes, fix limits, or decide bounds; of this kind are all boundary stones for civil and ecclesiastical purposes, and for sanctuary and all market crosses.

3. **DEVOTIONAL.**—Those which were erected with regard to the ceremonies and discipline of the church, and for prayers and instruction, such as penitents and preaching crosses, road-side stations, roads, crucifixes, and church-yard crosses.

In addition to these uses, the cross was profusely employed in the arts of decoration, not indiscriminately and without judgment, but with that sound attention to fitness and propriety that characterizes the works of the "dark ages." The sovereign, its sworn upholder, bore it in his glorious splendour on his diadem and sceptre; the ecclesiastic, its zealous propagator, on his chasuble and staff; and the crusader, its noble defender, on his weapon's hilt and on his shield, as the most honourable distinction heraldry could confer. Everywhere it was conspicuous as a sign worthy of reverence and respect.

(To be continued.)

Miscellaneous.

HANLEY PARSONAGE HOUSE.—The Rev. R. E. Aitken's house, at Hanley, in the Staffordshire Potteries, which was destroyed by fire during the famous revolutionary riots there on the 15th Aug. last, is now being rebuilt, from the designs and under the directions of Henry Ward, Esq., architect, of Stoke-upon-Trent. As 750*l.*, the amount allowed by the county, is only to be expended; and as it is a large house, and to be rebuilt on the old site and partially on the old foundations, that sum was found sufficient only for its substantial restoration, with a very neat exterior, but an entire absence of all ornament.

IRON SHIPS.—THE IRON QUEEN.—We find that iron, as a material for ship-building, is fast gaining ground. For steamers, iron has been a favourite for some time past, and there is not now one wooden steamer building at Liverpool, while there are two iron ones of the first class nearly completed, and we understand contracts are made for the building of three more.

BETHEL CHAPEL.—It is pleasing to notice the very chaste and beautiful improvement made in the appearance of Bethel Chapel, Bridge-street, which formerly presented a solid brick front, but has now been remodelled in the Gothic style, with the addition of two large porticos. The bold pediment, supported by pilasters of the same classic order, together with the improved mouldings round the windows, present to the eye of the beholder a picture of chasteness and elegance in architecture that will not only be an additional improvement to the neighbourhood, but an ornament to the town. Mr. Henry Lundy, of Francis-street, builder, we believe, furnished the plan, and has given the public in this instance a promising specimen of what may in future be expected from a native architect. It will be seen by an advertisement in another column, that sermons are about to be preached in aid of the expenditure incurred.—*Correspondent of "Hull Packet."*

SWINDON PARISH CHURCH.—This venerable remnant of our early church architecture is about to undergo a complete restoration, if the necessary funds can be obtained. The worthy rector, Mr. Raymond, seeing the state of dilapidation into which this interesting pile is rapidly verging, has lately taken up the matter with great spirit. He has issued an appeal to the public, accompanied by two views, one of the church as it now appears, and the other an interior representation of the proposed restoration and repairs. The roofs of the nave, chancel, and south aisle, together with the south and west walls of the latter, are in such a ruinous and dilapidated state, as renders it necessary to take these portions down and rebuild them; of which, with other alterations and improvements, the expenses will amount to about 1,200*l.* A committee has been formed to carry the plan into effect.

NEW CHURCH, ST. GILES'S.—The Rev. J. Endell Tyler, B.D., rector of St. Giles-in-the-Fields, intends raising a fund for the erection of a new church in this densely populated parish. The site which has been selected by the rev. gentleman is in the line of the new street, which will lead from Bedford-square to Waterloo-bridge. The plan has obtained the approbation of the Bishop of London. At the last meeting of the Society for Promoting Christian Knowledge, the sum of 150*l.* was granted towards the erection of this church, which will be perfectly free.

THE NEW POST-OFFICE IN WHITEFRIARGATE, LONDON.—This building is situated up an archway in Whitefriargate of about ten yards in length, which, for the convenience of the public, is intended to be flagged. The elevation embraces a centre and two wings. Each wing is supported by two arches, those on the west forming the entrance to the arcade, those on the east to the mail-bag-office, &c. It is faced with freestone, and in the centre of the front, which is in the Italian style, are two double circular windows, surmounted by the royal arms in *baso relievo*, on each side of which is a wreath, over the whole being a pediment, producing an admirable effect, and giving a handsome and finished appearance to the building. On the right of the centre, facing the archway from Whitefriargate to which we have already referred, is a spacious and beautiful arcade for the accommodation of the public whilst waiting for letters, &c., 42 feet long, 14 broad, and 19 feet high, the roof consisting of arches springing in all directions from pilasters placed on each side of the wall, and light being admitted by three horizontal windows, through which it is thrown by means of skylights. In the arcade on the left hand is the money-order office, and further along two windows—the first for the delivery and reception of letters generally, and that at the further extremity, for private boxes. The entire centre of the building is devoted to a room for the general business of the office, 25 feet broad by 38 feet long, and 17 feet in height, communicating with smaller rooms for the letter-carriers, receipt and delivery of mail-bags, &c. The post-master's room is so situated as to command a view of the yard, the general office, and all the minor offices. Such is the new building, replete with every convenience, and in every respect worthy the able architect employed in its erection, Mr. Foale, who has already done so much in beautifying the property of the Trinity-house, on whose estate the office is erected; and we have only to add, in conclusion, that Mr. Tilley, the Post-office surveyor, during a recent visit, pronounced it superior to any similar building between the Humber and the Tweed. By the 1st of July, we understand, it will be completed.

WOOD PAVING IN THE CITY.—The Court of Sewers and Paving for the city of London lately came to a decision by which the system of wood paving will no doubt be raised still more highly in public estimation. The court entered into contracts for paving Cheapside with wood, dividing it between three contractors—viz. one for laying down Rankin's patent (that which has now been severely tested opposite St. Giles's church for the last twelve months); the second, for Mr. Perring's plan (a cheaper mode, not yet tested, though apparently well adapted for street-paving); and the third on Saunders's system. This will afford a very fair test of the applicability of the selected systems to so crowded a thoroughfare as Cheapside, as well as their durability. The patent of Mr. Perring professes to afford a foot-hold to the horse: it has interstitial slips of wood placed sectionally between the blocks, and these, with the peculiar form of the surfaces of the blocks, will, it is stated, prevent the horse from slipping. Rankin's system also gives a good footing for the horse, as experience has shewn, notwithstanding all the assertions of Sir Peter Laurie that it is impossible to prevent horses continually slipping down on wood. One of the peculiarities of this system is, that it has a surface block, specially constructed for a foot-hold of the horse, and this surface block can be renewed without stopping the traffic along the road. All this must be, in Butler's quaint language, "Far bitterer thaz wormwood" to Lord Brougham's "City Cicero."

The London Grand Junction Railway shareholders, at a meeting lately held, determined to wind up the affairs of the company, and divide the remaining assets proportionately, after paying off all outstanding claims. This determination is stated in the resolution adopted on the occasion to proceed from the company not having sufficient means to carry out the powers of their act of parliament.

AN EFFECTUAL PREVENTIVE AGAINST DAMPS IN NEW BUILDINGS.—It is the common practice in Hamburg to apply asphalt to the brick or stone ground line of buildings, by simply placing a half-inch layer of that material over such line; this prevents capillary attraction, and, however damp the situation may be, the superstructure will remain dry. For this purpose, care should be taken to employ the mineral asphalt, which, being impishable, is almost exclusively used for this and other works in Hamburg.

SHREWSBURY.—St. Chad's Church has been greatly embellished by the addition of a new stained glass window, placed on the eastern side. The window is a beautiful chaste specimen of mosaic-work, the centre containing the arms of the families of Scott and Cockburn, with the motto "Recta faciendo nequiam timeas;" and an elegant border encircles and harmonizes with the whole. The lower part of the window bears the following inscription:—"In testimony of the gratitude of the parishioners to the Rev. Richard Scott, B.D., for his many liberal gifts to this church, his Armorial Bearings were placed in this window by the Vicar, Churchwardens, and Trustees, in the year of our Lord MDCCLXIII."

POLICE.—MANSION HOUSE.—A poor carpenter named Richard Davis, who resides at No. 21, Kent-street, in the Borough, waited upon the Lord Mayor, and informed his lordship that he had been out of employment for some months, and that Providence had thought fit to increase his parental obligations, by making him, within the last few days, the father of three children, two girls and a boy, who are likely, from their appearance, to survive the hazards of infancy. He requested that his lordship would benevolently inform the Lady Mayoress of so serious an addition to the family of a miserably poor man, and expressed a very ardent hope that her ladyship would exercise her influence amongst her friends, to enable him to procure some immediate assistance in so formidable an emergency. The Lord Mayor referred the statement of the carpenter to the Lady Mayoress without delay, and her ladyship sent some pecuniary assistance and baby-linen to the poor mother, and expressed a hope that a paragraph in the press would reach some charitable individuals, who would find, upon inquiry such as her ladyship made in the neighbourhood, that the circumstances of the family were represented truly.

COMPETITION DESIGNS FOR A CHURCH AT TORQUAY.—We are informed by a correspondent that thirty-six designs were sent in for the proposed new church at Torquay. Some were coloured, some tinted, and others were in line. From these, five were selected by the church Diocesan Architectural Society, and one of the five was chosen—that by Salvin. Some alterations, however, were recommended. It was the only one in which a view of the locality was introduced in perspective. Mr. Salvin, we are informed, is the favourite artist of the Camden Society, and furnished the design which the Bishop of Jerusalem took with him.

IMPROVEMENTS AT WINDSOR BY THE COMMISSIONERS OF WOODS AND FORESTS.—We, the *Morning Herald* of Monday se'night, stated that the materials of three dwelling-houses and two other tenements (which cost the Government nearly 1,700*l.*) were to be disposed of by Mr. Tebbott, auctioneer, in order to clear a space of ground in Thames-street, of between eighty and ninety feet frontage. At the sale, which has just taken place, the materials realized a little short of 150*l.* The Woods and Forests in this, as well as in several other similar cases, have made great sacrifices in the purchase and sale of property, to improve the town in accordance with the desire of her Majesty and her illustrious consort.

THE XANTHIAN MARBLES IN THE BRITISH MUSEUM.

AMONGST the valuable, though to the public taste not the most attractive, additions to the contents of the British Museum, are the marbles brought from Lycia, and which have been placed temporarily in the two rooms leading to the Elgin marbles. These treasures not being as yet entered in the synopsis, or presenting to an ordinary observer no striking or remarkable feature, have not yet attracted that notice which their importance demands. Still they have not been altogether unnoticed by the crowds of holiday folk who have thronged to the Museum during the last few days, and who seem unanimously to regard them as "very ancient" and "very curious."

These marbles, which were discovered by Mr. Fellowes, while travelling in Asia Minor, in 1838, are said to be the most remarkable and important accession received by any European museum for many years, and have been obtained and brought to England in consequence of the greatest enterprise and self-denial on the part of the gentleman by whom they were discovered, and in consequence of whose representations respecting them they have been lodged in the British Museum. The marbles already secured to the British nation are but a small portion of those that abound in the interesting country from which they have been brought; they are, however, very valuable, and some idea of their quantity may be obtained when we mention that they were brought to England in seventy-eight large and heavy packages.

The Xanthian, or Fellowes marbles, as it has been proposed to have them called, illustrate the mythology, the modes of warfare, and a variety of interesting features in the manners and customs of the ancient inhabitants of Asia Minor, who were originally settlers from Crete.

As might be expected, these sculptures do not, as work of art, rank with the Elgin marbles, but they are highly interesting as illustrating the state of sculpture in a much earlier age. They are supposed to include some of the earliest efforts of Greek art which have come down to our times.

The principal objects in the collection are those which Mr. Fellowes describes as the *bas-reliefs* representing the legend of the daughters of King Pandarus being carried away by the harpies, which were around the high square monument, which was called the harpy tomb. The marbles belonging to this tomb are placed in the centre of the grand central saloon, arranged as they were before being taken down. Near them is placed a model of the tomb, which was supported by a shaft 17 feet high, and weighing 80 tons, standing on a plinth 6 feet high. The tomb itself was 3 feet 3 inches in height, surmounted by a cover which weighed from 15 to 20 tons. The central saloon also contains some very beautiful frieze work, representing in *bas-relief* a horse-hunt: all the figures, the horses, and horsemen, the dogs and the unfortunate bear itself, are very spirited and bold, but not highly finished specimens of art. Some of the figures on the harpy tomb, and those placed on the under ledge of the same large framework, bear a considerable resemblance to the figures on the monuments of Egypt; we may mention particularly the gods seated on chairs, one smelling a lily, and another giving a helmet to a warrior. In the ante-room there are several very rich friezes. One represents a sacrifice; the fire is burning on the altar, and a number of persons are approaching with various offerings, both animal and vegetable, and in cases

the offering may be readily distinguished. The siege of the walled town forms in itself an interesting subject; the walls are defended by warriors armed with stones, which are also the weapons in general use among all the combatants; on the walls are a number of females, whose countenances indicate great distress, as they well may, for the artist has introduced an escalade, which is sufficiently indicative of the danger of the inhabitants. The friezes and the pediments in this room contain some figures, which for vigour of design, if not for beauty of execution, may vie with the Elgin marbles. Mr. Fellowes, in his account of the transmission of these marbles to England, remarks that the frieze so accurately illustrates the description given by Herodotus of the capture of the early city, that he could almost fancy that the neighbouring historian had written his history from it, commemorating an event which happened about a century before his era. We understand that a room is to be prepared expressly to receive this valuable addition to the antique sculptures with which our great national collection is enriched.—*Times*.

NEW PATENTS SEALED IN ENGLAND.

SIX MONTHS FOR ENROLMENT.

Nicholas Henri Jean Francois, Compté de Crouy, of the Edgeware-road, Middlesex, for certain improvements in rotary pumps and rotary steam-engines.—Sealed March 25.

Robert Faraday, of Wardour-street, Soho, gas-fitter, for improvements in ventilating gas-burners, and burners for consuming oil, tallow, or other matters: being a communication.—Sealed March 25.

Sir Samuel Brown, Knt., of Blackheath, commander in Her Majesty's navy, for improvements in the construction of breakwaters, and in constructing and erecting lighthouses and beacons, fixed and floating, and in apparatus connected therewith, and also in anchors for mooring the same, which are applicable to ships or vessels.—Sealed March 27.

John Sylvester, of Great Russell-street, Middlesex, engineer, for certain improvements in producing ornamental surfaces on or with iron, applicable in the manufacture of stoves and other uses, and for improvements in modifying the transmission of heat.—Sealed March 28.

Arthur Dunn, of Rotherhithe, soap-boiler, for improvements in treating, purifying, and bleaching fatty matters.—Sealed March 28.

James Fletcher, foreman at the works of Messrs. W. Collier & Co., engineers, for certain improvements in machinery or apparatus for spinning cotton and other fibrous substances.—Sealed March 30.

Frank Hills, of Deptford, manufacturing chemist, for certain improvements in steam-boilers or generators, and in locomotive carriages.—Sealed March 30.

Paul Provost Brouillet, of Hadley, Middlesex, gent., for certain improvements in apparatus for warming apartments.—Sealed March 30.

John Aston, of Birmingham, and William Elliott, of the same place, button manufacturers, for improvements in the manufacture of covered buttons.—Sealed April 4.

Joseph Browne Wilkes, of Chesterfield Park, Essex, esq., for improvements in treating oils obtained from certain vegetable matters.—Sealed April 4.

George Johnston Young, of Bostock-street, Old Gravel-lane, Wapping, engineer, for improvements in the construction of capstans.—Sealed April 5.

Edwin Whele, of Walsall, Stafford, for an improvement or improvements in machinery for preparing wicks used in the making of candles.—Sealed April 6.

James Boydell, jun., of Oak Farm iron-works, near Dudley, iron-master, for improvements in manufacturing bars of iron with other metals.—Sealed April 7.

Robert Hawthorne and William Hawthorne, of the town of Newcastle-on-Tyne, civil engineers, for certain improvements in locomotive engines, parts of which are applicable to other steam-engines.—Sealed April 7.

John Michell, of Calenick, Cornwall, for improvements in extracting copper, iron, lead, bismuth, and other metals or minerals from tin ore.—Sealed April 11.

James Napier, of Hoxton, Middlesex, dyer, for improvements in preparing or treating fabrics made of fibrous materials, for covering roofs and the bottoms of ships and vessels and other surfaces, and for other uses.—Sealed April 11.

Moses Poole, of Lincoln's-Inn, gent., for improvements in the manufacture of ornamented lace or net: being a communication.—Sealed April 11.

Uriah Clarke, of Leicester, dyer, for improvement in the manufacture of narrow elastic and non-elastic fabrics of fibrous materials.—Sealed April 11.

William Tindall, of Cornhill, ship-owner, for certain improvements in the manufacture of candles.—Sealed April 11.

William Ranwell, of Bowling Green-row, Woolwich, artist, for improvements in machinery or apparatus for registering or indicating the number of persons which enter any description of carriage, house, room, chamber, or place, and also the number of passengers and carriages that pass along a bridge, road, or way.—Sealed April 13.

William Henry Smith, of Fitzroy-square, civil engineer, for certain improvements in the construction and manufacture of gloves, mitts, and cuffs, and in fastenings for the same, which may be applied to articles of dress generally.—Sealed April 19.

Charles Tayleur, and James Frederick Dupre, of the Vulcan Foundry, Lancaster, engineers, and Henry Dubbs, also of the Vulcan Foundry, engineer, for certain improvements in boilers.—Sealed April 19.

James Byrom, of Liverpool, engineer, for an improved system of connexion for working the cranks of what are commonly called direct action steam-engines.—Sealed April 19.

Carl Ludewick Farwig, of Henrietta-street, Covent Garden, tin-plate worker, for certain improvements in gas-meters.—Sealed April 19.

John George Bodmer, of Manchester, engineer, for certain improvements in locomotive steam-engines and carriages to be used upon railways, in marine engines and vessels, and in the apparatus for propelling the same, and also in stationary engines, and in apparatus to be connected therewith for pumping water, raising bodies, and for blowing or exhausting air.—Sealed April 20.

John Rand, of Howland-street, Fitzroy-square, artist, for improvements in the manufacture of tin and other soft metal tubes.—Sealed April 20.

Edward Cobbold, of Melford, Suffolk, master of arts, clerk, for certain improvements in the means of supporting, sustaining, and propelling human and other bodies on and in the water.—Sealed April 20.

Thomas Oram, of Lewisham, Kent, patent fuel manufacturer, and Ferdinand Charles Warlich, of Cecil-street, gentleman, for improvements in the manufacture of fuel, and in machinery for manufacturing fuel.—Sealed April 20.

James Johnston, of Willow-park, Greenock, esq., for improvements in the construction of steam-boilers, and machinery for propelling vessels.—Sealed April 20.

Richard Prosser, of Birmingham, civil engineer, and Job Cutler, of the same place, civil engineer, for improvements in pipes and bars, and in the application of such pipes and bars to various purposes.—Sealed April 20.

John M'Tunes, of Liverpool, manufacturing chemist, for certain improvements in funnels for conducting liquids into vessels.—Sealed April 20.

Francois Constant Magloire Violette, of Leicester-square, Middlesex, late advocate, for improvements for warming the interior of rail-road and other carriages: being a communication.—Sealed April 22.

Richard Greville Pigot, of Old Cavendish-street, gentleman, for improved apparatus for supporting the human body when immersed in water, for the purpose of preventing drowning.—Sealed April 25.

James Moon, of Milman-street, Bedford-row, surveyor, for improvements in the manufacture of bricks to be used in the construction of chimneys and flues.—Sealed April 25.

William Brockedon, of Devonshire Street, Queen's-square, Middlesex, gentleman, for improvements in the manufacture of wadding for fire arms.—Sealed April 25.

William Mayo, of Lower Clapton, Middlesex, and John Warrington, of Wandsworth-road, Surrey, gentlemen, for improvements in the manufacture of aerated liquors, and in vessels used for containing aerated liquors: being a communication.—Sealed April 25.

Charles Forster Cotterill, of Walsall, Stafford, merchant, for certain improvements in the progressive manufacture of grain into flour or meal, the whole or part, or parts of which improvements may be applied to the ordinary method of manufacture.—Sealed April 27.

John Winspear, of Liverpool, ship-smith, for an improved mode of reefing certain sails of ships, and other vessels.—Sealed April 27.

THE BUILDER,

NO. XIX.

SATURDAY, JUNE 17, 1843.

THE competition for the new Houses of Parliament was said by many at the time to be one of the most important events as to its bearing and influence on architecture and general building art that the world had witnessed for many centuries—and truly, if we may judge from the movement it has originated, if we view the spirit with which the authorities appear to be imbued, and the growing enthusiasm of their architect, as evinced in his late reports; if we contemplate the workings of the roused ambition of our artists in the pending competition of the Cartoons, and consider all the co-relative circumstances, we shall not hesitate to come to a conclusion, that if this is not a great affair for art, it ought to have been so, and that nothing but the extreme of perverseness could or can make it otherwise.

We have just observed that as far as the painter artist is concerned, especial pains, if not in a direct, yet still in an indirect sense, have been bestowed to increase his interest in his art and in the national structure—he has been stirred to it by many well-judged impulses, and not least by the promise of ample pecuniary reward. Thus, however, this sort of generous patronage of art and its professors has almost startled us—so backward and so slow have been the people of this country in all that pertains to the right culture of the true graces of civilization; and so we descend in the ladder of condescension. This is an anomalous expression, and yet we think it not an unapt one, as describing the course of our progress towards propriety. Great as the occasion is for the architect—great as it may be for the artist painter and sculptor, and great for the country in its influence through these, there is still, in our opinion, a greater good it might and may achieve if similar and corresponding pains had been, or were now to be, bestowed in reference to a class deemed lowest in the scale of those interested in this business. We mean the workmen. Yes, we repeat our words, affirming and maintaining that this is an occasion which might be made more morally influential for the advancement of the working builders, and through them, for general building art, than any scheme of special device, however craftily planned or wisely carried out.

Talk of your museums, and free admission for the public to them, to national galleries and the like; talk of your schools of design, what museum, exhibition, or school could do the work of fostering or forming a high standard of refined feeling, taste, or judgment in our working men? Compared with the right use of the opportunity—that stimulus which the Commission of Taste, if we may so call it, has provided and administered to work through the artist mind of the superior class of professors, would work a thousand-fold more potently and beneficially if the labour mind were put under its quiet influence; and that this may be done at no cost of machinery or means, we shall venture humbly to shew. That drudgery and delving brute labour, in all that the working man is expected to take share in, in the Parliament House works, are sure is not the view of any of the leading minds concerned in that work, from the supreme power down to the master

builders or contractors; but that it is little better than this, must, we are afraid, be in part subscribed to; whereas look at the splendid opportunity which this large building, with its long ranges of rooms, easily convertible, some two or three of them into school or exhibition rooms, with models and drawings in profusion, bating nothing of their worth, but adding wonderfully thereto by being brought to the eye and the contemplation of working men—who doubts that much, that incalculable good must result from this? Can any book, any show, any scheme of instruction, any privilege be devised, greater than this? Trust us, and trust the working men—they have hearts, and there is a safe and profitable way to influence them. By what means do you inspirit your soldiers, and excite their military ardour, make them zealous guardians of their country's fame, and eager participators in her renown? You distinguish them by badge and trophy—you identify them, heart and soul, in great enterprise.

The soldier who has to win renown under the guidance of his chiefs is taught, or allowed to consider, that there are higher motives of exertion and incentives to skill, than mere money pay. Teach also the artisan that the building is more to him than a bargain for a weekly hiring, and that those concerned in the building have a more intimate connection with him, and regard for him, than for the horse in the mortar-mill, or the machine that performs certain functions of labour in the same round of daily operations. We shall return to this subject again.

When the President of the Institute of Civil Engineers (Mr. Walker) addressed his juniors, the students of his profession, and advised them to cultivate a knowledge of the practices of engineering, to fit them for the new sphere of operation into which many of them would probably be thrown by the opening demand for their talent in the colonies; and when he urged as a reason for thus advising them, that they would find in the colonies less of that practical talent upon which they are accustomed to rely in this country in the person of the experienced builder, he little thought how peculiarly applicable was that same advice to the home engineer and architect, to fit him for the new circumstances into which he is about to emerge, brought about by that new development of the world's resources which mechanical and chemical science have revealed. What to us, or to any adventurer, are the mines and forests of a colony, compared with the ever-teeming products of the mechanical mine and the laboratory? If the quarries of Pentelicus, with their beautiful and inexhaustible marbles, gave birth to, or had an influence in creating a style of architecture and sculpture for Greece, —and who can doubt that they did so?—how much more may we not look for in the unfathomable depth of the quarries of creation? Glories in this our country, if humbly, and not presumingly, we turn them to account, and recognize the great source from whence they emanate, or under whose bounteous hand they have been formed—England has for the last three centuries slept—art-England and mechanic-England, that before lay still, has been awakening, and his gatherings have been indescribably large and precious, or like a new Adam, he may be said to have been placed in a second Eden, with all around that can satisfy his utmost craving. What can this Adam, this mechanic genius, want more? he wants his

Eve—and this is Art; out of his ribs, too, shall she be born. All impotent, all vain are his yearnings to reproduce a something from the past—out of the ribs of his mechanic vigour will pure, beautiful, and virgin art be born, a helpmate for him; and they two shall rule the world for a cycle of its future workings.

And there is the tree too, the tree of knowledge of good and evil—God forbid that it be not eaten of again; that human pride and self-sufficiency be not the tempting serpent, to mar the beauty of their rule and union. Not in the pride of discovery as to the past, not in the pride of proficiency as to the present, not in pride of perception as to the future; not in these, nor in one of these, must man indulge. He must be humble, and if he be not so, he will meet his downfall.

There is the antiquary, elate with little gatherings of knowledge as to the fashionings of the divinities of his worship—he invests his heroes with a mystical and prescient purpose in their every action; he traces in all their workings, in every record of their place and progress, a forehead, or forehead, of complete conception; he elevates these, his gods, in high estate of premiership—far above men of meaner, that is of later, mould, and makes their footstool for himself a place of dignity. There must be a change in this. Man and man are not, cannot be, so unnaturally opposed—peace must reign between all.

ST. GEORGE THE MARTYR, SOUTHWARK.—PROJECTED PARKS.

On the 6th inst. a public vestry was held in the parish church of St. George the Martyr, Southwark, the Rev. John Horton, M.A., rector, in the chair.

The reverend gentleman said the vestry had been called for the purposes stated in the following announcement:

"St. George the Martyr, Southwark, June 2, 1843.—The inhabitants are respectfully informed that a public vestry will be held on Tuesday, June 6, at twelve o'clock, for the purpose of considering the best means of averting the expense likely to fall upon the parish by the expected removal of the wall of the Marshalsea prison, in connection with the churchyard, and to adopt such measures thereon as may be deemed expedient; and in compliance with a requisition presented to the churchwardens, to take into consideration the propriety of petitioning government and the parliament for the purpose of obtaining an open space or spaces for a park or public walks, for the benefit of the inhabitants of the southern districts of the metropolis."

He (Mr. Horton) had that morning waited upon the Lord Bishop of Winchester, to confer with him on the subject alluded to in the former part of this notice. His lordship had suggested that a deputation, consisting of the rector, churchwardens, and others, should wait upon Lord Lincoln (the ground belonging to the crown), and endeavour to enter into some arrangement with him for the transfer of the property. The bishop had kindly condescended to express his wish to accompany the deputation.

After a slight discussion, several gentlemen were elected as the deputation, and full power to take any step that might appear desirable was conceded to them.

The Rev. Mr. Horton said it now became his duty to direct attention to that portion of the announcement relating to the projected parks in Southwark and Lambeth, and he would call on

Mr. Richard Moser, churchwarden, to move the first resolution, which was,—“That this vestry is of opinion that public walks and reserved spaces, suited to the exercise and recreation of the inhabitants of this parish, but more particularly of the humbler classes, are of the first importance to their moral and physical condition, as they tend to avert or alleviate disease and promote health; and, by inducing cleanliness and neatness in the families of the industrious poor, also tend to wean them

from those low and debasing gratifications which are the ruin of so many."

Mr. H. Cope seconded the resolution, and read extracts from letters from Lords Normanby, Sandon, Howick, Teignmouth, F. Egerton, and Grosvenor, Col. Fox, Sir H. Vivian, Capt. Rous, and a large number of members of both houses of Parliament, bearing strong testimony to the desirableness of the object in view. A deputation had recently waited on Sir James Graham, who had promised assistance. He (Mr. Cope) trusted that, as the north-western and north-eastern portions of the metropolis had spaces of ground reserved by Government for public recreation, the boroughs of Southwark and Lambeth would urgently press their claims for a similar privilege.

The resolution was carried.

The places suggested for parks or public walks in Lambeth and Southwark were as follow:—The plot of ground between High-street, Newington, and Walcot-terrace, Lambeth, bounded by Walcot-square and Chester-street, and Lower Kennington-lane; the Kennington-common and fields at the back towards the Surrey Zoological Gardens and Walworth-road; Battersea-fields; the fields between Bermondsey New-road and Grange-road, Old Kent-road; the fields on either side of the Deptford Lower-road; the Kennington Oval and fields towards the South Lambeth and Clapham-roads; Vauxhall Gardens and the adjoining grounds.

Measures will be taken in the course of a few days to carry the resolution, as well as some minor ones which were passed, into effect.

Thanks were voted to the Rev. Chairman by acclamation.

THE COFFER-DAM AT WESTMINSTER BRIDGE.

SUCH of our readers as are in the habit of travelling on the Thames to Westminster have no doubt observed that very extensive works are going on, having for their object the repair and restoration of that structure. Few of them are, however, aware that within that huge and ugly mass of piling one of the most difficult and dangerous operations of engineering—namely, that of restoring the foundation of an arch injured by the action of the tide, is at this moment in a course of successful operation.

For some years past it has been known that the foundations of Westminster-bridge have suffered seriously, and in fact have become undermined to a considerable extent by the wash of the river. The consequence of this has been a settlement of the various piers, attended with an extensive alteration of the original level of the arches and roadway; added to these evils, from the soft nature of the stone of which the bridge was originally constructed, those parts of the piers which were exposed to the action of the atmosphere by the alternate rising and falling of the tide, had become seriously injured.

To remedy these evils, and to restore those parts of the stone which had suffered, became a matter of such imperative necessity, that the assistance of Mr. Walker, the eminent engineer, was called in to devise means by which these desiderata could be effected.

Upon that gentleman proceeding to make his examination of the foundation of the bridge, he discovered that the edges of the caissons on which the piers of the arches were originally built, and which extended a short distance beyond the face of the superincumbent masonry, had become completely undermined, and that although those parts on which the piers rested were as yet perfectly solid and in good condition, though in some cases sunk below their original level, yet that their projecting ends were completely forced upwards, and that the wash of the tide was hourly working under their edges, thus rendering the foundations on which the piers rested extremely insecure. Upon his making his report to the proper authorities, embodying these facts, it was determined to lose no time in applying a remedy to the evil, and to the engineer himself was intrusted the difficult task of carrying his own recommendations into effect.

Mr. Walker accordingly commenced his

labours by forming an extensive coffer-dam by driving down two rows of piling into the clay lying below the gravelly bed of the river, and, having done this, the whole of the gravel and clay between the inner and outward faces of the coffer-dam was excavated down to a considerable depth below the level of the caissons. He then caused to be filled up the space thus excavated with puddling, thus excluding the possibility of any leakage whatsoever, either through or under the piling, and by which a certainty was obtained of carrying on the works, not merely without the occasional interruption from water, but to perfect dryness at all times.

Having succeeded in securing his coffer-dam, the whole of the water, gravel, sand, and soil, between the inner face of the coffer and the foundations of the piers, was removed to a level of three feet below that of the caissons themselves, which were left perfectly dry. To restore the foundations to their original state of security, Mr. Walker has surrounded the whole of the piers at a distance of six feet from the facing of the stone-work with a series of piles of green beech 15 feet long, with their lower ends driven many feet into the clay, and their upper extremities cut off flush at a level with the edge of the foundations. The accuracy and beauty of adjustment of this portion of the work is perfectly wonderful, and resembles more the nicety of cabinet work than the rough appearance of engineering on a great scale. This range of piling is in its turn surrounded on its outer face by walling pieces bolted on to it at distances of every two or three feet, the bolts extending through the piling, and made fast to the bed of the caisson itself. The space between the inner piling and the caisson has then been filled up within a short distance of the top with concrete, on which is laid squared masonry paving eighteen inches in thickness, and fitting between the inner edge of the piling and the outer edge of the caisson with the utmost accuracy. The piers of the bridge themselves on the southern side are carried out or extended some twelve feet beyond the face of the original pier, and are based on platforms of wood, resting at distances of three feet on bearing piles. The whole of the masonry is executed in Bromley fall-stone, cemented with pozzolano cement. The new facings of the piers, which are of this material, are on an average about two feet thick, that is to say, the headers are two feet six inches thick, and the stretchers one foot six inches, and they have dovetailed joints fixing into each other. It will thus be observed that the outer edges of the caissons on which the piers rest are completely surrounded and defended from the under-wash of the water; and the foundations are extended and rendered completely solid—first, by the beech piling, which being at all times covered with water, and never exposed to alternations of wet and dry, may be supposed to be almost imperishable; and secondly, by the intervening concrete and stone covering.

The under surfaces of the piers and arches are in the course of being completely repaired, and, where necessary, faced and lined with fresh stone-work, and the manner in which this is effected where the arch stones themselves are injured or unsound, is equally curious and ingenious. In the first place, the diameter and form of the stone to be replaced having been determined by very accurate measurement, three pieces of stone are prepared, which, when placed together, exactly correspond with the size of that to be displaced, the injured arch-stone is then cut out, and a large piece corresponding exactly with the shape of the lower portion of that removed—that is to say, having its inner surface larger than its exposed face—is then laid in its place, but having upon its lower surface a projection or joggle fitting into a cavity in the lower stone on which it rests. The two upper portions, which are almost in the shape of perfect cubes, are then placed upon the top of the new stone, and are fastened to it in this manner:—Corresponding holes are made on the surface of the upper and lower stones, in the hole of the upper one a sort of slate bolt is fixed, which is prevented from falling out of it by a slight string attached to it, and which keeps the end of it level with the surface of the stone in which it is eventually to enter. Upon this latter being put into its proper place, with the hole on its

lower surface containing the bolt brought completely over the corresponding hole in the lower stone, the string is cut, and the bolt permitted to fall with its lower end into the under stone, and part of its upper end remaining in the upper stone, which completely connects the one with the other, and renders it perfectly impossible that they should become disconnected.

Of the way in which those parts of the work which have been completed are executed, it is impossible to speak too highly; they are solid, substantial, and perfect, and may be quoted as specimens of good work.

Those, however, who admire ingenuity would do well to pay this caisson a visit. They would find there much to please and much to instruct, and would be well repaid the trouble of a ride to Westminster.—*Times*.

BRITISH ARCHITECTS.

N. Hawk

THE fac-simile presented to the reader is that of NICHOLAS HAWKSMOOR, a name which, though not celebrated in the annals of British architecture, has indubitable claim to respectful mention. The signature itself is one of those curious abbreviations rarely met with, and we have not been able to find a second to confirm its being his accustomed mode; there is, however, an off-hand firmness about it which seems to have been habitual. There is not, within the compass of ordinary research, any record of the time or place of his birth; all we are able with certainty to collect is, that at eighteen years of age he was a pupil in the office of Sir Christopher Wren, and thus early in life commenced an industrious and useful career, accompanied by the entire confidence of his instructor, to whom he proved throughout a most able assistant. Hawksmoor's was one of those plodding minds content to labour diligently in its vocation, leaving few traces beyond those incidental to active, though subordinate, co-operation in great works. We find that in the last two or three years of the reign of Charles the Second, he had already sufficient ability to be intrusted as clerk of the works at the intended palace that monarch at Winchester, and there is no doubt he was similarly employed during the progress of other extensive undertakings in which Sir C. Wren was engaged. When, however, opportunity occurred, his patron did not omit putting him forward into more ostensible situations. At the building of Chelsea Hospital he held the public appointment of deputy surveyor, and still later, with greater emolument attached, the same office at Greenwich Hospital, and in that capacity furnished the report presented to Parliament of the completion of the building, and the extent of accommodation it was calculated to afford to the naval veterans for whom it was designed.

The declining interest of Sir C. Wren had no unfavourable influence upon the steady and unpretending course of his pupil, but rather the contrary. Benson, who may be termed the official successor of the former, had no qualifications to recommend him save the united voices of the German *coterie* who so freely disposed of court patronage after the death of Queen Anne. The reign of the first sovereign of the Brunswick family, a blank in all that related to cultivation of the arts, was ungraced by any ministrings to taste or national splendour; and in the eyes of the newly imported foreigners, the buildings of London were, by comparison with those of the petty capital they had quitted, already too magnificent. Benson had, therefore, little to do in the superior department of the profession he had assumed, and wisely covered his deficiencies in less important matters by appointing Hawksmoor clerk of the works for the palaces of Kensington, St. James's, and Whitehall. This position also gave the latter influence with the commissioners for building churches, and those of St. George, Bloomsbury, Christ Church, Spitalfields, and St. Ann's, Limehouse, are of his design and execution.

These edifices, as our town readers are aware, have their peculiarities; the steeple of St. George's, and the towers of St. Ann's are features which, at no subsequent time, have been adopted as models; his forte lay in an efficient performance of second-rate duties, combined with a thorough knowledge of constructive principles rather than in developments of a creative faculty, governed by true conceptions of the beautiful. His experience alone sufficed to associate him with all the popular architects of his time. He was with Sir John Vanbrugh at the building of Castle Howard and Blenheim, and assisted Gibbs at

the Radcliffe library, Oxford. In fine, no individual can be pointed out who so perseveringly and successfully contributed to carry out the designs of his employers.

Hawkmoor's active professional life included more than half a century, and extended over the whole or parts of six reigns, viz. Charles the Second, James the Second, William and Mary, Anne, George the First, and George the Second. In 1736, while superintending the erection of a splendid mausoleum at Castle Howard, he suddenly became the tenant of a more humble tomb, at the age of seventy.

A DESIGN FOR AN ENTRANCE LODGE.



ON TUDOR ARCHITECTURE.

(Continued from No. 17.)

THE Tudor, or Old English style, whilst it requires no aid from any of the embellishments which more properly belong to church architecture, admits of being rendered as rich as the most teeming fancy can desire. The progress is easy from the simple unpretending personage to the highly-decorated palace. For the former (vide page 216), a few four-centred windows and a gable or two will suffice, with plain octagon chimney-shafts, or square ones set diagonally, and projecting eaves; if the house is of a size to require more display, a string-course, cornice, and parapet may be added, the chimney-shafts and windows may be more worked, and an oriel and projecting porch may also form additions. Still keeping in sight the same general features, if greater richness is warranted by the outlay and by the size of the building, the parapet may be pierced with quatrefoil or other tracery; the string-course being doubled, may, in like manner, be enriched; the windows, instead of having one light in height, may be doubled, and the heads of the lights may be trefoiled or cinquefoiled: small octagonal turrets placed at the angles of the building, and of deep projections, have a good effect; and the centre of a façade may be made imposing, by its being brought forward sufficiently to permit a carriage to be driven under; added to all this, an almost infinite variety of expression may be given to almost any extent of front by breaking forward the line of wall for the windows, thus preventing monotony, and promoting distinctions of light and shade; at the same time such projections really add to the strength of the structure, acting as so many buttresses to the walls without the affectation of those features, which belong more to church than to domestic architecture, and which should not be used except under similar circumstances to their adoption in churches, that is to say, as in the case of a lofty hall or other apartment where a high-pitched roof, over a large expanse without tie-beams, requires the support of buttresses. An attentive study of the works of the Old English builders will serve to shew that between the humblest and the richest

building there was much in common, that a window in the former partook of the beautiful character and proportion of one in the latter, and that the same features were employed in both, making allowance for the requirements of the respective buildings. The modern imitation of Tudor architecture is too apt to carry the fondness for detail to excess, to cover a wall with panelling in order to produce a rich effect, to omit the gables, or, if used, to disguise them so as to leave but a faint resemblance to their elder prototypes. Again, to mix up the features of castellated architecture with those of a later and more peaceful date cannot be reconciled with good sense or good taste. Mr. Pugin has very properly hurled his lance of criticism (and a powerful weapon it must be owned to be, although sometimes tipped with venom) against the introduction of drawbridges "which will not draw up," of portcullises "which will not lower down," of machicolations, of embrasures, donjons and bastions, and all the formidable accompaniments of military and feudal ages; the specimens given at page 58 of Mr. Pugin's work, entitled "True Principles of Pointed or Christian Architecture," is hardly an exaggeration of many erections in the suburbs of our great towns, wherein all the features reprobated are crowded into a building of some thirty or forty feet square, standing upon a territory of a quarter of an acre! There may be some indulgence for this style of building when a person of lofty descent, whose ancestors distinguished themselves in the wars of the Plantagenets, or who can trace his lineage to the Conquest, wishes to erect a dwelling-place on the domain of his forefathers, and chooses some appropriate site, where the castle will stand frowning over a lofty precipice whence its massive towers may be seen conspicuous for miles around, looking over a territory equal in extent to the dominions of some continental prince. Here, if built in grey stone or granite, with more attention to general outline than to detail, something may be achieved to bring to mind the haughty structures of the feudal ages, and we may feel that there is an air of propriety, as well as of resemblance, in the vast baronial hall, adorned with banners and armour which belonged to some warlike ancestors who fought at Cressy or Agincourt, and look with interest

on the heraldic bearings of some bold baron who confronted his monarch on the important field of Runnymede. But an erection which is altogether devoid of such early and family associations, and which is but a bungling attempt to imitate upon a miserable scale, and with paltry materials, the splendour of former days, can only awaken feelings of derision, and put one in mind of a celebrated auctioneer's mentioning, amongst other "agréments" of an estate, "the ancient castle erected at the suggestion of—George the Second!" That glorious old English builder, Cardinal Wolsey, when he designed a palace, did not attempt to give it the appearance of a fortress, although living in disturbed times, and the features which he introduced into Hampton-Court Palace and in other noble structures may be safely imitated in buildings of a lower rank.

PHILIP-TUDOR.

London, June 10, 1843.

THE PUBLIC BATHS.

The new Public Baths are situate in Bath-street, so named from the new erections therein, but lately called Humber Bank. The buildings consist of a large swimming-bath, 75 feet by 30, ornamented with pilasters and an arched ceiling, panelled, and lighted by 16 windows of stained glass; two plunge tepid baths, dome lighted with stained glass, the margin and steps of the baths being of marble, and the lining of cream-coloured stone from Warnsworth Cliff, near Doncaster; six warm baths, with dressing-rooms attached all lighted with coloured glass, the baths themselves being marble, and the apparatus by Warmer, of London, the most eminent bath-fitter in the kingdom. The rooms, especially those for ladies, are furnished in a very superior manner—indeed we are assured that, in this respect, they surpass, if not in extent, yet in quality, those of Liverpool, which cost £20,000. The style of the edifice is Italian. The front is entirely of stone, and consists of one story; the windows are decorated with Doric columns, and pediments to each; the base of the building is enclosed with a balustrade, and the whole is surmounted by an enriched entablature. There are two entrances, totally distinct, for ladies and gentlemen. The architect, as is well known, is Mr. Lockwood, who has ornamented our town with so many other splendid buildings, which have frequently, on former occasions, commanded our approbation.—*Hull Packet*.

ST. GEORGE'S ROMAN CATHOLIC CHURCH.

THIS superb building now being erected by Mr. Welby Pugin, begins to assume a most imposing appearance. It stands at St. George's Cross, being the intersection of St. George's-road and the Lambeth-road. The style of the edifice is decorated of the period of Edward the Third, perhaps the palmiest period of our architectural history, and to which are referable many of those sumptuous abbeys and magnificent cathedrals which still remain the pride of the land.

Its total length is 240 feet; width 70 feet; south aisle 19 feet 6 inches; north ditto, ditto; chancel 31 feet. The height from the nave floor to the apex of the roof is 57 feet 3 inches. The ground on which the tower stands occupies a space of 32 feet square, and the buttresses extend 4 feet 6 inches beyond. The tower is surmounted by a spire of peculiar lightness and beauty, which, when completed, will measure 317 feet!!! A crest of very elegant form overtops the ridge of the roof throughout the whole length of the building. The material used is generally Caen bricks of a yellow colour, of great hardness, made at Ware, in Hertfordshire; the windows, doorways, &c., being of Coombe Down stone.

In the interior there will be a great quantity of carved work, chiefly of stone; among which a Gothic baptismal font, of great beauty, will be conspicuous. There will be much rich oak carving about the chancel, which will be divided from the nave by an elaborately carved oak screen, and will be ascended from the outside by two spiral staircases, terminating in high turrets containing bells. There will be no ornamental plaster work whatever in this building, all the ornaments being carved either in stone or oak, without repetition of design; and the whole of the roofs and walls are intended to be enriched with painting and gilding.

The great chancel window will be filled with the genealogy of our Lord, on the roof of Jesse, in rich stained glass, the gift of the Earl

of Shrewsbury; and every detail of the building is being carried out by Mr. Pugin in the style of the time of Edward the Third. A great part of the church will be left open, without either pews or seats, and 3,000 persons may be easily accommodated on the floor. No galleries of any description will be introduced, but all the internal arrangements will be strictly a revival of those which were anciently to be found in the large parochial churches of England. An episcopal palace, a convent for the Sisters of Mercy, with spacious sacristies, houses for the clergy, and parochial schools for both sexes, are also in course of erection. Here the heads of the Roman Catholic church and colleges are to congregate periodically.

DESCRIPTION OF THE WALHALLA, AN EDIFICE ERECTED AT RATISBON, BY THE KING OF BAVARIA.

THE idea of raising a monument to the great men of Germany originated with the present king of Bavaria, when he was crown prince, and only twenty years of age. It was in 1804, according to the inscription upon the pavement of the temple, that this noble project was first contemplated by the prince; and though delayed and interrupted at that period, and for some years subsequently, by the disturbed state of his country, his design was never abandoned; but, conceived in youthful ardour, has been prosecuted with manly energy and constancy, and at length, in the summer of last year, received completion in the magnificent edifice, the Walhalla, which now adorns the banks of the Danube, at Ratisbon.

The character given to the building by its mythological appellation, is carried out by the sculpture which adorns the interior. The adaptation of the national fables of the early Germans to a building so entirely national in its conception as the Walhalla, is most appropriate, and certainly the most original feature of the design.

It might be wished that the architecture of this splendid building had shared in the spirit of nationality of which in all other respects it is so characteristic, or at least that it had been more original in design. But as far as regards the exterior, it can claim the merit only of being an excellent restoration of the Parthenon; the architect has made more than ample atonement for rejecting the mythology of the Greeks, by most scrupulously following their architectural model. For this want of invention he seems quite willing to hold himself responsible, by stating that, though the Grecian Doric order was recommended, he was left to the free exercise of his judgment in every other respect. I am, notwithstanding, inclined to suspect that the hint given to the competing architects in the original instructions, to the effect, that an imitation of some approved model of antiquity would be preferred to a less beautiful, though more original invention, influenced him more than he chooses to confess.

The enormous substructure of masonry and large "step-like plinths," upon which the temple is elevated, appears to be an injudicious arrangement: it has the effect of making the principal object, the building itself, appear insignificant compared with its subordinate pedestal. The effect must not be judged, however, from a geometrical elevation; for it must be remembered that the building stands upon a considerable eminence, and that the consequent foreshortening, when seen from below, must in a great measure obviate this objection.

The arrangement of the interior is very skilful, and in many respects original. The task of introducing a method of roofing unknown to the Greeks, but designed in the spirit of their architecture, was a difficult one, and is well overcome. The roof is of cast-iron, of which the construction is visible, leaving open spaces glazed for the admission of light, and by means of sculpture rendered highly ornamental.

The division of the hall by the projecting masses, or wings, which originate in the necessary support of the roof, is a disposition which produces animation and a play of light and shade, and also increases the apparent extent of the building. These wings boldly projecting from the side walls, break the monotony of the simple parallelogram form of the plan,

and always conceal a portion of the busts which occupy the lower range of walls, and which, from their great number and similarity, would otherwise have become wearisome. The upper portion of the side walls is visible the entire length, interrupted only by the beautiful Walkyren caryatides, which form the principal ornament of the interior, and upon which the eye of the spectator first rests.

The temple, exclusive of the substructure, incloses a space of 234 ft. in length, and 107 ft. in breadth, surrounded by fifty-two Doric columns, 31 ft. high, and 5 ft. 10 in. diameter. The internal length, including the opisthodomus, is 171 ft., the breadth 92 ft., and the greatest height 53 ft. 5 in. Height of the lower order 28 ft. 5 in.; the upper order 17 ft. 5 in.; and the caryatides 10 ft. 5 in.; height of the temple outside to the summit of the pediment, 61 ft. The substructure is 106 ft. high, 236 ft. in breadth, and 425 ft. in depth. From the level of the Danube to the summit of the temple is 304 ft.

The first large division of the terrace is of Pelagic construction, and of polygonal blocks of a marble-like limestone; the second division, and likewise the three large step-like landings below the temple, are of the same stone, and formed of regular blocks, but of unequal height and length, as is found in many buildings of the Greeks,—as in the walls of Kalidon, and also in the theatre of Marcellus, in Rome. The columns are 5 ft. 10 in. in diameter, and formed in eleven blocks.

The severe style of the exterior architecture is relieved by the sculpture in the pediments, consisting of highly relieved groups in white marble, from the hand of Schwanthaler, from designs made by the king. The first illustrates the battle in Teutoburger Walde, under the victorious Arminius; the second represents Germany, to whom, after the catastrophe of 1813-14, the representatives of the united forces are presenting the lost provinces.

The site was so chosen that the south end of the temple should present the principal entrance and access for those on foot. In ascending, by means of the different steps and terraces, first to the right, and then to the left, the building and prospects of the distant country are presented to the visitor under various and continually changing points of view. Having arrived by 140 steps at the second terrace, a bronze door is seen, which leads to an arched chamber. This chamber is termed the Hall of Expectation, and is intended for the reception of busts of great men still living, from whence, when the occasion arrives, they are removed into the Walhalla itself. Two other flights of steps lead to the pronaos and principal entrance of the temple.

The arrangements of the interior demanded all possible space for the reception of the busts, and their proper distribution was a leading feature of the design. It was necessary that the busts should be all of equal size, and of the Greek term form; and also, in order to typify the universal equality of all in Elysium, that they should be placed in rows according to their dates only, without individual distinction.

It was then essential that the monotony of the *coup d'œil* of so many similar-sized heads should be got rid of. The construction of the roof, which of course could not be left open like the ancient hypethal temples, and which therefore required supporting beams, sustained by four projecting masses from each longitudinal wall, so as to lessen their span: this form offered the best means of avoiding the objectionable repetition; and it was thus attained, namely, that in a general view along the hall, a large proportion of the busts would be always concealed from the spectator, by the projecting architectural masses. At the extreme end is a large gallery, and, in each longitudinal wall, a passage introduced, both which, during an inauguration or other ceremony, serve for the accommodation of spectators. In designing the building, the architect always had in view the celebration of some solemn and poetic ceremony, as, for instance, that certain periodical national associations should be held, having for a principal object the admission of a new bust, and the solemn inauguration of a new hero to the halls of the Walhalla. On such an occasion a processional train would ascend the steps to the first terrace; here the inaugural bust would be taken from the Hall of Expectation, which would be

appropriately decorated for the occasion, and from thence be borne in procession to the next terrace, and so carried into the temple. Upon opening the great bronze doors, the procession would be received by a chorus of singers, who would remain unseen in the gallery. Spectators would be permitted only in the gallery and passages, and the hall remain consequently quite free for the train, which would proceed in choragic order to the place appointed for the reception of the bust.

It was important that the interior decoration should tend to promote in the spectator the frame of mind which the foregoing ceremony had awakened, and therefore it was the desire of the accomplished founder of the Walhalla, that the aid of rich descriptive sculpture and ornament should be called in as the most effective means of so doing. In the mythology of our forefathers, the Walkyrie were beautiful maidens, whose duty it was to bear dying heroes from the field of battle to the palace of Odin, there to be entertained with never-ending banquets, and to dwell for ever in the paradise of the valiant.

Statues of these beautiful companions of the beated German heroes have been employed as caryatides, to avoid the multiplication of severe architectural forms, which are apt to produce mechanical plainness, and also, in order to relieve the monotony produced by so large a number of busts. These Walkyren caryatides, sculptured in marble by L. Schwanthaler, are habited, as near as is known, in the ancient German costume, and are employed to support the cornice and roof. The heroes of the Walhalla are necessarily divided into two classes, namely, those who, from the want of existing portraits, are recorded only by name, and those of whom busts are really extant. To the first of these is allotted the upper division of the inner compartments of the walls, and their names are inscribed in the spaces between the fourteen caryatides. The busts in a double row, partly upon a continued pedestal, partly upon projecting marble bearers, are divided into six classes, over each of which presides a female term-shaped statue, sculptured by Rauch, and having reference to the class over which she presides.

In order to complete the allegorical sculpture, the interior pediments formed by the horizontal beams, and the sloping roof, are enriched by three sculptured bas-reliefs, in which are represented the three principal epochs of the northern mythology. In the first is seen the giant Ymer, born of the moisture engendered by the hot wind from Muspelheim and the cold mists from Nifelheim, and from his shoulders spring the first human beings, Askar and Embla. Near him are the Lord of Muspelheim, Surtur the god of light and warmth, and Hela the goddess of Nifelheim. Foliage of the ash and elm fill up the angles of the pediment. In the second pediment appear the principal inhabitants of Asgard; Odin with his spear Gogner, and Frigga with her golden spindle, seated upon their throne Lidskjolf; on the right is Thor with his terrible hammer Mjolner, striking the Roman eagle to fragments, and Baldur, the youthful god of Eloquence. On the left Braga, the god of wisdom and poetry, with his goddess Iduna, who, like the Greek Hebe in Olympus, presents the heroes of the Walhalla with the golden apples of immortality. The ravens of Odin fill up the angles. The centre of the third pediment is filled with the mighty ash tree Ydrasil, on the summit of which the eagle of Odin spreads his wings. Beneath the roots flows the fountain of wisdom, with which the tree is watered by the three Nornies. In the angles are the squirrels Rotatoskr.

Beneath this, and between the upper and lower orders, is introduced a large bas-relief in eight divisions, which, according to the command of the royal founder of the Walhalla, illustrates the history of the German nation from its earliest period to the introduction of Christianity, and was designed and executed in white marble by Martin von Wagner, in Rome. This admirable work, 224 feet in length, and 3 feet 6 inches high, embraces the following eight principal events. 1st. The peopling of Germany by settlers from the east and the Caucasian countries. A mighty train, in long procession, of wild but beautiful forms, preceded by warriors, followed by their wives and children, and closed by shepherds, are represented passing

the river Ister, and engaged in subduing the bear and wild boar, the sole inhabitants of the forests of Germany. In the second division is represented the religion and occupations of our ancestors. In the midst, a religious ceremony is being solemnized under a large oak, and horses are being offered in sacrifice. Bards are chanting the mysteries of the religious rites; and a troop of young warriors is impatiently awaiting the completion of their shields, which an artist is employed in decorating. The third division represents the political and commercial doings of our ancestors; the choice of a leader, the first council of the chosen king with his people, and the intercourse and commerce of the Phœnicians with the northern nations. In the 4th, 5th, and 6th, are represented the contests between the Germans and the Roman empire. In the 7th, the conquest of Rome by Alaric; and the introduction of Christianity by the fervent preaching of the holy Boniface, in the 8th division, concludes the bas-relief.

Respecting the ornament employed, it may be remarked, that, without abandoning the long sanctioned Greek contour of form, the architect has employed foliage of German growth, assimilating it as far as possible with the Greek character.

As the adoption of classical architecture was expressly enjoined in the instructions for the edifice, it became necessary to follow what is believed to have been the practice of the Greeks, and unite the charm of colour to that of form. But the architect considers that the striking means which the Greeks employed to distinguish the outlines of their mouldings and members, rendered beautiful and necessary beneath the brilliant skies of Greece, on account of the clearness and light of their atmosphere, is not admissible on external architecture in a northern climate. The interior lithochromic decoration is as follows:—in the ceiling, those parts of the metal construction which are visible are entirely gilt. The coffers of the ceiling, as well as the soffit of the beams, are coloured azure, and ornamented with stars of white gold or platinum, with which, also, all rosettes, screw heads, and friezes used in the construction are covered. The mouldings of the coffers and panels are likewise gilt, and ornamented with coloured foliage. The sculpture and ornamental foliage which fill up the pediment-shaped supports of the roof, are pierced and open, and of light form, that they may not appear to overload this essential part of the construction. They are partly of white and gold, and partly coloured after the manner of classic sculpture. The carved members of the cornice of the upper order, which is of white veined marble, is also partly gilt and partly coloured. The frieze is azure, with oak wreaths of bronze gilt. The upper division of the walls is of a reddish brown marble, from the quarries of Oberfranken: the inscription tablets of white marble, the letters of gilt bronze. The Walkyren caryatides, of marble of the Danube, are entirely but very faintly coloured. The parts representing flesh are ivory colour, the hair fair brown, the bear-skin mantle entirely gilt, the upper dress bright violet, the under robe white. The plinth upon which the figures stand is of a warm grey Lumachelli marble; the entire entablature and the long bas-relief in the frieze, is of white marble, part from Schländers, part from Carrara. The carved architrave and cornice are brought out in colour and gold, the relief quite white, and the ground of the ornaments in the frieze azure. The lower division of the principal walls, as well as the pilasters and shafts of the columns, are of brownish red marble from Admet, resembling the antique African. The caps and bases of the columns and pilasters are of white marble, ornamented with colour and gold. The carved bearers of the busts, the busts themselves, and the six presiding statues, together with all cantilevers, and seats constituting the furniture of the hall, are of white marble, without colour or gilding. As the busts could not, with propriety, have been coloured, it would have been prejudicial to them to have employed gilding or colouring in the sculpture of which they form a part. The continued pedestal upon which the first row of busts stands, is of a beautiful yellow marble, from Welnburg, on the Danube; the plinth is white. The architraves of the doors and windows are of white marble, with ornaments

of colour and gold. The doors, plated with bronze externally, are, towards the interior, of maple, with studs, and inlaying of bright red amaranth wood.

The floor consists of a variety of marbles, following in pattern the general plan of the interior, and was worked and polished in the manufactory at Tegernsee. In the centre fields are three tablets, upon which, in black letters upon a white ground, are the following inscriptions: "Projected in January, 1806; commenced October 18th, 1830; finished October 18th, 1842."

SHERIFF'S COURT, SURREY.

(Before C. T. Abbott, Esq.)

LAMBERT D. VIGERS AND ANOTHER.

NUISANCE OF A SAW-MILL.—This was a writ of inquiry, judgment having been allowed by default, wherein the jury were called upon to assess the damages the plaintiff had sustained through the nuisance occasioned by the defendants' saw-mills. The damages were laid at 200*l*.

Mr. M. Chambers, with Mr. Dickinson, appeared for the plaintiff; and Mr. Hoggins for the defendants.

It appeared from a voluminous correspondence read in court, and the several witnesses examined, that the plaintiff, Mr. James Lambert was an upholsterer and auctioneer, residing in the Clapham-road; the defendants, Edward Vigers and son, next-door neighbours, were timber-merchants. About seven years since a steam sawing-mill, of small power, was erected. It was then only worked one day in the week. Two years afterwards one of two-horse power was substituted, and worked two or three days a week; but in 1842 an engine of ten-horse power was erected, and worked nearly every day in the week. This had caused great vibration to the plaintiff's house; it shook the wine-glasses on the dinner-table, the cups and saucers at tea-time; indeed, the whole house and furniture were kept in a constant state of agitation, by which the roofs of the house and workshop had become injured, the pointing of the tiles having been displaced, so as to cause the wet to drift in. It appeared, however, that the nuisance had been abated, and, further, that there had been some negotiation between the parties, which had been broken off.

The learned Under-Sheriff having summed up, the jury awarded the plaintiff damages—10*l*.

The trial lasted upwards of six hours.

DESCRIPTION OF THE CHURCH OF ST. NICHOLAS, NEWCASTLE-UPON-TYNE.

St. Nicholas' Church is a noble and magnificent structure, standing on a bold eminence, which rises abruptly from the river to near the centre of the town. The old Norman church of St. Nicholas was, it is said, destroyed in the year 1216, and the present edifice finished in 1350.* The interior of the nave measures 109 feet 10 inches in length, and 74 feet 2 inches in breadth; the width at the middle transept is 24 feet 10 inches, and the length of the choir, from the middle transept to the great east window, is 110 feet 4 inches. This measurement makes the total length of the interior 245 feet. The breadth of the choir is 63 feet 6 inches.

The strong clustered columns that support the tower at the west end of the nave are singularly majestic; each measures above the base 36 feet 2 inches in circumference; slender shafts of the main cluster support the springers of elegant groin arches which branch out and intersect each other in a manner the most fanciful and beautiful. The centre is of an octagon form, ornamented with arms. The space between the pillars of the tower and the transept is divided into three aisles by two

* "This year, 1216, St. Nicholas' Church, in Newcastle, is said to have suffered by fire."—*Brund*.
The church of St. Nicholas, styled in the earliest accounts of it "the church of Newcastle-upon-Tyne," is said to have been founded in the year 1091, by Osmund, Bishop of Salisbury. This Osmund, who was canonized after his death, which happened in 1099, was a Norman by birth, came over with William the Conqueror, was created Earl of Dorset, and afterwards made Chancellor of England. Between the years 1115 and 1123 King Henry I. appropriated the then rectorial revenues of the Church of Newcastle, with those of other churches in Northumberland, to the Church of Carlisle, which grant was confirmed in the year 1193, by Hugh Puiset, Bishop of Durham, and ratified by several subsequent bishops.—*Brund*.

rows of arches, supported by firm elegant octagon pillars, the eight sides measuring 10 feet 8 inches. The arches, though acute, are open, and remarkable for symmetry and beauty; they seem to approach to segments of a circle, including an equilateral triangle from the impost to the crown of the arch. The extradoses of the arches are joined by small ornamental heads; the cross arching of the middle is bold and lofty; four arches on each side of the middle aisle of the choir divide it from the side aisles. The roofs of the aisles, both in the nave and the choir, are strongly ribbed with oak, supposed to have been done when the steeple was built. The middle aisles are lighted at the top by modern windows.

"In 1777 the church was repaired and thoroughly cleaned, but shortly after a scheme was suggested for converting it into a kind of cathedral; accordingly a subscription was opened at the Common Council, on Monday, the 20th of January, 1783. The plans for the alterations presented by Messrs. Newton and Stephenson were finally adopted, and these gentlemen were commissioned to superintend the work, which was not finished until the year 1787. Brand says the alterations were 'completed with great taste and elegance,' but the antiquary must for ever lament the alterations, as almost all the ancient funeral monuments have been destroyed." Now the plan is certainly as destitute of either taste or elegance as can be well conceived, though the dilapidations committed upon the sepulchral monuments is as barbarous and unjustifiable an outrage as ever disgraced any age or place. Agreeably to the plan for altering this church, the west end was cleared of all erections, and devoted to the purposes of sepulture; it was divided from the choir by a wooden screen, executed in a miserably bad taste. A new organ gallery was also erected in the place formerly occupied by the rood-loft. The pews were built of wainscot, and are calculated to seat 964 persons, including the seats for the poor in the middle aisle, but exclusive of the school gallery. In round numbers it may be taken that there is accommodation for an audience consisting of 1,000 persons. The north transept of the church is called St. George's Porch; they imagined it to have been built by one of the kings of England; and Bourne, without giving his authority, says it was one of the chantries of this church. In 1617, while the lord president and council of the north were at Newcastle, Lord Sheffield being the president and Knight of the Garter, celebrated the feast of St. George in this porch. It is nearly 49 feet in length, and 29 feet in breadth. The large beautiful window of this porch or chapel, after being long in a ruinous state, was partly blown down by a high wind on March 3^d, 1823. Mr. John Dobson, architect, made an exact drawing, from actual admeasurement, of the whole window, which Mr. Willis in Brown, mason, undertook to execute in stone for the small sum of 150*l*. The work was completed in the summer of 1824, in the most masterly manner. This window presents a fine specimen of the beauty, delicacy, and grace of the pointed style of architecture. This tall mullions, though no broader than the original ones, are much deeper, so that the decorative part has acquired strength without suffering in appearance. There is a place below St. George's Porch called a vault or charnel house, which was opened in November, 1824. It was found nearly full of rubbish and human bones, which

† The Anglo-Saxon word *rood*, from which comes "rood," denoted any sort of image, but more particularly that of Christ, as fixed on the cross. "And wot we what spiritual things was couched in this position there? The church (formerly) typified the church militant, the rood represented the church triumphant, and all who will pass out of the former into the latter must go under the rood-loft, i. e. carry the cross and be acquainted with affliction."—*Fuller's Hist. Waltham Abbey*, p. 16.

"In the year 1548, the first of King Edward VI., the images were ordered to be taken from the rood-loft; texts of Scripture in many instances supplied their place. Queen Mary then in many instances supplied their place. As the rood-loft to be restored." "The rood-loft in this church appears to have stood until some time between the year 1692 and 1645, when the king ordered the churchwardens to remove it."—*Dr. Ellison's MSS.*

"I find no account of any organ in this church during the times of Popery, though it is very probable that it has been one."—*Brand*.

"About the year 1678 the corporation contributed 300*l*. towards the erection of the present organ."—*Hist. Newcastle*.

‡ "In 1635, some new seats or pews were built. The gallery, commonly called the school-gallery, being chiefly for the use of the boys of the grammar school, was erected in 1620."—*Hist. Newcastle*.



ST. NICHOLAS' CHURCH.

were removed. The entrance to this place is on the west, and part of the roof of the porch still remains. It extends to about half the breadth of the transept, and at the east end was found a beautiful small window, in the form of a Catherine wheel, which had been blocked up. In the south wall is part of a basin for holy water, and a deep drain cut in the floor had been boarded over; the roof is arched with stone; various conjectures have been formed respecting this place. It has not been a subterranean oratory, for anciently it must have been very little below the surface of the ground, which has been much raised on the outside, even in modern times; some think that it was originally designed for a chantry, and others, with greater probability, that it has been used as a confessional. The door and window of this curious place have been built up again, and the earth levelled, but the small east window which opens into St. George's Porch may still be seen. The west arch of St. George's Porch has been walled up and formed into a kind of vestry, used as a robing-room for the magistrates, and for the accommodation of christening parties.

The south transept of the church is called St. Mary's Porch, and is supposed to be the chantry of Our Lady, founded in the reign of Edward I. It is 48 feet long and 25½ feet broad; it was formerly much larger, but in 1783 the west arch was built up with brick, and the space thus gained was formed into a porch

which leads into the churchyard. The funeral service is generally read here, and on each side are part of the old oak stalls belonging to the church.

The great east window of the church is very magnificent, and has evidently been introduced as an alteration of the ancient structure, and displays the later form of English architecture in its most just and beautiful proportions, being adorned, but not crowded, with tracery, which runs out in the most elegant manner.

According to Grey, this window was built by the munificent Roger Thornton, the elder, and there was inscribed upon it, "Orate pro anima Rogeri de Thornton, et pro animabus filiorum et filiarum." There were also in it the twelve apostles and seven deeds of charity painted on glass. There now remains but two heads, and a few small fragments of the original pictures in this once "sumptuous window." There has been an attempt made to introduce some modern painting on glass into the centre of this window, but it is very badly executed.

The east division of this edifice seems to have undergone so many repairs as to retain few marks of its original formation. There are three narrow, plain, unassuming windows, with two mullions bisected at the top in the pointed style, on the south side of the nave, and four similar ones on the north side, which are doubtless parts of the original building. Specimens of the plain, square, upright buttress, are also still attached to the north side of the nave and to both of the transepts. The windows in the choir are larger, and ornamented at the top by a quatrefoil. The large

window in St. Mary's porch, and some others, are on a more expansive scale, and portioned out with mullions and ornamented heads, and diversified by horizontal decorated transoms; they belong to a later period. The windows in the clerestory, with their ungraceful obtuse arched tops, are quite modern and foreign to the general character of the building.

In 1734, Sir Walter Blackett built over the vestry a "handsome modern house," for the reception of the books of Dr. Thomlinson and other benefactors. The style of this erection but ill accords with the Gothic fabric to which it is so awkwardly appended, but at the time of its erection very few had cultivated a taste for ecclesiastical architecture. The windows of the choir in the line of this building were necessarily blocked up, but the want of light is partly supplied by a dome light in the roof of the south aisle.

The font of this church stands in the north transept. It is of a simple form, but has a most magnificent and very lofty cover or canopy, of very delicate and curious workmanship. It is supposed to have been made by Robert Rhodes, the builder of the steeple; which conjecture is very probable, not only from the airy elegance of the design, but also from his arms being sculptured upon the basin; the arms are "parted per fess, gules and azure; in chief is a greyhound courant, and in base three annulets. There is likewise quartered with this coat argent a chevron gules, between three rooks, or, within a border engrailed, supposed to be the coat of Agnes, wife of Robert Rhodes." These arms have been formerly coloured. On Thursday, July 16th,

* "This church surpassed all others in the north, both in the number and richness of its chantries; there were nine or rather ten; as the suppression, which were valued at 48l. 4s. 6d. per annum."—Hist. Newcastle.

1818, there was placed above the high altar and underneath the great eastern window a valuable painting by Tintoretto; the subject, Jesus Christ washing his apostles' feet; but the light does not shew it to advantage. This interesting picture was presented to the church by Sir M. W. Ridley, Bart.

THE STEEPLE.

This is one of the noblest and most admired structures that adorn our island. It exhibits an originality, boldness, and magnificence which renders it an architectural prodigy; viewed at a distance, the whole combines to produce one grand effect; and examined closely and in detail, the happy application of the principles of arcuation, of thrust, and of pressure to every part, excites the greatest surprise and delight. The ornaments also, though simple, are appropriate and significant. All, indeed, must concur in admiring the refined taste and consummate judgment of the architect, who, without any servility of imitation, has produced this triumph in English art, which rivals in execution, and surpasses in ingenuity, the proudest edifices of the ancient Greeks and Romans.]

|| "No ideas of the elegance of the design of the forgotten architect, or lightness of the execution of the masonry of the pinnacle, or upper part of this steeple, can be conveyed by descriptions of the pen."—*Brand.*

"The tower of St. Nicholas' Church is very justly the boast of the inhabitants."—*Pennant.*

"It must unquestionably be regarded as an uncommon specimen of ingenuity and taste."—*Gent. Mag.*

"It is a fabric in my opinion the most beautiful that exists in the world; which surpasses the cathedral of St. Sophia at Constantinople, the Mosque of Sultan Sulaiman at Jerusalem, the church of St. Peter at Rome, and even the Temple of Minerva at Athens."—Extract from a letter by the late Rev. Joseph Dacre Carlyle, to the Churchwardens of St. Nicholas, and vide G. Walheim's letter, in No. 15, of THE BUILDER.

"A writer in the *Gentleman's Magazine* says, on the authority of an inhabitant of Newcastle, 'A deep drain has been recently made so close to the steeple, as to cause the foundation to give way by which a considerable crack has been occasioned, which, in my humble opinion, endangers its safety daily.'—Vol. lxxiii., May 1813. This is denied in a subsequent number; and the alarmist is accused of indulging himself 'with the superb idea of what a tremendous crash the steeple would make should it ever fall.' There are, however, many cracks in the pillars and the roof underneath the tower which have been plastered over, but they are not of that magnitude to occasion any serious apprehensions for the safety of this lofty erection."—*Hist. of Newcastle.* This, however, was not the case, for it was afterwards found to be necessary to build immense buttresses for the support of the steeple, which were ably and ingeniously executed, under the direction of Mr. John Dobson, architect.

The tower, which stands at the west end of the church, measures at the outside of the base 36 feet 9 inches by 35 feet; it is substantially built and of elegant proportions. From the base to the battlements it is divided into three separate parts or stories. The first or lower story is the west entrance to the church. The large window above the door is boldly ornamented with tracery, and the mullions strengthened with transoms. The second story has one small window, handsomely turned and divided by a single mullion with small pointed heads; from the ground to this story rise buttresses of three sides. The third story being set within the lower ones gives the tower at a short distance a pyramidal and elegant appearance; at the angles of this story are flat buttresses rising over the battlements and resting against the turrets; they are tastefully terminated by a human figure on a bracket. Each side of the tower is divided into two equal spaces, by a delicate buttress which rises up square to the battlements, and then by the contrivance of a little arch is canted off, forming a small octagonal turret. The sides of the tower by this buttress are divided into two equal spaces, each of which contains a large unglazed window, through which the sound of the bells passes; these windows are of elegant proportions, with rather a flat-pointed arch head divided into compartments by a mullion, and the height by a transom, each ornamented with quatrefoil turns. The tower terminates with perforated battlements.

Eight turrets and pinnacles of matchless elegance rise from the angles and sides of the tower; the pinnacles are crocketed, and each finishes with a lofty vane, ornamented with fleur-de-lis at the angles and sides. The angular turrets are considerably larger and higher than those of the sides; from their base spring four segments of arches, elegantly curved and cut into mouldings: at their intersection, twenty feet above the battlements, they support a very elegant, lofty, square lantern, which has an open window on each side, divided by a mullion and a cross bar. There are small buttresses at the angles surmounted by ornamented pinnacles, each of which supports a vane; from the great bows rise small buttresses, which form an additional support to the lantern, by which means the upper line

forms an ogee curve, and is crocketed. The lantern, surmounted by a lofty and well-proportioned pinnacle, and ornamented with crockets, which terminates with a noble vane, "finishes this unexampled and extraordinary building."

This beautiful steeple is 193 feet 6 inches high. The height from the ground to the top of the battlements 117 feet 9 inches, and to the bottom of the lantern 138 feet 6 inches. The masonry is executed in the bold manner of the Associated Free and Accepted Masons; most of the stones are such as the workmen might have carried under their arms: the tall, stately, and elegant pinnacle at the top is hollow within, and built with stones only four inches in breadth! The other pinnacles are also remarkably light and ingeniously constructed; the lateral pressure at the buttment of the intersecting arches, is counteracted by two strong oak beams, which are preserved by being covered with lead. Indeed, in every part, the skill, science, and ingenuity of the architect are manifest, and the whole appears to be the creation of a rich and refined fancy, corrected by scientific and mathematical principles.

The steeple is plainly a superstructure raised upon the original tower, which appears to have had a battlement of open stone-work and embrasures. Some have ascribed the building of the steeple to David, king of Scotland, who resided here about the year 1135, but the style of the architecture is alone a sufficient refutation of this conjecture, for it possesses all the distinctive lineaments of the mode which obtained in the time of Henry the Sixth. This adds to the probability of the opinion espoused by Brand, who thinks it was raised by Robert Rhodes, who lived in the fifteenth century. He was a most munificent friend of St. Cuthbert, the great tutelary Saint of the diocese, and more particularly of the churches in Newcastle-upon-Tyne, where he resided; his arms are on the ceiling underneath the belfry, and this inscription, "Orate pro anima Roberti Rhodes." The corporation have been charged with the reparation of this steeple from time immemorial."—*History of Newcastle.*

A YOUNG C. B.



SOMERTON CHURCH, SOMERSETSHIRE.

The small town of Somerton is situate about 125 miles from London: it is surrounded by beautiful scenery, and the soil is very fertile. It used to be visited by royalty at one time, and several Saxon monarchs have held their

courts there. The castle of Somerton, in which John, King of France, was confined after his removal from that of Hereford, A.D. 887, was plundered and destroyed by the Danes, but was soon afterwards rebuilt. The church, of which

we have given an engraving, is very peculiar, having an octagonal tower, with six bells. The town of Somerton has only five streets, containing 251 houses, mostly built of the blue-stone from the quarries in the neighbourhood.

OUR CORRESPONDENCE. THE NEW BUILDING ACT.

TO THE EDITOR OF THE BUILDER.

SIR,—As to the principle upon which payment for party walls may be established.

Take 14 Geo. 3, cap. 78, sec. 41. The builder of a party wall is to be reimbursed for half the cost, according to the rate of the adjacent building, by the owner, who is entitled to the improved rent of such adjacent building.

It is so admitted on all hands that, in practice, this enactment has wrought injustice so incredible, that it is better to bury all in oblivion, lest human nature should despise itself; yet may it well be that the principle is right, and only the practice wrong.

Take clauses 111 and 112 of the Bill. When all charges are valued at prices to be fixed by the official referees, and approved by them; and when the costs, as ascertained, have been paid by the owner upon whom the payment shall have fallen, he is to "call upon all other persons interested in the premises, as freeholders, copyholders, ground landlords, lessors, lessees, and the like, but not upon yearly tenants, or tenants at will, to contribute a due proportion, according to the covenants of the several leases or agreements between them, calculated according to both time and amount;" and if all the interested parties cannot agree, then the official referees are to award between them.

As to the words "according to the covenants of the several leases or agreements between them," I can only suppose that they mean the ordinary repairing covenant, for if "party walls," be specially mentioned, there is nothing for the referees to decide; the lease settles the question. But as the word "time" may mean the original term granted, or the term unexpired, and "amount" may mean that of the bill of costs, or the rent actually paid, or the clear profit made, some interpreter may be needed.

Although so excessively indefinite in its wording, this provision, upon the face of it, appears to be so perfectly equitable, that it is requisite to bestow some care in justifying dissent from it, and to show that, although apparently just, and fully intended to be so, it would not only, in some cases, be grossly unjust, but it would also be quite impracticable to carry it out satisfactorily.

It would be requisite to consider all the various ways in which house property may be let or held, did time and space admit; but a few instances will serve to shew the unworkable state of the clause. As it would be choked off at once by any special provision in a lease as to "party walls" by name, I can only take it as applicable to the express or implied covenants to repair, and to surrender in good repair; but I may remark that, before this clause shall pass into law, some very clearly expressed limitation must be introduced, for that, as it now stands, it is to apply to all cases, including not only the rebuilding of party walls, but the substitution of party walls for ancient wooden partitions, and even the reparation of party walls; and this is the more needful, as the rebuilding or reparation may take place in very many, perhaps in most, cases of old property, without the knowledge of the parties who may have to pay the most.

As to the ways in which house property may be held.

The freeholder, having built or inherited house property, lets it to an annual tenant, at rack-rent. Here the freeholder is clearly liable to pay for the half party wall.

The freeholder lets it upon lease, at a full rent, but less than rack-rent, the lessee engaging to repair and to return it in tenable repair. Here the freeholder is clearly liable, because that the reparation of a party or other wall is not merely tenable, but substantial reparation.

The freeholder lets it upon lease for a term of years, the lessee engaging to put it into complete repair, and to return it in complete substantial repair. Here the landlord lets it at a modified rent, more or less proportioned to the state of reparation. This appears to be the case in which landlord and lessee should each contribute a due proportion, "calculated according both to time and amount." Yet in this, one of the very simplest of all cases, there may be the most annoying complication.

What are the due proportions?

The house may be thirty, or three hundred years old (for there are such strange things yet) when leased. It may have been originally well built or badly built, or of good or bad materials; and the house of three or four hundred years old may really be more substantial than one of thirty years (as witness Crosby Mall, which was built in 1460, upon a ninety-nine years lease. It may have been upon a good or bad foundation; it may have failed wholly on account of originally bad foundation, or of foundation originally sufficient, but rendered insufficient by sewerage or other public works, draining water out of boggy earth, or drawing off running sand; or it may have failed in consequence

of operations carried on by a neighbour, or even by the lessee himself, who may have excavated for the planting of machinery, or may have carried on a manufacture or business which, by jarring the house, and keeping it in constant tremor, gradually but certainly, as with a battering-ram, has disintegrated the mortar.

Age at least ought then to be one of the elements of a calculation according to time.

Condition, at the time of leasing, and cause of defect, are not mentioned in the clause, yet may they be of a large consequence in attaining a right understanding, and coming to a righteous decision in every case.

Even if age were excluded from the computation according to time, there would still have to be considered the original length of lease, and the portion yet unexpired. To which do the words apply? Is the original term the right basis, or the unexpired term? This is not specified by the Bill; and if it were, by what rule of proportion are the respective amounts payable by freeholders and lessees to be ascertained? The right proportions depending much upon the original length of lease, imposing, as a moral obligation, greater or less amount of responsibility upon a lessee; for, it can scarcely but be conceded, that a lessee of sixty years, seven of which are unexpired, stands in a very different situation from him of twenty-one years, seven of which are unexpired?

Next there would have to be considered the proportion according to rent. A premium or foregift may or may not have been given for the lease. A large or small sum may have been expended in reparation, alteration, or extension. It may have been leased at two-thirds, or one-third, or even one-tenth of a fair rack-rent, either in consideration of its state of reparation, or of premium paid; or, in consequence of the freeholder choosing rather to have a responsible lessee, at a comparatively small rent, than a doubtful one, at a higher rent.

I take it that the ready reply is—the rack-rent must be the basis of calculation; and the freeholder be charged in due proportion to what he receives, the lessee paying the remainder; but the clause does not so state; nor, if it did, do I yet see that such a provision could fairly be adjusted to the cases of reparation done, or of premium paid.

And, Sir, if we add to these perplexities a consideration that the freeholder may be the absolute possessor; or, he may hold it for life only, the estate being entailed; or, he may hold it only for his own life, or that of his wife, and after the death of either it may pass to others whom he neither knows nor cares for;—and, that the lessee may hold it for years certain; or for years contingent upon an uncertainty, as in cases of lease for seven, fourteen, or twenty-one years, or other periods, at the will of either lessor, or lessee, or both; or, for his own life, or for that of another; or for joint lives, or for the shortest or longest of three or more lives;—I almost think that you will agree with me, that, even in this, apparently one of the simplest of all cases, the clause cannot be satisfactorily worked out.

If we add to these the not uncommon cases, in old property at least, of one house being built upon separate freeholds, or part freehold, part copyhold, part leasehold, or held by one or more lessees upon different rates and lengths of tenure; and superadd to these, all the strange involutions of church and collegiate, and corporation, and trust, and litigated property; of leases renewable at fines certain, or customary, or uncertain; for ever, for certain periods to be attained by successive renewals, or for no certain period; of reversionary leases, of concurrent leases; of all the varieties and subdivisions of underleases; of mortgages, of bankruptcies, of insolvencies; of rents in money, of rents in corn, or other provisions; there will be such a glorious hash, that either the official referees can make no award at all, or, if they do, it must be set aside upon the ground of uncertainty, when Law and Equity will clap their bloated sides: for, I take it that even an Act of Parliament cannot make an unjust or ill-grounded award of three mystified men "final," while the decrees of a Lord Chancellor are open to appeal.

Again. The clause provides that ground landlords are, among others, to be chargeable with a portion of the expenses of pulling down, securing, repairing, and rebuilding party walls, party arches, and party fence walls, or other parts of houses or buildings.

Just remarking that the words "other parts" may include all parts of the whole building, I will endeavour concisely to shew that ground landlords, (taking that term in its obvious meaning, the owner of the soil which has been let upon building leases), from the very nature of the compact between them and the lessees, cannot justly be chargeable with any portion of the expense of rebuilding or repairing party walls, any more than with any other reparation.

The landowner, having no floating cash to expend in building, or, unable to attend to the ma-

agement of house property, but desirous of increased income for himself, and to make fair provision for his descendants, leases his land to a builder, who has capital at command, and who can profitably hold and well look after houses.

The object of the lessee is to expend his capital advantageously, that is, to obtain from it a return so much larger than the market rate of interest for money lent as will compensate him for the additional risk of loss and trouble of management, and enable him, by laying by such surplus interest half-yearly, to recover the capital originally expended, within some reasonable number of years. After that period all rent beyond the ground-rent is clear profit, an annuity for himself and his descendants, until the termination of the lease, when the landowner, coming into possession, ceases to hold ground-rents, becomes a house owner, and no longer lets upon building, but upon repairing leases.

A very little consideration will shew that the very essence of the original compact between these two men, as honest men and men of business must be, that the lessee, who covenants to build houses in that, covenants also to leave houses, not ruins, or heaps of rubbish upon the land; and such being the essential element of the original compact between men equally well disposed, there really needs not a syllable about reparation in such a lease. Indeed, I fancy that nothing short of an act of the legislature, for some assumed public good, setting aside the common law of right and wrong, could justify a court of judicature in taking any other view of the question:—it would be a perversion of Justice.

If this be so,—if houses, that is habitable places, are to be left upon the land, they must be left in a safely habitable state; and, with reasonable allowance for their age, they must be substantial, or they will not be safely habitable; and, if so, I conceive the necessary conclusion must be, that the lessee, who by the essence of the original compact is bound to leave houses substantial in comparison with their age, is the only person justly chargeable with the cost of repairing party walls, as well as all other walls—for if they be not sound, how can the houses be substantial, or safely habitable?

As a matter of necessity, the spirit of the compact with the original lessee, binds all sub-lessees in a like obligation to the owner of the soil.

I have, for the sake of the illustration, mentally assumed that the building term could be so long, as that bricks and mortar might fairly be almost worn out; but, taking the ordinary run of building leases, sixty-three years, and ninety-nine years (i. e. two or three generations), it is so unreasonable to suppose that any wall, honestly built, could by any possibility short of actual violence be ruinous, that I cannot conjecture how any one could think of introducing the term "ground landlord" into the clause, unless it be that, by those words, not the owners of the soil but the "owners of improved ground rents" are meant.

It is not worth while to carry on my rude and inartificial inquiry with respect to them, for the compact between the lessee, who underleases ground only for building upon, and the sub-lessee, is so exactly similar to that between landowner and lessee, that if the conclusion be good in one case, it is so in the other; and if so, the owner of improved ground-rents is no more liable to the reparation or rebuilding of party walls than the landowner.

Statute law may say it shall be so, but it will violate the eternal law of right and wrong.

The term unexpired, be it long or be it short, has nothing whatever to do with the question. If it be short, the lessee has had all the profit of a long preceding term; if it be long, he will have a better chance of repayment; but, short or long, the unswerving principles of justice save the landowner harmless.

If it were not so, taking the old-fashioned ground-rents of a pound, or ten pounds a house, the cost of rebuilding a half party wall might not only sweep away all rents, but leave the landowner in debt.

But, Sir, there is a tether upon our judgment, even in this so obvious a case. In favourite districts, for commercial or other purposes, of late years, ground-rents have so increased in amount, as to have become enormously disproportioned to the rack-rents.

The common dictates of right and wrong call in such cases for legislative provision, because that the boundaries of right and wrong have been overstepped by the landowner, and he ought not to be suffered to have the advantage of his own wrong. However unwise people may be to give them, ground-rents of four, six, or eight guineas the foot, by the year, are "out of all cases;" and landowners who gain so largely ought to bear part of the burthen.

The simple question is, what proportion would be just? but to this, what answer can be given? for even here arises the difficulty, that a practice has sprung up of at once disposing of the property let

at such heavy ground-rents. Large capitalists and public bodies have expended idle money in such purchases, and given thirty, and even more, years' purchase for the real estate. They have bought upon the faith of the law as it then was and still is, and would it be righteous by an after-made law to depreciate the property, and to subject the purchasers to an unforeseen liability? It is true they bought with a consciousness that the ground-rents were extravagantly high; but they gave heavy market prices, based upon the stability of those very rents.

Deriving no exorbitant profit, they can scarcely be deemed to be in a situation to be visited with an inequitable responsibility. Wearying as it probably would be to decide the question equitably, there is this consolation, that by leaving existing buildings exempt from any such provision (even should it be deemed prudent to render future owners of ground-rents, which exceed some specific proportion to the rack-rent, liable to pay part of the cost of rebuilding party walls), no extensive harm can ensue, for, in all these extreme cases, it will be found that the buildings are unusually substantial, and little liable to fall before they fall into the hands of the freeholders.

Supposing, however, that this, or a similar strain of observation, were not deemed convincing, and the legislature really were to enact, that ground landlords should contribute their quota of the cost of repairing and rebuilding party walls; it may be well to test whether or not it could be carried into effect. If one house be let at a fixed ground-rent, it would not be more difficult, but it might be equally so as in other rents, if taken in proportion both to time and to amount, to decide how much the ground landlord ought to pay. But there is another and a very common mode of leasing ground, in which it must utterly fail; I mean that in which the landowner leases a large plot to one person, who either lays it out in equal or unequal plots, and lets it to others at a higher rate, thereby making an improved ground-rent; or, he lets off separately only, laying upon them the whole, or nearly the whole, of the chief rent, and reserving for himself the remainder; not indeed making an improved rent, but doing equally well, in paying little or no ground-rent for that which he reserves for his own use.

As supposititious cases may always be got rid of by the remark, that they either never did, or never will, or never may or can exist, and therefore need not be thought of, much less legislated for, I will give you an actual instance of such letting as, if I mistake not, will fully bear out my opinion, that such an enactment never can be carried out, but must of necessity be speedily repealed, as wholly impracticable.

A, a tenant for life, but legislatively empowered to grant building leases for ninety-nine years, has leased two plots of ground to B for a premium, and at a fair ground-rent. Upon each of the plots was then only one building which could be maintained.

B used one plot in this wise: he for a premium leased one piece to C, reserving only a long accustomed ground-rent for the whole term; he also leased to C one other piece, at a very small ground-rent, for the whole term, without a premium. He agreed to lease unto D the remainder of the plot of ground with one old but substantial building upon it. D laid it out, in part for building, and began to build houses and stabling; but, before completing them, becoming embarrassed, he sold his interest therein; first so apportioning the ground-rents among the houses, as to leave the remainder nearly free from ground rent. B, to render the purchasers secure, granted separate leases to E, F, G, H, and I for a large portion of the whole term, and subject to some very short periods, originally agreed for by D to four of his neighbours, retained those four pieces, which are used as back yards for the houses of another estate, of which he can within a few years deprive them, shut up their lights, destroy their casements, render them incapable of being profitably rebuilt, should clause 21 become law, and most seriously decrease the income of a trust estate, charged with the maintenance of a most important public structure.

B used the second plot in this wise: he leased an old building thereon, together with an additional piece of ground to give it frontage and make it more valuable, to I, for a term some years short of its own lease, and leased under separate deeds two other portions to K, who built several houses thereon, and other buildings, some of which K has since leased, and others are let to yearly tenants.

A is dead. He received a large premium and good ground-rents. His successor, L, a stranger in blood, receives good ground-rents only.

B, who in part received premiums, and in part approved ground-rents, is dead.

His representative, a stranger in blood, receives only those improved ground-rents for several years, and after their expiration, his representatives will have to receive the gross rents.

Supposing that fire, flood, violence, or earthquake were to shake the estate, so as to render either of the party walls ruinous, how will it be possible for the official referees to apportion A's two ground-rents, each of which is for a whole plot, and not for its parts, to every individual building, so as exactly to define A's quantum of interest in that building, and to award his proportion of the expense of rebuilding the half party walls? How, again, can they divine exactly B's liability with respect to every subdivision of each plot, when his interest in the whole is but one sum? How, again, are they to get at that portion of annual interest which ought to appertain to the divided estates of the two dead men, in respect to the premiums which they received, and of which their descendants receive the benefit?

It is said that North American jugglers can swallow a Popooses cradle; I apprehend that our legislators must far excel them in adroitness if they can make their way cleanly out of such a puzzler as this.

And, Sir, I need not tell you, that such cases as these are very far from uncommon. I doubt not that every one of the Bedford, the Grosvenor, the Portman, the Somers, the Southampton, the Church, College, Hospital, Corporation, and charitable trust estates of this vast metropolis, will furnish numerous instances of this complication.

I think, Sir, I have now shown that, if it were just to fix upon ground landlords a portion of the cost of repairing and rebuilding party walls, it never could, in practice, be accomplished, and that the attempt would surely end in the most inextricable confusion.

If the existing law be so inexplicit in the wording of its enactment as not to carry out the right intention of its makers, if the proposed law be, practically, incapable of effecting the highly praiseworthy object of its promoters, whose desire to act uprightly is manifested in every line, and whose mode of action is only baffled by the, perhaps, insurmountable difficulty of making one uniform rule, justly to meet every variety of term included in one general term, and every variation of rent growing out of one original rent, it may not be quite unprofitable to try other suggestions, having the same object, and more or less allied to both.

By whatever method it may be proposed to attain the object, it is quite clear that repairation and rebuilding are two different things, and require different treatment. Therefore, to clear the gangway of matter extraneous to the main question, I would first suggest provisions, that in all cases where premises are let upon repairing leases of at least twenty-one years, the repairation of party walls (and a proportionate part of the cost of rebuilding half party walls), shall be held to be included in the common covenant to repair, and the cost be paid by the lessee;—and that in all cases of repairing-leases of less than twenty-one years, the repairation of party walls shall not be included in the common covenant to repair, but the costs shall be paid by the lessor.

That optional leases for seven, fourteen, or twenty-one years shall class under either head, as the term may stand when the repair is done; that is, if the third seven years has been entered upon, to be taken at a twenty-one years' lease; if only the second seven years be entered upon, then as a fourteen years' lease.

These provisions would define the responsibility of the lessee, and so far protect him.

I would next suggest, that the owner of the soil should be protected by a provision, that in all cases wherein a lessee or sub-lessee holds, or held, an original term of sixty-three years or more, the person under whom he holds shall not be chargeable with all, or any part of, the cost of rebuilding the whole, or any portion of, a half party wall.

I take sixty-three years, or two generations, because that is no unfair building term.

It may also be well to provide that copyholders, and also all lessees who hold leases renewable for ever at certain periods and at fixed fines, shall be considered as holding for sixty-three years, and, therefore, be chargeable with the cost of rebuilding half party walls.

That lessees who hold leases, renewable periodically, until some stipulated period of sixty-three years at the least shall be attained, whether under fines or not, shall be considered as holding to the full extent of such period, and be chargeable with the cost of rebuilding half party walls.

That lessees who hold leases renewable according to custom, although not for ever, at fines certain or uncertain, shall not be chargeable with more than half the cost of rebuilding half of the whole or any portion of a party wall, but shall be authorized to retain the other half out of the fine at the next renewal; and, to protect such a lessee against the oppressive demands which may, at renewals, be made to neutralize his demand against the lessors, it may be necessary to provide, that no lessor shall demand, at such renewal, more than the customary

rate of fine received by himself or his predecessors. Or, as such an enactment might be supposed seriously to affect church, collegiate, corporation, and trust property, it might be provided that every such lease shall be held to possess, at all times, a legal claim to renewals, at the customary fines and periods; in which case he may be chargeable with the whole cost of rebuilding half party walls.

That lessees who hold for life only, shall be considered as holders of leases for twenty-one years.

It is just possible that some such regulations as these would provide approximate justice for the bulk of owners and lessees; but there is a class of quasi-freeholders, those for their own lives only, the estate at their deaths passing to strangers in blood, for whom I cannot tell what provision to suggest. Freeholders for life only, of an entailed estate, do not need much commiseration, for that descendants of their own blood will reap the benefit; but, when the property is to pass to aliens, it will be doubly hard to deprive them, in all probability, of their whole living, to pay for that from which they may derive no beneficial return; while the law would in most, if not all, cases preclude them from granting leases for more than twenty-one years, so as to give the lessee such an interest as would justify the burthen being placed upon him. I feel dead beaten by this difficulty, and will pass on to the apportionment of the cost of rebuilding half party walls.

If we take the obvious intention of the present law, to charge the profits of the estate with the burthen—for, although obscurity and misunderstanding have warped this intention and wrought most cruel wrong, its framers, as honest men, could not have meant either the owner of the house, or the occupier holding an advantageous lease, to go free, and, therefore, must have considered their words "improved rent," legally to mean all rent beyond that of the bare soil—one would think it may be possible so to frame a measure, as that it shall, without escape, include the houseowner. If so, we may do much, he being before protected from undue responsibility, by the provision as to lessees of sixty-three years.

Suppose then, that to prevent persons escaping who let at a low rate but take a premium, it be provided that in every case wherein a premium has been given, a sum equal to seven per centum upon the amount of premium shall for the purposes of calculation be added to and be considered to be part of the rent received by him; and also, that all lessees who occupy shall be considered as beneficially interested to the extent of the difference between rack-rent and that which they actually pay.

Having done this, let it be enacted that an equal part of the total cost of rebuilding the half party wall shall not be apportioned to every pound of the rack-rent: that the sub-lessee, or the person receiving such rack-rent, shall, in the first instance, pay the whole sum; that he shall be empowered to recover from his lessor re-payment in due proportion to the rent he has to pay to such lessor.

That each shall pay, and so be authorized to recover, through the whole series, up to, and including the houseowner, or stopping at such lessee as should hold an original lease of sixty-three years.

Thus would each pay only in proportion to his annual profits, and it would mercifully meet those unfortunate cases in which an intermediate lessee may have made a losing bargain, inasmuch as he, gaining nothing, would also pay nothing, but only have to hand to one that which he would receive from another.

I take it, that this was meant to be the case under the 14th Geo. 3, cap. 78:—and, upon very careful consideration, it does appear to me the only way in which approximate justice can be attained. Strict justice may be unattainable in every case, by the wisest legislation. Nor may it in the severest cases, really be so unjust as at first sight it may appear, should it happen that a party wall need to be rebuilt hard upon the expiration of a lease; for it is to be recollected, that if the unexpired term be short, the expired term, with all its accumulated profits has been long. At all events that each one of a series should lose a part, is much better than that one should lose the whole.

Another proposition might indeed be made to this effect, taking time only as the basis.

The lessee or sub-lessee who held an original lease of sixty-three years shall pay the whole cost; or one half, if he held only forty-two years; or one fourth, if he held for twenty-one years; or for the plasterer's, joiner's, mason's, painter's work, and embellishments, if he held fourteen years; and for painting and embellishment only for any period less than fourteen years.

This mode would work out a kind of proportion, and its basis being ascertainable from deeds, bears with it an imposing appearance of certainty; and, it probably would neither be unjust nor unreasonable, if all lessees were equally gainers by their leases; but that is often not the case, and this mode

would not afford that merciful relief, in such cases of loss, as would be given by the principle of proceeding only upon the annual profits.

But, to attempt the scrupulous exactness of meeting all inequalities of interest, by conjoining the consideration of rent with that of time, will, I fear, necessarily introduce such frightful confusion, as will mar the whole measure. It would be destructively just.

If it be tried, the cyphering books of the official referees will be highly curious documents, should those gentlemen be compelled to work out every question in legible figures, and to deposit their calculations in the public archives. The interesting rule-of-thumb would be so manifest, so many Gordian knots would be cut, that I doubt exceedingly if any one would dare write I. A. B., Off. Ref., under the mysterious operation.

I have herein attempted, Sir, to discharge my duty as a bricklayer's boy and as a citizen. I send it to you with much misgiving. If I do but succeed in inducing the strong and experienced minds of practical men to consider the subject in all its bearings, and with the disinterested object of perfecting a measure which is, either for weal or woe, of the most vital consequence to the whole property of the metropolis, they bringing to it much higher intellectual powers, and far more extensive information, will, I trust, submit such suggestions to the legislature as will render the law as just and comprehensive as human effort can make it.

If you be not weary of me, I hope to note down a few more remarks, and shall probably take the official referees as next in order.

I beg to subscribe myself, Sir, your very obedient servant,
A BRICKBAT.

TO THE EDITOR OF THE BUILDER.

SIR,—I had no idea of the existence of your magazine until last week, when being engaged professionally in a market town in Northamptonshire, I happened to see the prefatory number in a bookseller's shop. On my return home, I ordered the entire set, and have enrolled my name as a future subscriber. I am much pleased with the spirit and execution of your undertaking, and shall feel happy in becoming an occasional contributor.

I observe in your 11th publication some remarks on the late Ringwood competition; in answer to which I would say that I myself, in conjunction with my partner, forwarded a set of designs for the almshouses in question, which not being accepted, were duly returned.

Feeling desirous of knowing to whom the palm was adjudged, I wrote to Mr. Garrett, the gentleman to whom architects were referred on the subject, and by return of post received the following short but prompt answer:—

"GENTLEMEN,—The successful competitor is Mr. Fred. J. Francis, 251, Oxford-street, London."

I greatly admire your energetic proceedings with regard to the gross abuses attendant on the present subject of architectural competitions, and will next week notice to you another suspicious case in which I have been very recently engaged.

As soon as my professional duties will permit, I shall have great pleasure in forwarding you tracings or drawings of some buildings recently erected in this neighbourhood under our superintendence.

I remain, Sir, your obedient servant,
W. G. H.

TO THE EDITOR OF THE BUILDER.

SIR,—Your anonymous correspondent who writes on staircases, at page 191 of THE BUILDER, steps out of his way to correct what he erroneously thinks a mistake I made in the designation of Cornices, in No. 10 of your magazine; the following are his words: "As Mr. W. has shewn full entablatures, I beg to correct an error in Fig. 2, No. 10. It is the composite or Roman ornament, but the section is out of all character, as the Roman Cornice is at all times executed with modillions, so that the plan-cornice must be level and of greater projection, &c." Whatever your correspondent's knowledge may be in the construction of staircases, he seems to be lamentably deficient in his knowledge of architecture, and I would humbly request him to refer to two examples of Roman cornices in the Temple of Fortuna Virilis, and the Baths of Diocletian, at Rome, besides numerous others, in the works of Vitruvius, Palladio, Vignola, and De L'Orme, when he will find that Roman cornices are executed both without modillions, and what he calls the plan-cornice is not level, as he states.

I should not have noticed the ignorant and un-called-for remarks alluded to, had I not been influenced by a desire to establish architecture on a firm and accurate basis, and to hear a person assert that the Roman cornice is at all times executed with modillions is perfectly preposterous; but perhaps it may be somewhat excusable in a person who only professes to be a staircase builder; and trusting that you will set the matter right by the insertion of

the above, in order that a wrong impression may not go abroad,

I am, yours truly,
GEORGE WALHEIM.

June 10, 1843.

[It would have been more agreeable to us if Mr. Walheim had curbed his irascibility: loss of temper is loss of reason; and an architect is not less required to exercise good taste in controversy than in composition. Let us shew our superiority one with another by a superior example of conduct, especially in trying positions; it is in such cases when the coolness of a reasoning being is most wanted and is best displayed.—ED.]

TO THE EDITOR OF THE BUILDER.

SIR,—Noticing an article in your paper of last week on the use of asphalt for preventing the rising of damp in buildings, in which article it is recommended that mineral asphalt should be employed, I am desired by the Directors of the Seyssel Asphalt Company to solicit the favour of your inserting this letter in your paper, and to state that the works of this company are all executed with mineral asphalt, brought from the mines of Pyrmont Seyssel, and that wherever this material is properly applied it will be found to accomplish that desirable object.

I am, Sir, your very obedient servant,
J. FARRELL, Sec.
Stangate Asphalt Depot, 13th June, 1843.
P.S.—The basements of the houses should also be paved with asphalt; the article merely refers to the ground line of brickwork.

TO THE EDITOR OF THE BUILDER.

SIR,—While so much has been done and is still doing to improve London, in the way of widening streets, and substituting for narrow and tortuous thoroughfares, straight and spacious openings, has it never occurred to you that there ought to exist somewhere some prudent and limited control over the laying out of the streets, &c., of the new districts now being added on almost all sides of the town?

This subject was brought strongly to my mind while passing the other day through the Bishop of London's Paddington estate, when I saw houses five and six stories high, in streets little more than twenty feet wide between the kerb stones of the footways, and having also footpaths and areas so that the houses are not more than fifty feet from front to front. The thoroughfares, too, are in many instances far from being direct and simple, but are through short and confused turnings.

It is true some parts of this estate are laid out and built with much taste, but in much of it there is cause for deep regret, that there is not some such control in existence as I have hinted at above.

Should you think the subject of so much importance as to entitle this note to a place in your somewhat interesting work, THE BUILDER, it may turn out to be the first step in the way to obtaining what seems to be so much needed.

I am, Sir, your most obedient servant,
ROMULUS.
June 10th, 1843.

THE RING OF ADEL PORCH.



TO THE EDITOR OF THE BUILDER.

SIR,—I take the liberty of forwarding you a sketch of the very curious iron door-ring in the door-way of Adel church; it is, I believe, as old as the porch itself, and affords an instance of the attention our forefathers paid even to trifles. If in accordance with your views, I shall be very happy to send you up, from time to time, for insertion in your excellent journal, sketches of various details

from old buildings in the neighbourhood—particularly from Kirkstall Abbey, some of the Norman work of which is very fine, and I think will please you. If (without neglecting my own business, which I cannot afford to do) I can in any way afford you any assistance, or in any way promote the success of your publication, I shall be very glad to do so, and am, Sir,

Your most obedient servant,
N. COMPTON,
Leeds, Jan. 5, 1843. Architect.

THE PHILOSOPHY OF ARCHITECTURE.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—I was much amused in perusing an article extracted from the "Artisan" in No. 14 of THE BUILDER, headed the "Philosophy of Architecture," in which the author indulges in some odd flights regarding the erection of a building embellished with immense statues the height of the London monument, supporting a dome twice the size of St. Paul's Cathedral. The writer seems to urge that the best mode of addressing the devotees of religion is through the medium of statues of the human and other forms on an extremely colossal scale. This, in my humble opinion, is so far good, as regards a heathen and idolatrous people, and so far was recognized in Ancient India, Egypt, Greece, Rome, &c., but to what extent this theory would be successful now that religion is on a different and better foundation, we are not prepared to determine. Certainly, the unnumbered remains of such statues as Osiris and Isis in Egypt, the Olympian Jupiter, and the Diana of the Greeks, are truly startling objects, and might subdue the souls of idolatrous beholders, but we must contend that the effect on the Christian spectator is of a different character. The Christian looks further than the mere investigation of statues, however gigantic—he looks forward to an invisible and all-powerful omniscient and benevolent Creator, of whom sculpture fails to convey an adequate idea. The image of the Christian's religion is in his mind, and that mind is not to be worked upon, or at least ought not to be worked upon, except by the intercourse of the intellectual senses. We must confess, notwithstanding, that external objects, as the writer observes, have the effect of subduing the spirit, and may tend to prepare the mind for high emotions and religious feelings; but we certainly must contend that his proposition as to statues to the magnitude he describes, would not produce the effect he anticipates, and in an architectural point of view, we beg respectfully to differ from the writer, having ever considered the column as the only legitimate supporter of the entablature; and he may increase the size of his column if he chooses to the extent of the London Monument, but we still argue that the adaptation of the statue as he describes would be at best a failure—at least such is our opinion, founded on the effect of Cariatides statues in general. Yet, notwithstanding, we are open to conviction, if the matter can be elucidated so as to overturn our particular notion—our occupation ever having been to establish architecture on a fair basis, and to endeavour to reject the bad, and adopt only those forms that are truly beautiful, harmonious, and fitted to the particular purposes to which they are applied.

The writer of the article in question also takes another position, in which he states, that if any great change for the better take place in architecture, it must emanate from the artisan or the workshop.

There surely must be some grievous mistake here, for on reviewing the history of architectural science from the beginning of the world to the present period, we certainly find that the great efforts and changes have been effected by a class of gifted individuals, endowed with superior attainments above their fellow men, and who have stepped out of the ordinary fields of enterprise to bring forward fresh and original theories and inventions; and those extraordinary individuals have very rarely, if ever, indeed, belonged to the class of artisans, the artisan having invariably been called in to work out the ideas of the superior genius who had chalked out the way for him; and, contrary to the opinion of the writer, we assert that the great inventions of Greece and Rome, &c., were not the production of artisans. Certainly Ictinus was no artisan, Phidias and Praxiteles were not, Vitruvius, Bramante, Buonarroti, and Sir Christopher Wren were not artisans. No! they were men of original minds, who conceived great ideas, that were only worked out by the artisan. We beg to be distinctly understood that we have not the remotest idea of disparaging the artisan, but we cannot agree to let opinions pass that we consider erroneous, and to give credit where credit is due, namely, to those great minds to whom we are indebted for the extraordinary works that now embellish the various nations of Egypt, Greece, Italy, France, Germany, Spain, and England, and assuredly they were not of the class of artisans, but,

intellectually at least, of a very superior order of beings. So ends my rignarole; and, as Fraser, or some of his writers, would have said, "he that will not subscribe to its truth is a dissenter worse than a pagan."

Yours very truly,
Newcastle-on-Tyne, GEORGE WALHEIM.
10th June, 1843.

DWELLINGS OF THE POOR.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—It has often struck me most forcibly that the attempts of philanthropic exertion for alleviating the condition of the humbler classes of society, have hitherto commenced at the wrong end. It generally seeks, by charitable aid, moral instruction, and religious education, to attempt to change habits which are too strongly confirmed to be altered by conviction. Equally impotent is the attempt made by juvenile instruction, when the objects of their philanthropic care are restored to old associations and habits. It is a truth too strongly confirmed in my opinion, that a great cause of the continuous moral pollution of the poor, is owing to the great neglect paid by their landlords and the better classes to their domestic comforts, condition, and enjoyments, and particularly to the state of their dwellings, in which so much of their domestic happiness consists.

If one of the chief arguments in support of the extension of public parks and places of out-door recreation, is, that the health, morals, and comfort of the poor shall be consulted, how essential is it, that the counteracting causes at home may be removed! Contrast the personal appearance of the artisan, seeking such healthful recreation with his wife and family (or peradventure his sweetheart), not only in the glow of health, but the pride of cleanliness, and the decorous competition in dress, with him who spends his leisure moments (unhappily too few for the toil-worn son of care and labour, with the exception of the Sabbath) sequestered in this dirty abode, in an atmosphere laden with smoke, and impregnated with all kinds of noxious effluvia, emanating from the decomposition of every variety of animal and vegetable substance. The one is industrious, prudent, and frugal, whilst the other is, if industrious, in all probability reckless and improvident. He who finds enjoyment in out-door recreation must of necessity belong to the former, because his wages could not have been squandered, or his wife and family would not have been so well dressed; whilst the latter having no such inducements to attention to personal appearance, this is neglected, and his wages are probably spent in dissipation, whilst he possesses no stimulus to industry. Apart from the consolations afforded by religion, the appearance of those who frequent the sacred sanctuary is from the same cause very different from those who neglect its attendance. In either instance, however, follow the individuals to their abodes, and view them in their domestic circles. In the one, every thing is as cleanly as their person, and in the other as negligent, and the comforts of their abodes denote that this is no small essential in the distinction. There is no person who is not influenced by the example of either good or evil, and the same may be said in their exhibition of the pride of clothing, and their desire of propriety and cleanliness, when opportunity is afforded for its exhibition.

The dwellings chiefly inhabited by the poorer classes in London, and indeed in every large town in the country, are in districts which have long been vacated by more wealthy tenantry. These have become the seats of manufactories, diffusing immense quantities of smoke, to the deterioration of the atmosphere, but an equal evil exists in their not having partaken of those improvements which have materially benefited the health, comfort, and condition of their more prosperous neighbours. The propriety of ventilation and drainage is now universally acknowledged; but whilst our main streets have benefited by such knowledge, the state of the smaller ones has been left unaltered. Wherever a new street has been constructed, attention has been paid to secure a proper width, but the poorer neighbourhoods are left unaltered. Our larger streets have benefited by all the advantages of drainage, but the smaller ones still remain the open depositories of mud, filth, and every variety of garbage, decomposing upon the surface, and emitting noxious gases, which are either themselves the extensive cause of epidemic and contagious disease, or form the media of the extensive propagation and diffusion of the most injurious miasms. The atmosphere in our larger streets, thus deprived of an extensive source of its deterioration, is further purified by the free circulation of air through their ample ranges, as well as by the wholesome influence of the evaporation of the water with which the streets are watered, whilst our smaller ones partake of neither of these advantages. Whilst improvements have been thus successfully introduced to the benefit of the richer classes, the interests of the poorer have in

every way been neglected. Whilst every attention has been secured to the advantages and benefit of the former class, the latter has been left exposed to all the disadvantages of former days, when medical jurisdiction or chemical science was so little known or understood. It is also obvious to all who have occasion to traverse the humbler streets, that, although occupied by rate-payers, the paving is in many cases equally neglected.

But an investigation into their abodes presents still more striking contrasts. The rich have every opportunity, from the size of their rooms and the attendance of their domestics, to ensure their ventilation and their cleanliness, by which their purity is so essentially secured. The latter have not the opportunity of the former; their limited rooms are tenanted by many individuals, breathing an atmosphere which becomes soon polluted from the effects of respiration, as well as the distribution of the noxious exhalations given off in the various domestic processes performed in this restricted abode, whilst but little facility is afforded for exercising cleanliness where leisure permits and inclination prompts. But equal to all is the general condition of the water-closets, which, from their noxious state, countenance filth, and not unfrequently engender disease; one of these alone is frequently all that is afforded for the accommodation of the inhabitants of a whole court or district. I will yet go a step lower, and point out the condition of those districts inhabited by persons who from vice or necessity have been reduced to the most pitiable condition of all existence, and who are compelled to become denizens of the lowest spots in the vicinity of St. Giles's, Saffron-hill, Seven-dials, Wentworth-street, Drury-lane, &c. In these abodes of misfortune, poverty, and crime, the evils I have alluded to are as noxious to the unhappy inmates, as many of those are to society. They distribute a pestilential evil to the constitution as extensive as the latter do to the community. In their lowest lodging-houses (or indeed in superior ones of the same class) numbers are huddled together in one room creating a most pestilential atmosphere; and in the majority of cases no means are afforded for cleanliness. No wonder then at the abject physical appearance and state of the wretched mendicants and paupers, or still more miserable creatures who are incentives and inducements to vice and crime, who daily issue from these miserable resorts.

Amongst the most prominent objects to which the generosity and exertion of the philanthropic could be devoted at the present time, there is one which I think might be carried on very successfully and with great benefit to the poor; I allude to providing them with good houses or accommodations. This, which would precede the march of improvement, now so strongly insisted upon, and being carried into effect by the legislature and other public bodies in our different large towns, could not fail to be profitable in a pecuniary point of view. It is well known that with all the miserable accommodation afforded, there are no higher profits derived from the rental of houses than those inhabited by the very poorest classes of the community. Such would not fail to prefer the additional accommodation and comforts afforded in other houses, and the respectability or integrity of the tenants would be ensured by making them a premium, as in granting allotments to the agricultural labourer in the agricultural districts. Each apartment should be commodious, and where new buildings are constructed, or old ones altered for the purpose, they should be provided with a range for all culinary processes, containing a boiler and oven, thus affording every opportunity for the preparation of a variety of food at home. On each landing should be a cistern with a water-closet, so that the cleanliness and decency of the inmates might be equally consulted. The situation should be made as airy as possible, the walls behind the premises being lime-washed, and it should be made the subject of fine or dismissal from the tenement, in case of any nuisance or impropriety being committed. Each room should be supplied with one or more cupboards, a safe, and if possible a sink, and it would add to the pleasure of the inhabitants if outside the windows (which ought to be as large as possible) there should be placed a trough for planting seeds, or for placing garden pots thereon. The love of the garden seems indigenous to every mind, and nothing more than its pursuits are more congenial to its tranquillity. Were the apartments left furnished, they might be supplied with cheap, clean, and substantial furniture (iron bedsteads, for instance). A convenient place should be assigned for sitting in, much better furnished than in the common lodging-houses, with the requisite implements for cookery, as well as means for washing and cleaning shoes, brushing clothes, &c., which, however frivolous they may appear, are yet essential in constituting that self-dignity or honest pride by which alone we can expect to raise man in his position in society. Such amusements and employments could not fail to elevate the character of man to pursuits very dif-

ferent from the grovelling ones which now too much characterize the poorer classes.—I have thus briefly endeavoured to point out what I consider some of the causes of some of the evils under which the poorer classes suffer, and the removal of which would not fail to increase their comforts and improve their social condition. Their adoption might be ensured either by private enterprise or public philanthropy, and the cause of religion and morality might be still further promoted by each tenement having a small library of well-selected works, periodicals, newspapers, &c., all of course of a proper tendency.

I would just add a few observations upon what I consider some of the chemical actions on the atmosphere from the decomposition of organic matters exposed to its influence. These are sulphuretted, carburetted, and phosphuretted hydrogen gases as the chief, with perhaps many others of more recondit origin. They are themselves the sources of disease, or form media for the diffusion of still more powerful poisons. They are given off from the putrefaction of various refuse substances, the accumulation of which ought therefore to be prevented; and this cannot better be done than by copious ablutions, by which they are washed away. Their accumulation in the atmosphere is prevented by a proper access and circulation of air, as well as by the genial storms and rains, which, disturbing their distribution, throw them down on the ground. This, therefore, shews the importance of securing ventilation wherever possible; and another source of the purification of the atmosphere is in the evaporation of the water so generally distributed in watering the streets, by which the concentration of gaseous matters is prevented, as they are carried up in solution higher into the atmosphere. A similar effect is seen when rooms are secured, as manifest from the more wholesome effects upon the olfactory nerves. The effect of cleanliness upon the body, in securing health, personal comfort, and convenience, is well known. Thanks to the legislature, and the general process of public improvement, attention is now being devoted to the removal of many public and obnoxious nuisances and manufacturing processes to which I may draw your attention on a future occasion.

If you consider the subject to which I have alluded, one of any public importance, I shall be happy to give some further suggestions on a matter which I consider of some interest.

I remain, dear Sir, your obedient servant,
ABBY, BOOTH, Chemical Engineer, &c.
Willow Cottage, Putney Common,
June 5th, 1843.

CEMENTS AND OTHER COMPOSITIONS.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—The composition of the following "Cements" may be known to many of your readers, but there may be also many that have not seen them; and as some of the cements have been communicated, and others extracted, from various authors at different periods, I thought it might be considered desirable their being published in a connected form in your journal. On reference to my note-book, I find that there are two or three of the cements above a hundred years old. In conclusion, let me congratulate you on the strength that THE BUILDER now assumes, and to remain,

Dear Sir,
Yours most obediently,
OFFICIATOR.

Hot Cement.—Take half a pound of bees'-wax, an ounce of fine brick-dust, an ounce of chalk-dust or powdered chalk; sift the brick-dust and chalk through a fine hair-sieve, (the brick and chalk may be beat in a mortar before it is sifted); let all these be boiled together in a pipkin or other earthen vessel for about a quarter of an hour, keeping it continually stirring with a piece of iron or a lath; then take it off, and let it stand for four or five minutes, and it is fit for use.

The bricks which are to be cemented with this kind of cement must be made hot by the fire before this cement is spread upon them, and after that, be rubbed to and fro, one upon another, after the same manner joiners do when they glue two boards together.

Cold Cement.—Take a pound of old Cheshire cheese, pare off the rind and throw it by; then cut or grate the cheese very small, put it into a pot with a quart of cow's milk; let it stand all night, and in the morning take the whites of twenty-four or thirty eggs, and a pound of the best unslacked or quick lime, and beat it in a mortar to a very fine powder; sift it in a fine hair-sieve, put the cheese and milk to it in a pan, and stir them well together with a trowel, or such like thing, breaking the knobs of cheese if there be any, and then add the whites of eggs, and temper all well together, and it will be fit for use. This cement will be of a white colour; but if you will have it of the colour of brick, put

into it some very fine brick-dust, or some almeagram, but not too much, but just enough to give it a colour.

These cements are used to bind or fix bricks or stones together for some kinds of mouldings, or in cementing a block of bricks (as they call it), for the carving of capitals, scrolls, and the like.

(The cold cement was considered a great secret among bricklayers a hundred years ago).

Cement to mend Broken China or Glass.—Take the juice of garlic, stamped in a stone mortar: this carefully applied will join the parts so close as scarcely to be perceived.

Another cement for the above purpose, is by beating the white of an egg very clear, and mixing it with pounded stone lime, unslacked, and sifted through muslin; or, isinglass and lime, as above mentioned, mixed together, and a little water added. The mended articles are to be set in the shade to dry, and not before the fire. Oyster-shells calcined, well pounded, and sifted through muslin, and then ground on a hard stone till reduced to powder, and then mixed with the white of eggs, make a paste or glue: with this any thing may be joined of hard substance; and holding it close a few minutes just to dry, it will stand both fire and water. Any small hole or crack may be stopped in the same manner.

A strong Cement for Wood, Stone, Earthenware, and Glass.—Let thin shavings of sweet cheese be stirred with boiling water; and when the tenacious slime has been worked with other hot water, let it be mixed on a hot stone, with a proper quantity of unslacked stone lime, pounded and sifted very fine, into the consistence of a paste; it is a most strong and durable cement, and when dry, it will not be affected by water.

A strong and useful Cement for joining Marble, Atabaster, Porphyry, and all other hard Stones.—Melt two pounds of bees'-wax and one pound of resin, then add one pound and a half of the same kind of matter (calcined and pulverised) as the body to be cemented is composed of, well pounded and sifted, and stir them well together; let the whole mass be kneaded in water, and heated when applied to the heated parts of the body to be cemented.

Dr. Higgins' Patent Cement, or Stucco (1779).—Fifty-six pounds of pure coarse sand, forty-two pounds of pure fine sand; mix them together, and moisten them thoroughly with lime-water; to the wetted sand add fourteen pounds of pure fresh burnt lime, and, while beating them up together, fourteen pounds of bone-ash; the quicker and more perfectly these materials are beaten together, and the sooner used, the better the cement will be. Fine sand alone, or coarse sand alone, will do for some works; but the finer the sand the more lime must be used.

Dr. Williams' Patent Mortar, or Stucco (1780).—Twelve pounds pure lime, ten pounds of water, and eighty-four pounds pure coarse sand, add four pounds of grated skimmed-milk cheese: let the whole be worked up together, and used as soon as possible after. Care must be taken in using this mortar that the bricks are perfectly dry that are to be covered with it, and in laying it on. The greater the impressure the better.

To make an exceeding strong Cement, which is scarcely inferior to Stone.—Take lime well slacked, and sand, in equal quantities, temper it with linseed oil to the consistency of mortar; beat it well on a stone or wood floor, or in a trough, and then spread it on a wall to a competent thickness, and it will become as hard as stone, and last for ages.

If dials are to be formed of the above cement against old stone or brick walls, let the face be chipped away a bit with a bricklayer's hammer, and dredge it well with white lead or linseed oil, till it will drink no more.

The following compositions (though very ancient) for rural floors may be deemed amusing, and not out of place in this article.

Take two-thirds of lime and one of coal ashes, well sifted, with a small quantity of loamy clay; mix the whole that you intend to use together, and temper it well with water, making it up into a heap; let it lie a week or ten days, in which time it will mellow and digest; then temper it over again, and be sure that your quantity of water does not exceed, but rather that it may obtain a mellow softness and toughness from labour; then heap it up again for four days, and repeat the tempering very high, till it becomes smooth and yielding, tough and gluey. Then level your ground, and lay your floor there-with about two and a half or three inches thick, making it smooth with a trowel. The hotter the season is the better; and when it is thoroughly dried, it will continue time out of mind.

But if any would have a more beautiful floor than this, they must lay their floor, with the above composition, even, smooth, and fine; then take lime made of rag stones, and temper it with the whites of eggs, the more eggs the better, to a very high pitch, with which cover your floor to about a quarter of an inch thick, before the under floor be too dry, that they may well incorporate together. This being well done and thoroughly dry, if sometimes rubbed over with cloths, with a little oil thereon, it

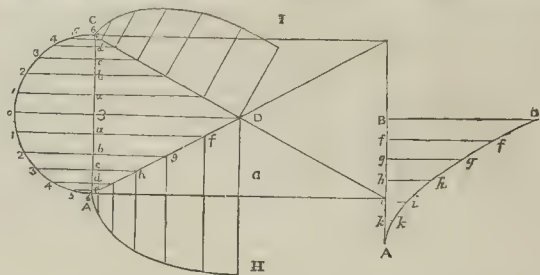
will look very beautiful and transparent, as if it were polished metal or glass, provided the eggs and lime were thoroughly tempered, and the work otherwise well performed.

Sir Hugh Plat's Receipt for making an Artificial Composition, wherewith to make smooth, glittering, and hard Floors.—Ox blood and fine clay, well tempered together (he says) makes the finest floor in the world; and that this mixture laid in any floor will become a very strong and binding substance.

In Persia, and many other places in the East, the roofs of the houses being made flat, are covered with the following composition, which is impervious to

all rain, and dries nearly as hard as stone, without cracking. The composition is nothing more than shell-lime, well burnt, and mixed with molasses, of each an equal quantity, mixed or worked up into a stiff mortar or paste with oil, and spread on the roof with a smoothing wooden instrument, not much unlike a plasterer's trowel, but must be pressed down hard and smooth as possible.

Where the molasses are not to be had, they use some other but similar substance. They also use, sometimes, an acid impressed from plants, and added to the shell-lime, and mixed with tar into the consistency of dough for bread, laid on and pressed down close as before.



ON GROINING.

By way of instruction to the carpenter, mason, bricklayer, and plasterer, who are variously concerned in the construction of groins, the first in preparing the centring or cradling, the two next in turning the arches in stone or brick, and the last in imitating the vault in plaster-work, we enter upon a series of practical diagrams. The first we shall confine to the simple question of defining the form of the transverse, longitudinal, and diagonal ribs, and finding the covering; and if particular care, with a little patience, is bestowed on this example, the way will be smoothed for future studies, inasmuch as the principle of all groining is the same, and only varies in the application.

The instance we have before us is that of an oblong apartment—say a cellar—which is required to be arched over, not by a simple vault or wagon-head curve from end to end, but by two crossing or intersecting vaults, rising the same height, but each spanning the different sides; the curve for the end is given, namely, a semicircle, as shewn at A o C. This semicircle will determine the form of the long side rib, half of which is shewn at A G H, and the diagonal or cross corner rib, half of which is shewn at C D I. How it determines these we proceed to shew.

Let the semicircle be set up, as we say, on the line A C, and divide the curve into any number of equal parts, as 1, 2, 3. In the one case, that is, to find the diagonal rib, rule the lines 1 a 2 b, to meet the diagonal line C D, and upon C D set up corresponding lines per-

pendicularly, making them of the same height as those they refer to in the same circle; then rule a curve line, guided by these heights so set up, and it will determine the curve of the diagonal rib. In like manner, proceed for half the side rib, A G H, obtaining the perpendiculars f g h, &c. to the line A G, on which must be set up the heights a 1, b 2, again, as before. These heights, in like manner, determine the curve of the side rib, so as to intersect with the curve of the end rib, at their meeting on the diagonal, A D. B D A is the form of the covering, whether of boards, zinc, lead, or other material, answering to the space B D A marked upon the plan. This form is determined by stretching out, as it is termed, the curve of one end (half of it is only done in this instance). This stretching out is done by making the line A B (on the right) equal to the curve A o, B f, f g, g h, &c. being equal to the divisions on the curve at 1, 2, 3, &c. Then upon the line A B, by setting up perpendiculars equal to a f, b g, &c., we have the lengths through which to draw a curve that shall fit to the diagonal line when applied and bent over the space of the vault, A B D.

In like manner, the rest of the covering can be determined for the remainder of the vault.

We have endeavoured to make our explanation as simple as we could, for the benefit of the workman and apprentice, and we would recommend them to cut the shapes of the ribs and covering out in stiff paper, or the former in thin wood, and, by placing them over the respective situations on the plan, they will find the proposition verified.

INAUGURATION OF THE MONUMENT ERECTED AT INSBRUCK.

THE inauguration of the monument erected at Inspruck to the memory of the Tyrolese who died in defence of their country, from 1796 to the end of the war, took place on the 7th inst., with great solemnity, in the presence of the Archduke John. At the foot of the monument were posted six veterans, in the costume of the ancient Tyrolese. On the socle is inscribed—"To her sons fallen in fighting for their independence, their grateful country, 1838." This date is the year in which the emperor laid the first stone. It consists of a sarcophagus of white marble, against which are arquebuses and swords, entwined with laurels. It is supported on each side by winged angels, representing the tutelary geni of Austria and the Tyrol, designated by shields, with the armorial bearings of the two countries. In front is the Angel of Death, with a tablet, on which is engraved—"Absorpta est mors in victoria." The whole is surmounted by a cross of white marble. After the ceremony, 200 veterans, the only remains of the brave men of the epoch commemorated, sat down at a banquet prepared for them in a large hall appropriately decorated

with flags, among which was the standard of the 2nd regiment of French infantry, taken by a peasant. The Archduke John presided in person, and by his toasts and powerful addresses excited in the highest degree the enthusiasm of his guests, contributing to the maintenance of the glorious national spirit which they were assembled to commemorate.

When, may we ask, is justice to be done to the memories of our own countrymen, who fell in the great victories of the last war? How is it that the Nelson monument in Trafalgar-square is suspended for want of funds? and that neither statue nor column commemorates the brilliant achievements of Rodney, Howe, and their brave companions in arms? We confess that we regard the apathy manifested upon this subject as a national reproach. Will it be believed in history, that the British nation allowed upwards of a quarter of a century to elapse before ever any steps were taken to erect a national monument in commemoration of Waterloo, and the splendid victories of the Peninsula! It is true, private subscriptions have raised one or more memorials to the illustrious and immortal Duke, but surely some public testimony should likewise be provided by the nation, not only to the great captain

THE BUILDER,

NO. XX.

SATURDAY, JUNE 24, 1843.

GREENWICH PIER.

A GREAT deal of time was taken up in the Court of Aldermen, held on the 10th instant, in discussion respecting the floating-pier erected by the watermen at Greenwich. The Lord Mayor informed the Court that he had ordered the pier to be removed on that day, it having been declared a nuisance; he had received an intimation that if he did attempt the removal, bloodshed would be the consequence; on the previous night 1,500 of the inhabitants of Greenwich had met, and he had a petition signed by 250 persons in favour of continuing the pier; under such circumstances he was anxious to know what course to pursue. Aldermen Wilson, Lawrie, and Lucas spoke in favour of the floating-pier; the latter said it was no more a nuisance than that opposed the Archbishop of Canterbury's, at Lambeth, which had never been interfered with. The doctors, persons, and coroner for Greenwich wanted every thing their own way. The City Solicitor said there was no doubt of the power of the Lord Mayor to remove the pier, and to call in the aid of the sheriff to do so; but perhaps the best course would be to leave the matter until the next Court of Conservancy, and eventually to settle it by reference to a jury. This mode was at length agreed to. —*Era*, Sunday, June 11th.

Our attention had been attracted towards the permanent pier at Greenwich, so called, we presume, in contradistinction to the floating-pier, or rather pontoon bridge, of the watermen. Without any special or exclusive information upon the subject, we looked over the ruin, and from our knowledge of the professional reputation of the contractors, and the working power of their establishment, we at once, in our own minds, set down the failure as resulting from a question of cost between what the thing is and what it ought to have been; or, in other words, that the parsimony of the proprietors, whoever they may be, had overruled the better judgment of the builders, in bargaining for cheap execution of a most difficult and expensive work. A permanent pier upon the site occupied by this ruin would have been an example of HYDRAULIC ENGINEERING of the first order; an abrupt shelving of the shore, the instability of a shifting foundation, the set of the tide upon the angles of the structure, and the constant wash kept up by steam vessels, required not only talent to grapple with and overcome these difficulties, but, literally, the *sinking* of a few more thousands than had yet been calculated upon. The "to be" or "not to be" of the so-called permanent pier is one question; the question of erecting a really permanent pier is another, and requires sounder plans than its projectors have hitherto entertained.

The extract we insert from a popular Sunday journal, shews that much difference of opinion as well as excitement prevails as to the policy or prudence of doing away with the Watermen's Pier; a difference sufficiently weighty to have caused the suspension of an order already issued by the chief magistrate of London in his quality of conservator of the river; and excitement evinced in loud and deep threatenings. Our business is less with the *boats* than with the *building*; but we are advocates of the industrious classes, whatever may be their occupation. If recognition by ancient charters—if severely exacted services to their country in past times of peril—if to have been among the greatest sufferers in the contest between hand-labour and mechanic power, by the application of steam to navigation on the river Thames, constitute grounds for sympathy in their cause, then are the watermen before the

public with strong claims to consideration and support.

The permanent pier, as we understand the matter, is a speculation, a clubbing of money for a purpose which may or may not answer: such combinations of local interest and capital have frequently been productive of advantage to the public, and profitable to parties engaged in them; in this instance we take leave to doubt the fulfilment of either proposition. The case of the watermen exhibits this difference: their floating-pier, though humble, possesses all the safety and convenience required by the public; with them it is *not a speculation*, but an endeavour to supply, by means of this species of recommendation to visitors by the steam-boats, a portion of the losses they daily sustain by deprivation (without other remedy) of their accustomed and legitimate employment.

IMPROVED DRAWING SCALES.

DURING the past month we have had our attention directed to a series of improved drawing scales, arranged expressly for all classes of professional men who have to execute real or proportional plans and elevations, or isometric, military, or perspective representations of objects. Before, however, we proceed to explain their construction and utility, we will say a few words on the manner of draughtsmanship by way of information to the learner.

It will be well known to the greater number of our readers, that the usual tools and materials required by draughtsmen, consist of a case of mathematical instruments, an oblong drawing board, a T square, a set of triangular instruments, a box of colours, and hair pencils, pallet, sponge, penknife, black-lead pencils, indian-rubber, an oilstone, a few pins and needles, with a suitable supply of drawing-paper.

The common case of mathematical instruments contains a pair of compasses with one leg prepared to act as a spring, so that when it is required to set them to any particular expansion, we proceed by placing the fixed leg in one point and move the second leg nearly to the required distance, then, by turning a small adjusting screw, which acts on the spring leg, the point of it may be placed as near as we can determine; on this account they are usually termed hair-spring compasses; in addition to these, there is a second pair of compasses, prepared so that part of one leg can be removed at pleasure, and in the place thereof may be inserted the pencil or pen point; on some occasions a lengthening bar is provided, which is prepared to attach to the same compass at one end, whilst the opposite end is arranged to receive the pencil or pen point. There is also a small bow pencil and bow pen, with one or two drawing pens; in addition to these there is usually a parallel ruler, a sector, and a plane scale, which is mostly prepared to act as a protractor.

We now proceed to describe the manner by which the common case of instruments may minister to the wants of those who have occasion to employ them. The hair-spring compasses are used for several purposes, such as transferring any given length from one of the scales of equal parts, to a certain part or parts of the drawing in progress, in dividing straight lines and circular arcs into any number of equal parts, in determining the length of any given lines by a scale of equal parts, and the inclination of any two lines to each other from a scale of chords. The bow pencil is used in describing circles and circular arcs, with radii from $\frac{1}{8}$ of an inch to 2 inches in length; larger circles and circular arcs are described by the second pair of compasses, fitted out with the pencil point, or lengthening bar and pencil point. The radii of circles are determined or set off from a scale of equal parts, and when it is required to draw a line, so as to incline in a given degree to a second line; then the radius of the arc and length of the chord of the given angle must be taken from a scale of chords. The parallel rule is employed as a guide in drawing straight lines by means of a pencil or drawing

pen, parallel to any given or assumed position; although in the present day the use of this valuable instrument is seldom required by mechanical, engineering, or architectural draughtsmen, owing to the advantages which they enjoy by using the T square arranged with a moveable stock, and a few simple and effective triangular instruments, the utility of which we shall take some other opportunity of explaining.

The sector is a very useful yet complicated instrument, but as it is seldom used by ordinary draughtsmen, and as it is sold too cheap to be constructed as it ought and must be before any person can use it where truth in drawing is required, we forbear to describe the utility of the several scales which are commonly described upon it.

The plane scale is arranged in a variety of different modes, although it is usually made 6 inches long, and having on one face scales of equal parts $\frac{1}{2}$, $\frac{1}{4}$, and 1 inch to the foot; the first part of each of these is subdivided into twelve equal parts; these scales are used in plotting off or determining the proportional length of any straight lines, or the distance between two points in reduced feet and inches; the edges of this face are arranged as a protractor, for regulating or determining the inclination of two lines to each other. On the second face there is a scale of chords, arranged for a 2-inch radius, with six scales of equal parts, so divided that 60, 50, 45, 40, 35, and 30 of each of them are equal in length to 10 inches; the first part in each of these scales are subdivided into tenths and twelfths, below these are placed two diagonal scales of equal parts of $\frac{1}{2}$ and $\frac{1}{4}$ of an inch each, having these fixed parts subdivided by parallel lines, so that any dimension to $\frac{1}{16}$ part of one of the equal parts may be correctly determined, or transferred from them to the drawings in progress.

As this scale is too short for general use in the offices of our builders, surveyors, architects, and engineers, there has been a variety of other plane scales devised by several persons, from 8 to 12 inches long; these in general are so arranged that the draughtsman is compelled to transfer the requisite proportional dimensions from them to the paper, by means of a pair of compasses; further, there is great difficulty experienced in reading off any particular length, for some of the equal parts are figured to read from left to right, whilst the remainder must be read from right to left. To avoid these complicated inconveniences, Mr. J. Smith, as he states in the information before us, "did purposely design, in 1835, a new mode of arranging the scales of equal and of these fractional parts; and as he is now settled in London, as a lecturer and teacher of plan drawing, perspective, (and artistic drawing, he has taken an opportunity of introducing his improved scales to the notice of the numerous individuals in London who may and ought to profit by employing them in preference to all others which have ever been brought to the notice of the practical draughtsmen, builders, surveyors, architects, and engineers of Great Britain and Ireland."

We shall now describe the method of using one of the common plane scales of equal parts, by which some of its disadvantages will be perceived. As all the scales are generally arranged between parallel lines, which are placed at a distance from the edge, it is requisite to use a pair of compasses, in order to transfer any length to the scale, or any proportional length from the scale to the paper: under these circumstances, let it be required to transfer a length from the scale to the drawing in progress, then the eyes must be used whilst placing the compasses so as to correspond with the proposed length. Again, you must place the compasses to correspond with a given or determined point, and then either press the second point into the paper, or mark off the extent from the point of the compass by means of a sharp-pointed black-lead pencil.

When this method is adopted, the drawing paper is in many instances very much defaced by the points pricked in it, whilst a great loss of time, with considerable wear and tear of those valuable and delicate organs, the eyes, occurs in every instance; by having first to place the compass to the required extent, and then to transfer it to the paper: there is another evil attending this method of practice, the principal parts of the scale soon wear out

of truth, by the continued action of the points of the compasses in the divisions on their surfaces.

Having thus explained the mode of using the common scales, we now proceed to describe the arrangement of the improved drawing scales; after which, we shall point out the advantages and pleasure obtained by employing them in every case, when such scales are applicable.

We will quote from Mr. Smith's description: No. 1 scale contains on the first edge scales of $\frac{1}{4}$, $\frac{1}{2}$, and 1 inch to the foot.

2nd edge $\frac{1}{4}$, $\frac{1}{2}$, and $1\frac{1}{2}$ inch to the foot. In the middle is a scale of chords for an arc of 3 inches radius.

3rd edge $\frac{1}{4}$, $\frac{1}{2}$, and $\frac{3}{4}$ of an inch to the foot.

4th edge 5, 10, 20, and 40 chains to the inch.

No. 2 scale contains the same scales as those on the 1st and 2nd edge, and as in the middle of No. 1.

3rd edge contains scales of 5 chains (horizontal), and of 50 feet (vertical) to the inch.

4th edge contains scales of 20 chains (horizontal) and of 100 feet (vertical) to the inch.

Boxwood scales from 7s. 6d., and ivory scales 15s. each.

Scales expressly arranged for use in the practice of Isometric Projection.

No. 3 scale contains on the 1st edge scales of $\frac{1}{4}$, $\frac{1}{2}$, and 1 inch to the foot; these scales may be used in measuring all lengths for parts of objects that are either placed on the isometric plane, parallel to the intersecting line, or of all parts parallel to the picture.

On the 3rd edge are reduced scales of $\frac{1}{4}$, $\frac{1}{2}$, and 1 inch to the foot; these scales may be used in measuring all lengths for parts of objects that are either placed on the isometric plane inclined at an angle of 45° to the intersecting line, or of all parts parallel to such positions.

On the 4th edge are reduced scales of $\frac{1}{4}$, $\frac{1}{2}$, and 1 inch to the foot; these scales may be used in measuring all lengths for parts of objects that are either placed on the isometric plane inclined at right angles to the intersecting line, or of all parts parallel to such positions. On the same side are two elliptic protractors.

On the 2nd edge is a scale of chords.

Boxwood scales 10s., and ivory scales 20s. each.

No. 4 scale contains on the 1st edge, scales of $\frac{1}{4}$ and $\frac{1}{2}$ of an inch to the foot.

2nd edge, $\frac{1}{4}$ and 1 inch to the foot.

In the middle is a scale of chords for an arc of $1\frac{1}{2}$ inch radius.

Boxwood scales 3s. to 4s., and ivory scales 7s. to 8s. each.

No. 5 scale contains on the 1st edge, scales of 5 and 10 chains to the inch.

2nd edge, 20 and 40 chains to the inch.

In the middle is a scale of chords for an arc of $1\frac{1}{2}$ inch radius.

Boxwood scales 3s. to 4s., and ivory scales from 7s. to 8s. each.

(These scales will be transmitted by post for 2d. extra.)

Nos. 1 and 4 will be found well worthy the attention of all architects, builders, surveyors, and mechanical draughtsmen.

Nos. 2 and 5 will be found of invaluable service to practical land surveyors, and to civil and military engineers; and

No. 3 combine such advantages, as must gratify those who take any pleasure or interest in isometrical drawing.

All the scales of equal parts are so devised, that they, with their subdivisions of the fractional parts of each, can be clearly and distinctly read off from an edge of the instrument, and they are further figured, so that the whole parts may be read off from left to right, or in that direct manner in which we are accustomed to read and write. In using these scales, all that is required of the practitioner is to place the whole, or subdivisional part, at one point in the drawing, and the edge of the instrument by the given line, and then to work off with a sharp-pointed black-lead pencil a point opposite to the proposed division of the scale; for instance, let it be required to plot off from the $\frac{1}{4}$ inch scale, 9 feet 7 inches towards the right?

Place the 7th subdivisional part at the given point, then look along the scale for the 9th equal part, which will be found to be produced

to the edge of the instrument, and with a pencil mark off the given length on the proposed line.

If it is required to plot off the former length towards the left, place the 9th equal part at the given point, and from the 7th subdivisional part, mark off the given length on the proposed line.

By carefully reflecting on this simple mode of plotting any dimensions, it must plainly appear that only one-third the usual time, with a decreased wear and tear of the eyes, will be required in any such operation, and from practical experience in this matter, we beg to assure our readers that under ordinary circumstances, a draughtsman may, with greater ease and pleasure than he could otherwise accomplish, execute at least three times the quantity of outlines in a given time; but this is not the only advantage attending the use of these instruments, for be it remembered, that a great part of the dimensions required to be plotted by building, mechanical, and architectural draughtsmen have to be divided into two equal parts, and as it is the general custom to burden the memory with the operation of determining the halves of such dimensions, the experienced draughtsman, by merely glancing at the arrangement of these scales, will readily perceive that in the greater number of instances he may, by employing them, entirely avoid the tedious process.

Looking at No. 1 scale, we find it contains on the 1st edge scales of $\frac{1}{4}$, $\frac{1}{2}$, and 1 inch to the foot; now let us assume a person engaged in drawing the plans and elevations of a steam-engine, from the $\frac{1}{4}$ inch scale; and let it be required to plot the length of the radius of the interior of the steam cylinder, the diameter being 3 feet $5\frac{1}{2}$ inches—by the common method, he would proceed to determine the half of 3 feet $5\frac{1}{2}$ inches, which would be 1 foot $8\frac{1}{4}$ inches; this he would plot off from the $\frac{1}{4}$ inch scale, but by having one of the improved scales, he would merely plot off 3 feet $5\frac{1}{2}$ inches from the $\frac{1}{4}$ inch scale; that is, from a scale every equal and subdivisional part of which is only one-half the length of the corresponding parts on the $\frac{1}{4}$ inch scale.

This example will be sufficient to open the minds of our readers on this subject; but we proceed to give another:—Let a person be employed in executing a proportional drawing of an object or objects from the 1 inch scale, then might the half of any dimension be plotted from the $\frac{1}{4}$ inch scale; the fourth of any dimension from the $\frac{1}{8}$ inch scale, the eighth of any dimension from the $\frac{1}{16}$ inch scale, and many other parts of the same dimension, from several other scales on No. 1.

Further, these scales are well adapted for plotting off dimensions, whilst engaged in executing enlarged or diminished copies of any drawings; in these cases they serve in place of a pair of proportional compasses.

These examples and illustrations, it is hoped, will prove sufficient to convince all who have carefully perused this article, and who have had any experience in drawing, of the great advantages that will be derived by the use of these valuable and essential instruments in their daily practice.

Our readers will perceive from an advertisement which appeared in a late number of THE BUILDER, that they may obtain the scales at our office, No. 2, York-street, Covent Garden.

But to return to our description of the use of the remaining mathematical instruments, named in the former part of this article.

After the outlines of the proposed representation are lined in by a good HH pencil, and the bow-pencil, &c. it is then requisite to retrace these lines with some water colour, which must be prepared on the pallet.

By means of the drawing-pen, all straight lines may be finished; the bow-pens must be used to retrace all circles and circular arcs, with radii from $\frac{1}{16}$ of an inch to 2 inches in length; and all larger circles and circular arcs, with the second pair of compasses fitted out with the pen point or lengthening bar and pen point. The colour of the lines must be regulated by the manner in which it is proposed to finish the drawing: in some instances the representations consist of mere outlines; in such cases Indian ink ought in general to be used, whilst any particular positions or parts may be lined with red or blue; in these cases it will add much to the effect of the representation,

if the draughtsman will assume some plausible direction for the rays of light to fall on the real or assumed object; then by executing all parts on which the light may fall by these lines, and the remaining lines in shadow by thick lines, the drawing will be found almost equal in effect to those which are tinted in sepia, Indian ink, or with a variety of colours.

When the representations are to be tinted with sepia, after completing the outlines in pencil, retrace them with a light tint of sepia, then clean the surface of the paper, and proceed and lay on the requisite shades, and after that work in a clean and careful manner each part of the representation according to the common or established rules of shading; allow the drawing time to dry, and once more retrace the outlines of the various parts with thin lines of a light tint of sepia.

Proceed in the same manner with those representations which it is proposed to tint with Indian ink, being careful to retrace the outlines with a light tint of the same colour, and after finishing the shading, the outlines may either be retraced with thin light lines or finished with thin and thick lines in the manner alluded to in the first instance.

When the representations are to be tinted with a variety of colours, the outlines of architectural objects should be retraced with thin lines of a light tint of burnt sienna or burnt umber; and the outlines of mechanical, and the greater number of engineering drawings, with a light tint of Indian ink.

After having carefully completed the shading of the various parts, their outlines should, in those instances where it is intended to make a highly-finished drawing, be retraced with thin lines of the colour that the parts are shaded with; in some cases, particularly in coloured working drawings, it is customary to finish the outlines with thin and thick lines of a deep tint of Indian ink; whereas, amongst many surveying and architectural draughtsmen, who have frequently to execute pictorial representations of buildings, combined with the local town or country scenery, they, in order to avoid any harsh regularity of outline, in general prefer to leave the original outlines in pencil, and, after erasing all superfluities, at once proceed to tint the representations with sepia, Indian ink, or other suitable colours.

GROWING TASTE FOR ARCHITECTURE.

MUCH is it to be deplored that the Fine Arts, and more especially Architecture, have been in England so little appreciated, or rather so grievously neglected. The bad effects of that narrow and selfish policy which has withheld the Government of this country—and of this country alone—from supporting the Arts, is beginning to be developed. At this very time we find ourselves with a redundant population for whom no employment can be found—and our manufactures beaten out of the markets abroad by the superior taste displayed by foreigners—which, as a manufacturing and commercial nation, we cannot too deeply deplore, nor too speedily repair. But, alas! art and taste are of slow, not sudden growth, and call for careful culture.

Another evil consequence has now arisen, an evil which for a time must inevitably occasion much distress at home. We allude to the rapid extension of railroads on the Continent. As they extend, so will the rage for foreign travel increase; and money, which might have been circulated at home, will be spent abroad. And why? What is it that attracts so many thousands of our countrymen—(and those many of them in the humble walks of life)—to Paris, to Munich, to Berlin, and as far again? It is the splendour of the public buildings, the splendour of the public galleries, both of paintings and statues—the museums—the libraries—the churches and cathedrals (*always open*)—the beautiful gardens, adorned with fountains, statues, and architectural embellishments, and, above all, that wise and liberal spirit, which renders all these luxuries—*luxuries to the people at large*; for abroad, the happiness of the rich is often found to consist, not merely in promoting, nor yet beholding, but actually in participating in, the innocent amusements and rational enjoyments of the poor.

It is not surprising, therefore, that such of our countrymen as thirst for intellectual pleasures, should seek abroad for what they cannot

at home, or that foreigners coming to this country, should miss the absence of indulgence to them habitual. *Aboard, every thing is open; in England every place is closed, and admittance only to be obtained by application.* A better system and a more liberal one are about to commence; but when it has been carried into practice, where our pictures, statues, halls, museums? is there worth seeing, or calculated to

improve the national taste? Those who have visited Versailles, the Louvre, Munich, Dresden, Berlin, and the Vatican, *must be silent.*

We entreat Sir Robert Peel to devise some means by which the latent genius of his countrymen may be fostered and rewarded; for it must ever be a matter of primary importance to draw more closely the connection which exists between the Fine Arts and manufactures.—*British Queen.*

THE ROYAL SOCIETY FOR THE ENCOURAGEMENT OF ARTS, MANUFACTURES, AND COMMERCE.—DISTRIBUTION OF THE PRIZES BY PRINCE ALBERT.

On Monday, there was a numerous and splendid assemblage at the chambers of this Society, in the Adelphi, to witness the distribution of the prizes.

At half-past twelve o'clock his royal highness arrived, accompanied by the Duke of Sutherland and the Marquis of Northampton, and immediately took the chair. We also noticed the Earl of Dartmouth, Sir Thomas Dyke Ackland, Sir Thomas Baring, Professor Faraday, W. Hughes Hughes, Esq., Admiral Sykes, Dr. Domville, Mr. Emsley, and many scientific gentlemen.

The chief object of the society is to promote the arts, manufactures, and commerce of this kingdom, by giving honorary or pecuniary rewards, as may be best adapted to the case, for the communication to the society, and through the society to the public, of all such useful inventions, discoveries, and improvements as tend to that purpose; and, in pursuance of this plan, it was stated that the society had already expended upwards of 100,000*l.*, derived from voluntary subscriptions and legacies.

His Royal Highness, on reaching the chair, was loudly applauded, and he observed—"In proceeding to the business of this day, I wish to express my satisfaction for the first time in opening the business of a society which has proved so useful in promoting the arts and sciences generally"—(cheers).

F. Whishaw, Esq., the secretary, then observed that it was a peculiarly gratifying task to address them on the occasion of the fifty-sixth annual distribution of the honorary and pecuniary rewards of the society, which had been awarded during the present session. His Royal Highness Prince Albert had been graciously pleased to accept the office of president, vacant by the lamented death of his Royal Highness the Duke of Sussex, and had also consented to grace the meeting with his august presence on this highly-interesting occasion—(applause). The secretary proceeded to state that Thomas Webster, John Bethell, Charles Holtzapffel, Edward Speer Browne, Philip Wilts, and Henry Roberts had, with great perseverance, devoted much of their valuable time in successful endeavours to revive the expiring embers of this noble institution, and once more it was becoming a favourite institution with the public, of which no stronger proof could be afforded than the fact that 125 members had been elected during the present session, among whom were his Grace the Duke of Norfolk, whose noble ancestor presided so efficiently over this society for twenty-one years; also the Right Hon. the Earl of Clarendon, whose love of literature and science rendered him a peculiarly valuable acquisition to the society, and a bright ornament of the highly cultivated age in which we live—(cheers). The secretary then described the origin and progress of the society, which he stated had awarded medals to the Dukes of Bedford and Beaufort, the Earls of Winterton, Upper Ossory, and Mansfield, the Bishop of Llandaff, and John Christian Curwee, Esq., of Workington Hall, who had received several medals for improvements in agriculture; and who, it was well worthy of being recorded, had stated at a public meeting that but for this society he should never have been a farmer—(hear, hear). Among the eminent artists who at various times had received rewards from this society were Sir Thomas Lawrence, Nollekens, Bacon, Flaxman, Sir William Ross, Edwin Landseer, Finden, and Wyon. At the conclusion of Mr. Whishaw's address he was loudly applauded.

Benjamin Rotch, Esq., said he had been deputed by the vice-president to explain in a laconic way the various models of the inventions for which prizes had been awarded. The first prize was for an improved window-sash, which would enable domestic servants to turn the windows easily, and prevent the necessity of getting outside the house in order to clean them. Many accidents, which they must have all deplored, had occurred to female servants from window cleaning, and he hoped in awarding a prize for this invention, the committee had done much by rewarding humanity in preventing loss of life in future—(hear, hear). The hon. gentleman then proceeded to explain this and the other models, in all of



EARLY BUILT COTTAGE NEAR HAMMERSMITH.



OLD ALMSHOUSES, HAMMERSMITH.

OLD ENGLISH HOUSES.

It is seldom that we witness such good specimens of the domestic architecture of England at an early period as are to be found even within a very short distance of London. Mr. Faulkner, in his history of Hammersmith, is traced with much accuracy the progress of the style of building. He has commenced in a neighbourhood of greens with these eulogious names:—

Between Gagle-goose green and Starch green, the footway runs in a winding direction, and is elevated several feet above the marriage road, which has been evidently, in former ages, a water-course impassable to foot passengers. The ancient stream still flows by the roadside, pursuing its devious course towards the Thames.

At the northern extremity of this elevated useway stands an isolated cottage, a venerable specimen of the domestic architecture of the sixteenth century. It has, however, lately been plastered, but previous to that barbarous innovation, it formed, with its angular chimneys, casement windows, and wattled walls, a very picturesque object when seen from the east side.

It is interesting to trace the various changes that our domestic architecture has undergone during a succession of ages. We are told by Caesar, that the habitations of the Britons were built of the frailest materials, and the residence of the most powerful chieftain differed only in size from the cabin of the meanest of his tribe. The Romans introduced the use of stone and brick, and numerous magnificent edifices were raised by them and the Romanized Britons during their occupation of this island. In the Saxon and Norman period, the churches and castles were built with stone, but the dwellings of the people were constructed with a mixture of clay and timber, a practice which continued to prevail till the commencement of the seventeenth century.

The following letter from the celebrated Erasmus to Dr. Francis, physician to Cardinal Wolsey, gives a vivid description of the interior of common dwellings in the reign of Henry VIII.:

"I often wonder, and not without concern, whence it comes to pass that England for so many years hath been continually afflicted with pestilence, and above all with sweating sickness, which seems in a manner peculiar to that country. We read of a city which was delivered from a plague of long continuance by altering the buildings according to the advice of a certain philosopher. I am much mistaken if England by the same method might not find a cure. First of all, they are totally regardless concerning the aspect of their doors and windows, to the east, north, and south. Then they build their chambers so that they admit not a thorough air, which yet, in Galen's opinion, is very necessary. They glaze a great part of the sides with small panes, designed to admit the light and exclude the wind; but these windows are full of chinks, through which enters a percolated air, which, stagnating in the room, is more noxious than the wind. As to the floors, they are usually made of clay, covered with rushes that grow in fens, which are so slightly removed now and then, that the lower part remains for twenty years together, and in it a collection of spittle, beer, scraps, and other filth; thence, upon change of weather, a vapour is exhaled very pernicious, in my opinion, to the human body. I am persuaded that the island would be far more healthy if the use of these rushes were quite laid aside, and the chambers so built as to let in the air on two or three sides, with such glass windows as might be either thrown quite open or kept quite shut, without small crannies to let in the wind; for as it is useful sometimes to admit of the air, so it is sometimes to exclude it."—*Polytechnic Review.*

which his royal highness appeared to take a deep interest, and the following distribution of prizes was made, viz.

In Mechanics and other Practical Arts.

1. To Mr. Jabez Osborn, 2, Upper Boston-street, Dorset-square, for an improved method of hanging window-sashes, the silver Isis medal.
2. To Commander Beadon, R.N., of Hope Corner, near Taunton, for an improved life buoy, the gold Isis medal.
3. To Mr. Thomas Quarn, 32, Wood-street, Princes-road, Lambeth, for a bevelling instrument for joiners, the silver Isis medal.
4. To Sir John Robison, Edinburgh, for his method of making half-round files, the silver medal.

Mr. Rotch expressed his deep regret at the death of Professor Robison; and the medal was presented by his Royal Highness to that gentleman, to transmit it to the Professor's family.

5. To Mr. Chas. Grafton, 1, Dover-street, Chorlton-on-Medlock, for his plan of self-acting feeding apparatus for high-pressure boilers, the silver medal.
6. To Major Parby, of Allee d'Antin, Paris, for his plan of forming a floating break-water, the silver medal.
7. To Mr. David Bond, 4, Fleur-de-lis-court, Wheeler-street, Spitalfields, for an improved tube for weaving wide velvet, 3*l*.
8. To Mr. John Ferry, 18, Mape-street, Bethnal-green, for an instrument in drawing out terry wires, the silver Isis medal and 3*l*.
9. To Mr. Alfred Jones, 44, West-street, Devonshire-street, Mile-end, for his improved machine for winding quills, the silver Isis medal.
10. To Mr. Wm. Rook, 17, Russell-court, Drury-lane, for his improved loom for weaving horse-hair, the silver Isis medal and 3*l*.
11. To Mr. Robert McEwen, of High Mark, near Stranraer, N.B., for his machinery for hot-pressing lace goods, the gold Isis medal.

In the Fine Arts.

Miss Cecilia Louisa Belville, 17, Prior-street, Greenwich, for a chalk drawing of the Townley Hercules, the silver medal.

Mr. Robert Watts, 23, Regent-square, St. Pancras, for a design for a schoolhouse, the gold Isis medal.

Mr. J. B. Waring, 2, Albany-street, Regent's Park, for designs for architectural adornments, the silver medal.

Mr. Philip E. Wasey, 1, Kingston-buildings, Kingsdown, Bristol, for the west elevation of a Gothic church, the silver Isis medal.

Master Edmund Gustave Giradot (only 12 years of age), 10, Hunter-street, Brunswick-square, for a painting in oil of animals from life, the silver medal.

Mr. John Richardson, Colebrook House, Islington, for portraits of a family in oil, the silver medal.

Mr. George Wood, 65, Upper Charlotte-street, Fitzroy-square, for a portrait in oil, the silver medal. And,

To Mr. Edgar Ziegler, of 38, Gerard-street, Soho, for a chalk drawing of the Apollo, the silver Isis medal.

After the distribution of the prizes,

The Duke of Sutherland said he was sure he should be only doing what was acceptable to every individual present and every member of this society by expressing on their behalf their warm acknowledgments for the very kind manner in which his Royal Highness Prince Albert, so soon after becoming president of the society, had come forward to preside over their meeting and distribute the prizes—(cheers). He would say that no honour could be more agreeable to the society than that which his Royal Highness had been pleased to bestow upon them—(applause).

The Marquis of Northampton rose to second the motion which his noble friend had just made, but he felt it was unnecessary to add any thing to what had been already said. His Royal Highness had laid siege to the hearts of all her Majesty's subjects—(hear, hear). He had joined other scientific societies, and had readily consented to become the president of this, because its objects were important in applying science to the most useful purposes—(applause).

His Royal Highness bowed and left the society's house, after passing a warm eulogium upon the proceedings.

YORKSHIRE ARCHITECTURAL SOCIETY.

A MEETING of the Committee of this Society was held at Beverley, in the new Assembly Rooms, on Thursday, the 8th instant. The venerable Archdeacon of the East-Riding was in the chair; and many of the neighbouring clergy and laity were present.

The minutes of the last meeting of the committee at Ripon were read; in which it appeared that the Lord Bishop of Ripon had, on leaving the chair on that occasion, stated, that he entirely approved of the design and purposes for which the society was established, that it might rely on his exertions in its behalf, and that he trusted it might prove a benefit to his diocese. Several grants were made from the society's funds, among which were a vote of 10*l*. towards the restoration of the painted glass windows in the parish church of All Saints, York, and of 5*l*. towards the rebuilding of the Holy Sepulchre, at Cambridge, in compliment to the Camden Society, under whose auspices the renewal of that church is to be effected.

At one o'clock (the room being opened generally to the members and friends of the society) several able and interesting papers were read.

Mr. Chantrell, the eminent architect at Leeds, in a very intelligent and clever lecture, shewed that the ancient Gothic churches were constructed on fixed principles, and that by the introduction of certain geometrical figures, the chief points of the division of the church, the centres of the arches, the location of the pillars, the position and number of the windows, with the width and length of the various departments of the chancel, nave, and transepts, might be accurately and precisely defined.

Mr. Anderson read a well-written, popular lecture on the various orders of Gothic architecture, in which he gave an account of the

earliest ecclesiastical edifices in this country and described at some length the Norman, early English, decorated, and perpendicular styles; and stated the period at which, the mode by which, these various styles were merged in, and succeeded by each other. Anderson selected most of his examples from the East-Riding, which district he declared, with the exception of Lincolnshire, to exceed any other county for the beauty and richness of its churches.

Mr. Brereton, of Beverley, exhibited sketches of Hedon church, in Holderness, which he shewed how this once beautiful structure was much injured and defaced by the incongruities of modern arrangements, especially how a rich old Norman arch was hidden by the erection before it, of a wooden gallery. Mr. Brereton illustrated his drawing by reading from a written paper certain amusing remarks upon them.

Several ladies were present at the reading of these papers. The next meeting of committee will be probably held at Doncaster in August next.—*Hull Packet*.

ANTIQUITIES.

The dredging machine employed in clearing the bed of the Saone at Chalons, has brought up many interesting remnants of antiquity. Among them are some coins of Charles, Cardinal Bourbon, of great rarity; a small brass plate, which appears a Christ on the cross, with symbolical animals at the four corners, and some Gothic characters, which have not yet been deciphered, apparently a work of the earliest part of the middle ages, some amphore and cinerary urns in good preservation. But the most valuable prize is a beautiful vitrified cup. It is shallow and broad like a dish, but the outside is enriched with wavy and spiral ornaments in relief, affording a new proof that art of moulding in glass was well known in ancient days, and indicating the residence of the Romans in Cabillonum, after the Eduens and previously to the Burgundians.



WINDOW IN GRANTCHESTER CHURCH, CAMBRIDGESHIRE.

We are favoured this week by a correspondent with a drawing from which the above engraving has been made. We have been greatly charmed with the beautiful lines of the

tracery, and recommend to our readers to amuse and advantage themselves by drawing out, first defining the strict geometrical form, and then pointing and filling in the cusps. We will repay every attention and consideration. The church is about two miles from Cambridge.

TUNNELS.

THE tunnelling upon the Great Western Railway, for the first 20 miles out of Bristol, amounts to nearly 4 miles in length. There are five tunnels on the London and Brighton Railway, amounting in length to 3 miles 76 chains; and this line is only 5½ miles in length. There is a single tunnel upon the Huddersfield and Ashton Canal, 3½ miles in length, with shafts 800 and 1000 feet deep. The single Summit Tunnel, now executing on the Sheffield and Manchester line of Railway, exceeds this tunnel in length by 8 chains, and is constructed by sinking 5 shafts, averaging in depth 514 feet, and amounting in all to 2571 feet. I propose executing this tunnel (on the proposed line of the Caledonian Railway) by sinking 10 shafts, being double the number of those on the Sheffield line. The average depth of the shafts will be 223½ feet; and the whole shafting, 2236 feet. Thus, the separate shafts on this tunnel will be less than one-half the depth of those on the Sheffield Line; and, by sinking double the number, the depth of shafting will be less by 335 feet. There are nine tunnels proposed on the East Coast Line from Edinburgh to Newcastle, which amount to 2 miles and 52 yards. The expense, in cutting, at the entrance to each of these tunnels, so as to make them as short as possible, is very great indeed. The gradient of the Box Tunnel, 2 miles in length, upon the Great Western, is 1 in 100; the gradient of this proposed tunnel is 1 in 200.

Having shewn, by taking the aggregate length of different tunnels upon several lines of railway executed, in progress, and proposed, that they are equal to or exceed this proposed tunnel, the question may be asked, Why is a single long tunnel considered a work of difficulty, whilst numerous small tunnels, however long the aggregate length may be, are not comparatively thought much of? In general, wherever a tunnel is proposed, it is made in preference to open cutting, on account of its being executed more cheaply, the depth of cutting having increased to such an extent that to tunnel would be cheaper than an open cut; and, in general, the longer the tunnel the higher is the incumbent material above the rails, causing a very great additional expense in sinking shafts, thereby lessening their number, and thus increasing the length of driftway between the shafts; the great depth causes also a greater body of water to flow into the tunnel, to get rid of which is one of the greatest expenses in tunnelling; few shafts being sunk, prolongs the time of execution, thereby causing the water to be pumped for a long period of time; these, with several other causes, are natural reasons why a long tunnel should cost much more per cubic yard than a short one. Again, the material through which a tunnel has to be cut is a most important matter. In tunnelling through soft material, or through regular seams of rocks of small thicknesses, arching is required: the mere cutting out of the material in such cases is done for less than one-half of what a cutting through hard unstratified rock will cost; but an extra opening is required to be cut all round to make room for the lining; in cutting down short lengths for lining, the top, and often the sides, have to be well timbered. In a tunnel having few and deep shafts, and where this is required, the cost per cubic yard comes very high, on account of the want of room for the men to work in with advantage. In a small compass there are combined together miners, carpenters, bricklayers, masons, and labourers, all in each other's way; masonry, lime, and timber coming into the tunnel for lining, centering, and propping, at the same time that the mining and excavating are going forward. In the other case, where the tunnel requires no lining, although the mere mining per cubic yard costs more, yet all other things considered, the whole tunnel is executed for nearly one-half of what it would cost if lining were required; thus Mr. Locke, in estimating the summit tunnel upon the Sheffield and Manchester line, calculated 100,000£ as the cost, if through hard material, and 200,000£ if through soft and requiring lining. Again, the cost of tunnels must vary according to the size they are made. Several old tunnels upon canals, completed without any towing-path, have been executed for 4£ per running yard. The old tunnel upon the Grand Trunk Canal, at Har-

castle, in Staffordshire, constructed by Brindley, cost only 3£ 10s. 8d. per running yard; it was 10 feet in diameter, and consisted merely of a semicircular brick arch, which sprung from the water-line of the Canal.—*Mr. Low's Report on the Caledonian Railway.*

PROPOSED JUNCTION OF THE PACIFIC AND ATLANTIC OCEANS.

IN Mr. Stephens's "Travels in Central America," he advocates the bold design of joining the Atlantic with the Pacific Ocean, by means of a canal between the Gulf Nicoya and the harbour of San Juan, a distance of only about sixteen miles. From the lake of Nicaragua to the harbour of San Juan, on the Pacific, the distance is less than sixteen miles; and this slender line of earth is the only important obstacle which impedes what would undoubtedly be the greatest, the most important alteration ever effected by man in the physical arrangement of the globe. The proud mountains of Central America here bend themselves down—as if to permit and sanction the enterprise—to the trivial elevation of 600 feet; and through this hill it is contemplated to cut a tunnel of one mile in length, at the height of almost seventy-two feet above the water of the lake, and two hundred feet above the low-water level of the Pacific; the distance from the lake to the tunnel being about ten miles, and from the tunnel to the Pacific about four miles, whilst the difference of level could easily be overcome by lockage. The only engineering difficulty in the execution of the work would be the tunnel; and we must confess that the idea of an excavation lofty enough to permit ships of six hundred tons to pass through with their lower masts standing, is to us, even in these days, when engineers take all manner of liberties with mountains and valleys, somewhat startling; but Mr. Stephens speaks of it with perfect coolness.—*Quarterly Review.*

ROYAL COMMISSION OF FINE ARTS.

Whitehall, 16th June, 1843.

Her Majesty's Commissioners hereby give notice:—

1. That whereas carve-work in wood will be required for various parts of the New Palace at Westminster, and in the first instance for the doors of the House of Lords, artists are invited to send specimens in this department of art, to be exhibited for the purpose of assisting the Commissioners in the selection of persons to be employed.

2. The specimens are to be sent in the course of the first week in March, 1844, to a place of exhibition hereafter to be appointed.

3. The specimens are required to be designed in general accordance with the style of decoration adopted in the New Palace. Outlines in lithography, shewing the dimensions of the principal door of the House of Lords, may be obtained at the architect's offices in New Palace-yard.

4. Each exhibitor is required to send one and not more than two designs for an entire door, drawn to the scale adopted in the outline—viz. two inches to a foot; and one carved panel, or part of a panel and frame-work, not exceeding four feet in the longest dimensions, representing a part of such design in the full proportion. The objects forming the details of decoration, in conformity with the conditions above expressed, are left to the choice of each artist. The material of the carved specimen is to be oak.

5. The invitation to send works for the proposed exhibition is confined to British artists, including foreigners who may have resided ten years or upwards in the United Kingdom.

6. Artists who propose to exhibit are required to signify their intention to the secretary on or before the 1st of January, 1844.

By command of the Commissioners,
C. L. EASTLAKE, Sec.

Whitehall, 16th June, 1843.

Her Majesty's Commissioners hereby give notice:—

1. That whereas various windows in the New Palace at Westminster will be decorated with stained glass, artists are invited to send specimens in this department of art, to be exhibited for the purpose of assisting the Commissioners in the selection of persons to be employed.

2. The specimens are to be sent in the course of the first week in March, 1844, to a place of exhibition hereafter to be appointed.

3. The specimens are required to be designed in general accordance with the style of architecture and decoration adopted in the New Palace. Outlines in lithography, shewing the dimensions of the windows, may be obtained at the architect's offices in New Palace-yard.

4. Each exhibitor is required to send one and not more than two coloured designs for an entire window, drawn to the scale adopted in the outline—viz. two inches to a foot; and one specimen of stained glass, not exceeding six feet in the longest dimensions, representing a part of such design in the full proportion. Such specimen of stained glass to be glazed up in lead, and framed in wood.

5. The objects forming the details of decoration may be either figures or heraldic devices relating to the royal families of England, or a union of the two, and may be accompanied by borders, diapered grounds, legends, and similar enrichments.

6. The invitation to send specimens for the proposed exhibition is confined to British artists, including foreigners who may have resided ten years or upwards in the United Kingdom.

7. Artists who propose to exhibit are required to signify their intention to the secretary on or before the 1st of January, 1844.

By command of the Commissioners,
C. L. EASTLAKE, Sec.

SOUTHAM LIME.

THE following extract from an article on "Lime and Limestone," by Aiken, in the "Magazine of Science," will form an addenda to our remarks on the Southam Lime in the fourteenth number of THE BUILDER; the blue lias stone as herein described being the same as that of Southam, lying in the same belt, stretching across from Whitby in the north-east, to Lyme-Regis on the coast of Dorsetshire:—

"Another and still more valuable variety of limestone for water-cement is the blue limestone, which is generally of a dark dove colour, and of a dull earthy aspect; by long exposure to weather it becomes, superficially at least, of a liver brown, and when burnt into lime is of a buff colour. It forms occasional beds in the transition and mountain limestone deposits, but constitutes nearly the whole of the lias limestone. This latter is one of the most remarkable of the English strata. Its geological position is between the lower oolite and the new red sandstone. It passes obliquely through the country in a direction from N.E. to S.W.; from the sea-coast at Whitby, to the cliffs at Lyme-Regis in Dorsetshire on the British Channel. In its course southward, it passes to the east of York, and crosses the Humber near the junction of the Trent and Ouse; thence it passes through the western edge of Lincolnshire, and traverses the counties of Nottingham, Leicester, Warwick, and Gloucester; its breadth in this part of its course being pretty uniformly about six miles. Hence the main body proceeds in nearly a southerly direction through Somersetshire to the coast of Dorset, while a broken line of the same skirts along the southern shore of the Bristol Channel as far as Watchet, and appears on the northern shore in detached patches in the counties of Monmouth and Glamorgan. The entire thickness of this deposit is perhaps about 250 feet; the middle part consists of beds of blue limestone alternating with blackish slaty marl; the upper and lower parts being less calcareous than the middle, are composed chiefly of beds of marl, in which are harder masses of a compressed globular figure, less clayey than the slaty marl in which they are found, but less calcareous than the blue limestone. The quarries of Watchet, Aberthaw, and Barro, in Leicestershire, were long celebrated for the excellent water lime which they produce, before it had been ascertained from geological surveys that they are only on different parts of the same deposit. The lias limestone used by the London builders is brought from Lyme-Regis, but is little used in the metropolis, being about 25 per cent. dearer than Dorking lime, the difference in cost depending, in part at least, on the longer time and greater quantity of fuel required in burning it."



Fig. 2.

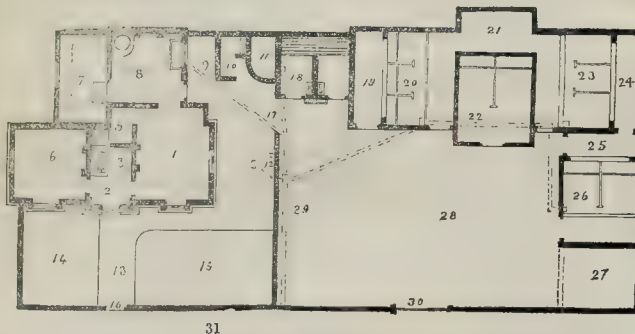


Fig. 1.

MODEL FARM-HOUSE AND FARMERY.

Plans and Description of a small Model Farm-house and Farmery, in the immediate neighbourhood of a small town, and applicable to other Farm-houses generally, with remarks.

BY A YOUNG PROVINCIAL ARCHITECT.

As the progress of science, arts, and manufactures, and indeed of refinement in every thing, advances with such rapid strides, and as the wants and necessities of all the various grades and branches of society increase in proportion to such advancement, and as a necessary consequence of it, so, in course of time, and by the due operation of the salutary effects of its increased means of comfort, convenience, and even luxury, will it be the sure means of creating in the breasts of those who have hitherto existed remote from its influence—and amongst these may perhaps above all others be ranked the farmer—a desire to participate in its advantages. So sure is it to draw them forth, out of the state of pristine ignorance, and I may say almost semi-barbarism, in which it has ever been the fancy of too many of our farmers in the more remote and sequestered villages, obstinately to secede from all other society and influence, and render themselves so exclusive; and to this circumstance, in a great measure, is attributable their apathy or averseness to the introduction among them

of any thing new, of any thing without a precedent, of any thing, in fact, which has not been done a thousand times before. Nevertheless, as one portion of society advances in refinement and luxury, the other and inferior portions will not fail, in due season, to follow; though the period may appear somewhat remote to the more short-sighted or unthinking part of the community. I think we have only to look around us, to discover an every-day proof of this. Indeed, the vast march of intellect in the improvements and inventions which characterize these extraordinary times, render a change in the habits and general life of the farmer almost an absolute consequence of them. There is, I say, therefore, much to be hoped for in the way of improvement, even in their condition yet.

Moreover, this view of the case, even in a metaphysical, or rather in a moral light, becomes interesting, and is well worthy the devotion of our best faculties to its amendment and promotion, inasmuch as by the very fact existing of the necessity and the employment of proper men to provide superior comfort and accommodation for those who have not hitherto had the enjoyment of them, will not fail of calling into action some of the better and more refined sympathies of our nature, at least in the minds of all reflecting persons. And we are well aware, that whatever will do this, has a decided tendency to the ultimate enlightening and benefit of mankind at large.

And so it is, that the subject of superior economy and convenience, in the planning of farm-house and farmeries, has of late been so much more attentively studied than it formerly was.

Indeed, a much superior system now prevails with regard to these things in the country than formerly obtained; and it is not now considered such superfluous expenditure to employ an architect even for the erection of a more insignificant building than a farm-house; and I am convinced that gentlemen are gradually falling into a proper appreciation and employment of the talents and services of architects, who must be poor architects indeed, who are not able to save their employer the amount of their commission, in a proper and equitable surveillance of the works, in their different stages of commencement, progress, and completion. For; in spite of that great and irremediable detraction from its usefulness, the great number of interlopers and upstarts (and which even the society of British architects cannot prevent or put down), the profession still maintains a dignity, which does, and ever will, cling to those professors who do honestly and conscientiously follow up the principle of protecting the interests of the employer from the rapacity or extravagance of the builder, and on the other hand, of securing the interests of the builder from the avarice or injustice of the employer. There are, of course, other offices attached to the profession of the architect which I need not here take up any more time to dilate further upon, as they have been sufficiently discussed by older and abler hands than me; however, I cannot, *en passant*, forbear animadverting upon one which has very often and forcibly struck me, and that is, their genius in design, and its appreciation. It has often to me been matter of astonishment, the little notice bestowed by most, and by the "profanum vulgus" in particular, upon erections which possess no magnitude, while at the same time they may possess great intrinsic merit, as far as the genius of design is concerned; and, on the other hand, how much attention is paid by them to buildings possessing magnitude, and which at the same time, to an enlightened and intelligent mind, shall be utterly devoid of interest. This I think might be, and is to some, a source of considerable annoyance and disappointment; and certainly so to all young architects, unless, indeed, they happen to be thorough philosophers, and really such in fact. Indeed, I have known little things which were tasteful and excellent in their kind to be passed by almost unnoticed, while things of greater magnitude and far less merit, indeed some of them in the most barbarous and execrable taste, I have heard pronounced "very pretty." I could give instances and comparisons of this (even local instances and comparisons), but I think the former might appear needless, and the latter invidious; therefore I forbear. However, so much for the appreciation of the labours of (that enlightened and intelligent class of professionals)—architects!

Following up the former portions of my remarks, I beg leave to present, for your consideration and insertion, the annexed sketches and description of a small farm-house and farmery, recently erected from the designs, and under the superintendence of Henry Ward, Esq., an architect of great merit and experience, in the small town of Stoke-upon-Trent, in the Staffordshire Potteries. It was built upon the glebe land, and is immediately attached to the rectory-house, in the outskirts of the town. It has about fifty acres of land attached to it, which is all pasture-land, it being principally used as a farm for the production and sale of milk.

Fig. 1 shews the ground plan of it, drawn to a scale of 32 feet to an inch, and including the whole of the buildings; and if the reader will have the patience or the goodness to accompany me for a short time, I will just explain to him the figuring on it. We will begin, first, with the dwelling-house, in which No. 1 is the kitchen or living apartment, 14 feet 4 inches by 12 feet 6 inches; No. 2, the entrance, with a small hall; No. 3, a place for hats, coats, &c.; No. 4, the staircase; No. 5, the pantry, with proper shelves all round; No. 6, the parlour, 12 feet 6 inches by 11 feet 6 inches; No. 7, the dairy, 12 feet 6 inches by 7 feet 9 inches; No. 8, the brewhouse or

wash-house, 12 feet by 11 feet 9 inches; No. 9, coal place; No. 10, the privy; No. 11, the ashpit; No. 12, the pump; No. 13 is a paved pathway from the wicket-gate to the front, and also to the back offices; Nos. 14 and 15 are small garden-plots; No. 16, the wicket-gate or door to the house; No. 17, the door in the division-wall from the house into the farm-yard; No. 18, the piggeries, one for store, and the other for fat pigs; No. 19 is the fodder binn to the first three-stall cow-house; No. 20, is a three-stall cow-house; No. 21, the calf-house, or occasionally a loose-box; No. 22, a two-stall stable; Nos. 23 and 24 are the corresponding fodder binn and three-stall cow-house to Nos. 19 and 20 on the other side the stable; No. 25 is a similar fodder binn to the stable; No. 26; No. 27 is the cart-shed, which also contains the smaller tools and implements of husbandry; No. 28 is the fold yard; No. 29 is a part in the same, where the manure is placed, with a sunk part for the liquid portion of it; No. 30 is the entrance gates to the farmery; and No. 31 is a sort of occupation road leading out of the town to a village beyond.

On the chamber plan there are three bed-rooms, the dimensions and positions of which are determined, and will be better understood from the ground-plan and elevations. Originally a bed-room, or rather a cheese-room, was to have been obtained by carrying up the dairy another story; this, however, was not done.

The loft for the hay and straw extends over the whole length of the stable and calf-house. There is also a loft over the cart-shed, which is now used as a poultry-house.

Fig. 2 is a perspective view of the farm-house, without (as I have subsequently explained) the farmery, which is to such a scale as to be perfectly intelligible without any further description; only I may just mention that its picturesque effect is greatly enhanced by the ornamental, chequered, or diamond glazing in all the front windows, which is done in small squares (diamond-wise), and larger irregular octagons.

Fig. 3 shows the fronts of the farm-buildings, taken in the same view with the other; indeed, it will be seen that one is a part cut off from the other, as is explained hereafter. Moreover, these two views are taken, presuming the division and boundary walls to have been removed.

A description in detail of all the requisite fittings and conveniences to such a building is needless, as so much has been treated upon, and with such great talent and practical experience, in many very excellent recent works. But I may just mention a few desirable conveniences and advantages requisite for such things, and possessed by this. It must ever be considered an acknowledged advantage, and a desirable acquisition, to have the window or windows of the living apartment to overlook the farmyard, and, indeed, the whole premises if possible; this, it will be seen by reference to the plan, is so contrived. A great consideration in a farm like this is the dairy, upon which its maintenance may be said almost totally to depend, and this is conveniently situated on the north side of the house, and sheltered, too, on all sides by trees and shrubs. The general objection to the front doors of such houses as this, rendering the apartments less private by opening into one of them, is here avoided by the small entrance hall. The privy is rendered private by the screen-wall. The pump is conveniently located, and made to supply the house on one side the wall, and by a spout through it to supply the farm-yard, also having a stone trough under it for the cattle to drink out of. The pigsties have the advantage of close proximity to the brew-house, dairy, &c., and yet not too near for any disagreeable effluvia to reach them. The farm labourers can feed the cows from the fodder-bins without having to enter the cow-houses at all. The calf-house is so contrived as to apply with equal advantage to either cow-house, and equally to the stable, as a loose-box, and in which a thorough ventilation is secured by means of a lattice window in each projection. The cow-houses are ventilated in the simple manner of leaving brick-end holes through the walls, in the form of diamonds, and when the cold becomes too severe, they are stopped up with hay. The drainage is shown by the dotted lines on the ground-plan, where it will be seen that all the

drains are taken into the common sewer, which runs out of the town up the occupation road (No. 31), and empties itself in the fields beyond. The drainage was therefore effected in this instance with facility; and the subject depends so much upon locality and circumstances, that I shall offer no further hints upon it here.

I have sent you the drawings in this form, that is, a ground-plan and perspective views, in preference to geometrical elevations, as it shows it in fewer drawings (though perhaps a little more trouble to me), and at the same time exhibits all the defects as well as the advantages of a design. Indeed, I consider I am doing you and your readers service by giving it so much in detail, for I think it of little use giving a building like this, actually executed, and as a model, unless with all the details of construction, &c., possible; it is thus rendered more interesting to all practical men; and this may, I trust, be some excuse for my trespassing on you to so great a length on so small a matter. The builder (I speak of the man) will be far more gratified with it in this form, than with a rignarole on the theory and principles of designing such things, with a long disquisition on the habits and mode of life of the well-known domestic animals, though that may be, indeed is, all very excellent in its place. In short, in this form I think it is likely to prove practically and generally useful.

As I have trespassed so much on you, I will refrain from giving the specifications, but will content myself with just noticing the heads of the construction and material, then I think any country builder, almost, would be able to execute one according to it, or nearly so, modified and adapted, as circumstances or locality would in all probability require. The whole of these erections are of the best red brick, with stone dressings (this of course will depend entirely on locality). The jambs and arches to the doors (which are not of stone), and also the chimneys, are formed with splayed or coated bricks, made for the purpose. The whole is paved with dust bricks, and covered with tiles, and capped with folding ridge tiles, all bedded in haired mortar and pointed or touched inside. All the doors and windows to the main house have wrought stone-jambs and heads, cornices, copings, &c.; the rooms good freestone chimney-pieces and flag-stone hearths. All the doors to the outbuildings have tooled hook and catch stones; panelled doors to all the principal rooms, and strong ledged doors to the rest and to the outbuildings. A wood floor to the parlour and the bedrooms, and wood staircases with handrail, bannisters, and newel, &c. The whole of the

inside of the main house is plastered, with a cornice in the parlour; and the whole of the inside of the outbuildings is white-washed, two coats. The dairy has a lattice window in the north side, with five or six steps down into it, and has arched and paved stillages all round it. The brew-house has a proper grate, boiler, and sink stone. The pigsties have an outer trough built up, in which the wash is put to feed them, and shutters down an inclined plane inside, into the troughs; this requires no straining in the person feeding them, to lift the bucket over the wall. The cow-houses have proper racks and square tank channels, with doors in two parts, the advantage of which is well known. The stable has sunk channel, good oak division and stall-post, and a manger lined with slate, and also slate perpendicularly on the wall, up to the under side the rack; this has the advantage of all ways being clean, and the horses are not able to grind it as they do a wooden one; it is lighted and ventilated by a fan-light over the door, hung on pivots, and I consider this much better than a window, where it can be obtained; the rack is semicircular, of cast-iron, with a Jacob's ladder and trap-door to the lofts above. The gates to the yard are good wooden ones, with stone posts. All or most of the windows have casements. And all the apartments are simple, airy, and well lighted and furnished.

The design, externally, is remarkable for its very picturesque grouping, taken as a whole, which is perhaps best shown by Fig. 4, the basic façade fronting the rectory-house. Now, as this front would have been a serious eyesore, in presenting nothing but a dead, blank wall (only the distance of a large field) to the inmate of the rectory-house, the Rev. John Wickes Tomlinson, the rector, and a gentleman of taste in such matters, wished to have some relief shown by means of blank doors and windows, as, had he planted it out (which, I believe, has since been done) their growth would have been so slow, as to have been a considerable time in shutting out the objectionable view.

I am sorry that the size of your periodical would not permit the insertion of the whole of the fronting, that is, of the house and farmery in connection, as the house would then have been reduced to such a scale as to appear to disadvantage; and I have such a decided antipathy to having my drawings to an unintelligibly small scale, that I would sooner leave them out altogether.

It will be observed that I have throughout described them as new buildings, because, as such, I considered them applicable to farms of this description and size generally. But, in



Fig. 3.



Fig. 4.

this instance, there was the complication of pulling down the old farm-house and stables to the rectory-house, which were considered an eyesore, and the old materials re-used in the construction of the new buildings. Indeed, very strong and excellent roofs were made out of the old oak timbers from it.

In conclusion, I may observe, that though I may have been going over ground oftentimes trodden before, and as the arrangement of all farms, from the nature and habits of the animals, to be provided for, must, of necessity, be "much of a muchness," still every new combination of forms will require a fresh description; and I think there will be found something both to interest and instruct in the convenience of the plan, and the characteristic style and effect of the elevations.

WESTMINSTER ABBEY.

THE external repairs of this beautiful cathedral have been just commenced. We learn they are to be of a very extensive nature—and from the known good taste of the present Dean (Dr. Tait), are likely to be carried on with as much judgment as spirit. We believe that a strong wish has been expressed in a very high quarter, that a central tower, or spire, should be added to the Abbey, the want of which is at present only too evident, but will be still more so when Mr. Barry's magnificent and massive Victoria tower shall adorn the new Houses of Parliament. The difficulty has been in regard to the capability of the Abbey to bear this additional weight—a difficulty which has been overcome. Two plans are now under consideration, the one with a central tower, the other with a spire. The alterations contemplated in the interior of the Abbey, consequent upon Sir Robert Peel's representation to the Dean and Chapter, and to the necessity of providing increased accommodation for the public, will be commenced very shortly, after which free admission will be granted during the whole day, without any fees whatever being exacted. Amongst other on this it is reported that the large statue of *Watt*, which now blocks up and disfigures one of the beautiful chapels, is (together with Chantry's fine statues of Canning and Malcolm) to be removed to a more appropriate receptacle. The monuments have been for the most part re-cleaned. We hope they will shortly be repaired.

OUR CORRESPONDENCE.

THE CROSS.

(Continued from No. 18.)

TO THE EDITOR OF THE BUILDER.

SIR,—In a preceding paper, we classified crosses under three general heads; we now propose to enumerate them in the order there laid down, commencing with,

1st, *Memorial*.—Under this division of the subject may be considered all such monumental crosses as were raised by public-spirited bodies or individuals, to preserve the remembrance of those who by their virtuous lives or noble actions were the glory of the age they lived in. Such were the crosses placed on the spots where men of austere and holy life had prayed and preached; Camden mentions one with this inscription:—"Hic Paulinus predicavit et celebravit." And it is related of St. Germain, Bishop of Auxerre, that he was a person of such extraordinary sanctity, that wherever he stopped to preach, the people reared a cross in memory of the event. After death, also, wherever the corpse of an esteemed individual halted on the road to interment, crosses were raised with peculiar ceremony. When the body of St. Wilfrid stopped at the Abbey of Rievaulx on the way to Ripon, the monks washed it, afterwards erecting a wooden cross where the water had been poured out. Those which Philip III. of France caused to be raised between Paris and St. Denis, after the funeral of his father, the canonized Louis, in 1295, were three in number, each 43 feet 4 inches high, and adorned with statues as large as life; these remained until the Revolution. But by far the most beautiful of their kind, both for elegance of design and excellence of workmanship, were those of the virtuous and devoted queen of Edward I.: these, according to Gough, were fifteen in number, of which a fifth alone remains, those at Northampton, Geddington, and Waltham, all containing figures of Queen Eleanor; these are so well known, that it would be useless to describe them, though an interesting extract from the chronicle of Dunstaple Priory, relating to one that formerly stood there, would perhaps not be out of place:—"In 12 Kal.

Dec. 1290, died Queen Eleanor; her corpse passed by here, and rested with us one night, and two precious cloths or bawdkins were given to us, and about 120 lbs. of wax. When it passed through Dunstaple the bier stopped in the middle of the market-place, till the chancellor and the nobility marked out a proper spot, where afterwards, at the king's charge, a lofty cross was erected, the prior assisting and sprinkling it with holy water."

The most extended purpose to which the cross was applied, was in the burial-ground, for marking the graves of those departed in the faith, in order that the passer-by, being mindful, might repeat a prayer for their souls, and, in respect for the holy sign, might avoid heedlessly trampling on the earth that covered their remains. As early as the year 850, Kenneth II., king of Scotland, framed a law commanding that all graves should have the privilege of a holy place, and that a cross should be placed upon them, to prevent their being trampled upon; these were most probably of wood, as there are none existing of a greater age than the Conquest, unless we make an exception of a plain one carved on the end of a coffin, bearing evident traces of Saxon workmanship, which was discovered some years ago in Dewbury churchyard, Yorkshire. From the period of the Conquest until effigies came into vogue, sepulchral crosses prevailed in a variety of beautiful forms, sometimes plain, ornamented, or coped coffins, and often accompanied with the crest or cote-armour of the deceased; in later days, they continued to be employed formed of brass, engraved, sometimes between figures in the act of supplication; there are many elegant specimens of this last sort to be met with, one in Higham Ferrers church, the tomb of Thomas Chichele, father of the archbishop of that name; at the corners of the cross the evangelical symbols occur. Of the sculptured stone we may mention a fine example in Gresford church, Denbigh, to the memory of a Welsh prince; it is surrounded with foliage, and surmounted by a shield of arms. Not even the grave of the humble cottager was without the distinction of a wooden cross bearing his rebus, or trade's mark; these are frequently shewn in illuminated MSS. when a grave scene is represented, and are still to be seen on the Continent, in Roman Catholic countries.

Those spots on which the early martyrs of the church met their deaths by the hands of pagan persecutors, were considered especially sacred, and consequently peculiarly adapted for the erection of ecclesiastical edifices, both churches and monasteries; thus the present Abbey of St. Albans rose on the exact situation where the protomartyr of Britain was beheaded. In most cases these buildings succeeded crosses placed there soon after the events occurred, and in some instances these crosses still remain. In the churchyard of Winwick, Lancashire, where Saint Oswald was defeated and slain by Penda, king of the Mercians, in 642, and afterwards dismembered by the ruthless barbarian, was formerly a Saxon cross; a few years back, the horizontal part of this was up in the yard; this fragment measures five feet across, and is ornamented with knots and other sculptures; on one end is the figure of the Saint with a cross in his hand, and by his side is a Saxon shield and sword, on the other his dismemberment is represented; the figures are all very rude. This relic of antiquity, we have reason to believe, has not been noticed in any topographical work. Nor did saints alone share the honour of monumental pillars; they are found on the burial-places of monarchs and other distinguished personages. In the woods near Alnwick stands a picturesque cross, to shew where Malcolm, king of Scotland, fell.

On a battle-field, the tomb of thousands, one cross answered the purpose of those on single graves, viz. to induce prayer for the souls of those who perished in their country's defence; they also served as so many mementos of victory, to animate posterity by the recollection of their ancestors' bravery. A broken shaft still marks the situation where Queen Philippa engaged and vanquished David, king of Scotland, and his invading army in 1346, alluded to in the following words by Davies:—"On the west side of the city of Durham, where two roads pass each other, a notable, famous, and goodly cross was erected to the honour of God, for the victory there obtained in the field of battle, and known by the name of Neville's Cross, and built at the sole cost of Lord Ralph Neville, one of the most excellent and chief persons in the same battle. In the night, 1589, it was broken down and defaced by some contemptuous and wicked person."

There is another of this sort on Blore Heath, Staffordshire. In all probability the numerous stumps and other monuments, known by the name of crosses, that were either for boundaries, or simply for devotion, were intended as memorials of certain events; and it is much to be regretted, for this reason, that traditionary evidence is so little valued in the present day, as we thereby lose a most valuable chain of historical data. Amongst the peasantry who reside near them, we generally find

some rambling and unconnected tale about the "saul stanes" in which names and principal features may be taken as correct, and thus, in some measure, guide our researches; but in consequence of the deteriorating view in which tradition is for the most part looked upon, it would be folly to rely upon it with additional and more convincing proof.

2nd, *Distinctive*.—At the commencement of this class boundary crosses present themselves; they are met with in the greatest abundance in wild, uncultivated tracts, dividing counties and parishes; in Cornwall, which is of this character, they occur the most frequently, generally consisting of rude blocks of stone, with a cross carved in relief on one side; those which fix the limits of church lands or sanctuaries are perhaps more ornamented.

In the vast fens round Crowland Abbey they were made use of; one which now, or formerly, stood there, had the following inscription:—

"Aio hanc petram Guthlacus habet sibi metam,"

severally translated by eminent antiquaries—

"This rock, I say, is Guthlac's utmost bound;"

and—

"I say that Guthlake this stone his bound doth make."

Whereas it appears by ancient records, that Abbot Turtkel, in 947, made a perambulation of the bounds, and commanded stone crosses (jussit lapideas cruces) to be placed at certain distances, whereon were inscribed the names of three or four monks who accompanied him, the last of whom was called Aio, in the translation converted into *I say*; in consequence of the upper part being broken off, the other names were lost. At certain seasons the clergy visited these boundaries in procession; the crosses then formed stations, where they halted to sing a litany, or hymn of thanksgiving, for the blessings of prosperity.

During the feudal period, when the nobles were accustomed to take law into their own hands, and to execute summary justice on offenders, the right of sanctuary was an inestimable privilege to a suspected party, and though in a measure it tended to encourage predatory habits by sheltering the really guilty, yet at the same time it proved a grateful protection to a man who might slay another unawares, and give time for explanation to his overzealous pursuers. This privilege of sanctuary was granted by the sovereign to churches and convents, and extended in many cases for a mile or more on each side, the limits being defined by crosses. King Athelstane granted this right to the church of St. Wilfrid, at Ripon, Yorkshire, with the condition that whoever violated it, should forfeit both life and estates. It extended a circle of two miles round the church, and was marked by three crosses, going by the names of Kanzel, Sharow, and Athelstane. It appears from some of the early councils that any single cross fixed in the earth had the power of affording refuge to any who, being condemned or having escaped, might flee to it, equally with a church or holy place, so long as the criminal remained by it.

Almost every market town has, at one time, possessed a cross erected for the purpose of fixing a permanent spot for the sale and purchase of goods; these are still to be seen in many a secluded spot where the arm of the destroyer's innovation has not prevailed; single shafts of stone, raised on two or three steps, and more or less decorated in proportion to the early opulence of the town. They vary from the square plain block to the towering structure loaded with tracery, buttresses, and pinnacles, like those which once stood in Cheshire, Charing, and Coventry. The two former of these perished by the hands of Sir Robert Harley, who was commissioned by the Parliament of 1640 "to take away all pictures, crosses, and superstitious figures within churches and without." At Winchester is a splendid cross that has escaped destruction. It was the opinion of Dr. Milner, that the larger sort of market crosses were chiefly erected by the monks of a neighbouring monastery, to whom often the tolls of the market belonged, and that they were accustomed to harangue the people from them. This may have been the intention of those that were arched, as at Glastonbury, Chichester, Gloucester, and Malmesbury, though indeed it seems more proper to receive as true the simpler reason of Leland, who, speaking of that last mentioned, says:—"There is a right, fair, and costly piece of work in the market-place, made of stone, and curiously vaulted, for poor market folks to stande drye when the rayne continueth. * * * * The men of the town made this peace of work in hominum memoria." The richest and most elaborate structure of this kind on the Continent was at Nuremberg. Rouen has one of exquisite beauty of proportion and detail.

It cannot be denied that gable crosses were in a degree distinctive, for we find them exclusively on churches, chapels, and other buildings dedicated to the service of God; they assumed an infinity of elegant forms, and are often found surrounded with

a circle, representing the crown of thorns or the nimbus. The earliest in existence, that was discovered at Dewsbury seems to have belonged to a Saxon church which existed there previous to the Conquest; it is perfectly plain, with a circle round it, the exterior diameter of which is indented.

Not even these escaped the furious zeal of the Puritans. The journal of William Dowling, visiting commissioner, contains the following entry:—

"January, 1640.—We took away two popish inscriptions with *Ora pro nobis*, and we beat down a great stoning cross from the top of the chancel." There is a solitary instance of the figure on a gable cross at Than Church, Normandy.

In a succeeding number we hope to illustrate the third division, and shew the adaptation of the cross to modern usages. P. P.

HISTORY OF LABOUR IN THE BUILDING CRAFTS.

(Continued from No. 18.)

TO THE EDITOR OF THE BUILDER.

SIR,—We have seen that so early as the reign of Edward I., which closed in 1306, the trade and commerce of England had its birth; and, though sustaining struggles that may be aptly likened to those of unprotected infancy, had yet inherent qualities of growth and greatness that have sufficed to grasp and hold dominion in every habitable region of the globe. It may be useful to sketch the state of society at this particular era, the painful efforts made to attain civil rights, and the gradual breaking down of restraints that disconnected the common interests of mankind.

War, agriculture, and commerce constituted the divisions under which were ranged the then scanty population of this great empire; but they existed under circumstances very different to those ruling at the present day. War had been engrafted upon the country by the military tenures instituted by the Normans; and the passion and policy that dictated it was cherished with a devotion that rejected all compromise. The demon of military despotism neither bowed its head nor quitted its lance, but craved incessantly oblations of blood and tears; and these were shed abundantly in the twelfth, thirteenth, and fourteenth centuries. War, plundering, devastating war, sustained the king upon his throne, the baron in hisief, and his retainers in their pride of arrogance and systematic spoliation of the people: hence, in those ages it was the absorbing pursuit to which every other was subservient. Agriculture, imperfectly understood, was at the lowest ebb; and the price of bread corn fluctuated in a fearful manner, while, drained of the able male population, and burthened by exactions uncertain in amount and recurrence, the remaining cultivators of the soil were an abject and unresisting race; commerce and trade, though felt to be essential, were tolerated rather than encouraged. The monetary affairs of the kingdom were mainly in the hands of foreign Jews and Lombards; and so well managed were their plans of operation, that they monopolized or controlled the circulation; yet war in its turn tyrannized over these, and wrung from them the accumulated hoards of usury and extortion, to be again dispersed in the trappings and reckless squanderings of a licentious soldiery. During these perilous times the infant trade and manufacture of England were slowly advancing, and gathering together the waste which its oppressors made. The great truth that "unity is strength" was also beginning to spread, and to rally, as it were, under a banner an aggregate of individual interests; the natural tendency of trade to collect people together, and the lawless character of the times, caused nearly all connected therewith to seek the protection of walled towns. To those places of refuge were also attracted the unwilling and dissatisfied among the followers of the nobility; and this fact, though it may appear of minor importance, had in reality great effect; for while it augmented the numbers of the weaker party, who were ever ready to receive, and by various means to protect them, it greatly diminished the reliance heretofore placed upon the fidelity of military retainers. Men began to see the advantages of trade, that it held out wages and independence, and thus self-interest paved the way to civilization.

In this manner, with but little variation of circumstances, the reign of Edward II., occupying from 1307 to 1326, passed over, and the third Edward entered upon his protracted sway of fifty years. That prince may be said to have possessed tact for governing beyond any of his predecessors; he was gladdened with ambition, and sought its gratification by the naked blade; but experience taught him that the prosperity of trade was a faithful index to a healthy state of the exchequer, and he encouraged it by recognition and privileges. The frequent wars in which he was engaged assisted materially in abrogating the feudal system; the numerical amount of his armaments, and length of time they were kept on foot, introduced a more

general mode of levying troops than that of requiring the nobles to produce and maintain their respective quotas in the field. Ancient jealousies and private feuds were also reconciled in the common emulation and common dangers in which a long companionship in arms associated the leaders of Edward's hosts, while in the lower ranks were large numbers of the villains of the crown, emancipated in consideration of special military services.

The evil of war was now working great changes in neutralizing the local domination of a legion of petty tyrants, which thenceforth remained concentrated in the kingly power; personal oppression was less frequent, and taxes levied with some approach to just apportionment. These ameliorations were more quickly felt by the trading than any other interest, and the pecuniary difficulties of the king caused still further concessions; among others, the woollen manufacture, then the staple of the kingdom, was improved by the importation of Flemish weavers and clothworkers, and the trade secured by a grant of corporate laws and the erection of GUILDS. This movement in advance was, however, interrupted by the great pestilence of 1349; in cities and towns nearly half the population was swept off, and a suspension not only of trading occupations, but even of religious services, took place, and scarce any could be found to perform the last offices for the dead. The result of this visitation was a scarcity of labour, which gave rise to a revival of arbitrary display, and the measures which power is ever ready to devise and inflict; the real scarcity of any commodity has always been held a reasonable cause for advancing prices, but in this instance the legislature was found ready to pass an unjust law to regulate wages. A master free mason was declared by statute to be entitled to no more than 4d. a day for his wages, other masons 3d.; a master carpenter 3d., other carpenters 2d.; their servants or helpers 1½d.; plasterers 3d.; tilers 3d.—imprisonment and sitting in the stocks being the punishment for refusal to work, or requiring higher wages. This legalized robbery upon labour appears to have borne heaviest between the years 1350 and 1370, but there is reason to believe that it was evaded and opposed by the classes to which the law applied with considerable vigour, for we find that repeated appeals were made to the Commons for yet more stringent enactments. In 1360, the former statute of labour was confirmed and enforced, under penalty of fifteen days' imprisonment, and branding in the forehead with the letter F, for offenders who absented themselves from their work, or quitted their place of abode, and if they fled to towns, magistrates were to deliver them up, under a penalty of 10l. to the king, and 5l. to the master reclaiming them.

TRADE UNIONS, or co-operative societies, were no doubt in existence at this time; those of the FREE MASONS would alone have furnished a sufficient example to other trades, and from the wording of a clause in this same statute, it would clearly appear to have been aimed as well against their lodges as other societies of a like description. The attention of the BUILDING CRAFTS should be fixed upon these historical facts, from which they will gather that even in despotic times trade unions existed, were to a certain extent effective, and of sufficient weight and importance to call forth a legislative attempt to coerce them. Such societies under matured regulations are useful and meritorious. A Wittenagemote, Guild, or Council in every handicraft trade, apart from short-sighted views of concerting for strikes, would be of infinite value; acting as with one mind, and speaking with one voice the legitimate claims of such a body to attention, and, upon just grounds, to redress, would be irresistible. Talk of combinations, what are governments but combinations? What but combinations of civil and military power, upheld by the finances of a country, to the end that order may be preserved, and that the oppressor do no flagrant wrong? What are joint stock companies but combinations? Is their commercial spirit higher, purer, or less interested than that of great associations of the producers of wealth, alert to procure a fair equivalent for honest labour? What the alliance of the great builder with the capitalist but a combination of skill with money, to the end that success shall be commanded?

The statute of 1360 says "that all alliances and covins of masons, carpenters, and others, and congregations, chapters, ordinances, and oaths between them made, should be thenceforth void and wholly annulled." We have here a specimen of the disposition of the legislature to prostrate the working classes; it sets out with fixing a rate of wages, and denounces attempts to raise them under penalty of a brand mark; and how does it close? why, with the following enactment: "Every lord, or other, may make bargain or covenant for their work in gosse with such artificers or labourers when it please them, so that they perform such work well and lawfully, according to the covenant or bargain with them thereof made." The workman

was already compellable to accept his 3d. or 4d. per diem, or to suffer the inflictions I have recited; but if the lord or master could induce him, either under misapprehension or extremity of any kind, to take *piece-work*, such lord was at liberty to mulct him with impunity, or to compel the fulfilment of the bargain by a ratio of labour beyond physical endurance.

(To be continued.)

VINDEX.

ON TUDOR ARCHITECTURE.

(Continued from page 227.)

TO THE EDITOR OF THE BUILDER.

SIR.—A better taste is certainly gaining ground for pure architecture, both for church and domestic purposes, and it will not be long before we shall see banished for the future such trash as is forcibly called "Carpenter's Gothic," when it will not be considered that by sticking a few buttresses against a wall where they are not wanted, by enclosing a roof with an embattled parapet, putting labels over common windows, and scattering here and there a few pinnacles, and all clumsily got up in compo, a Gothic design has been achieved. The suburbs of London can readily furnish proofs that some persons have innocently indulged the belief that by using all the features above named they have succeeded in presenting to the gaze of the admiring beholder a chaste Gothic building, ignorant all the while that the true spirit of the old English builders may be entirely lost sight of, even if all the details mentioned are employed, and that the same spirit may exist in a composition into which not one of them may be introduced.



"A Gothic Villa" of the Cockney school.

In our admiration of the beauties of the Tudor style, we must not forget what its original adaptors were to a great extent limited in the materials at their disposal, and it would surely be the extreme of folly in us to refuse to call in the aid of modern improvements, more especially when their adoption cannot change or affect the general character of the style. But the too-zealous stickler for copying every thing which is to be found in early models will insist, for instance, that we should still employ the leaden casement with its small quarries of glass, rather than avail ourselves of the splendid plate-glass of modern days, and the greater comfort of the sash; we might as well be expected to retain the rushes of former times for our floors in preference to our present luxury of carpets. As applicable to our streets there appears no reason why the Tudor style should not be employed with more effect and at less cost than much that is perpetrated in the so-called classic styles. It is this writer's belief that there can be no good street architecture as long as it is a fashion to club together several houses into one design, wherein a few columns and pilasters are carried (apparently) upon next to nothing—glass. This is a process that may save thought, but can never inspire genius. The great charm of our ancient street architecture no doubt arose from the individuality, so to term it, of the buildings; each house was a picture in itself, with its projecting gables, richly-carved barge-boards, quaint devices, and elaborate carvings in real wood and stone, whilst a row of such houses, alike in character but differing in detail, presented a gorgeous whole such as the eye could fondly dwell upon and the painter delight to sketch, but which it is vain to hope to find in these days of stucco, papier-mâché, and putty. And what has been gained in point of effect by the introduction in our leading thoroughfares (which are so splendid in their length and in their breadth) of that which is called classical architecture, executed as it is only in fictitious materials? Is any one, even the most casual observer, deceived by the stuccoed imitations of stone? he has only to turn his view to a line of buildings, and he will find as many different complexions as there are houses, varying from a magneesian white through

rhubarb tints to a sooty hue, and perhaps a column or pilaster, partaking equally in a vertical direction of two colours. But "there can be no mistake" about Portland stone itself, and a resemblance to it can never be attained by any plastic material. There are yet some mansions in our principal squares which have probably never had any thing done to their Portland fronts since they were erected some 80 or 100 years ago; and whatever was the original cost of those fronts, it has been more than repaid by the saving effected of the expense which a stuccoed and painted outside would have involved during that period; and whilst the Portland front has this advantage over its meaner rival, that at a trifling expense it can be brought back to its early freshness and will always be *stone*, the other after all its cost, and constantly required patchings and stoppings, is yet only *stucco*, or more properly *dust*, to which, at no distant day, it will return.* In opposition to what may be considered the cold formality of classical architecture as applied to our street-buildings, some of our professors are hurrying into an opposite extreme, by embellishing the outside of shops and houses after the Louis Quatorze, Renaissance, and Elizabethan methods; but too often the good in those respective styles is overlooked in an excessive fondness for detail, and that of the least tasteful kind, which is soon obscured by the smoke of this vast city; whereas, if our artists would consider outline more and detail less, their designs would do themselves more credit and be less costly to their employers. For the next quarter of a century, perhaps, it is to be feared that the first-cost cheapness of stucco will have its baneful influence on buildings about to be erected; the designer, careless of future reputation, seeks only to produce an imposing (which it is in reality) exterior at a moderate cost, and therefore crowds into a facade as much enrichment as he can for the money, or that the space will permit, leaving no repose to refresh the wearied eye, not considering that that which looks "pretty" upon paper, may have a very poor effect when executed, when it will be seen that the lines which produced pilasters have little more projection in reality than upon paper, that the shadows in the drawing will, in the building, be collections of dust, and that far from carrying out the promise of the highly-wrought sketch, the whole will be

"Stale, flat, and unprofitable."
London, June 14, 1843. PHILIP TUDOR.

THE NEW BUILDING ACT.

TO THE EDITOR OF THE BUILDER.

SIR,—With the supposed object of simplifying the operation of the Bill, and causing its machinery to work uniformly, a rare and costly balance-wheel has been attached.

It is proposed to constitute a kind of perambulating court, consisting of three architects, nominated by and removable by the Secretary of State for the Home Department.

I apprehend it to be on all hands conceded, that such a court, well constituted, with duties clearly defined, and consisting of men of sterling intelligence and integrity, would be essentially serviceable. Such has for years been my settled impression; and it only remains to consider how far this puny court of judge, jury, and executioner is likely to effect its object, for it may well be that in the irrevocable decisions of these three Fates, the future prosperity or adversity of many a young and talented architect, the good or bad repute of many a skilful and honest builder, and the little annual fortunes of many a helpless pining widow and orphan may be involved.

The fit constitution of this court, the fit kind of men to be appointed, and the fit price to be paid for them, wholly depending upon their duties, their authority, and their responsibility, it will be well to ascertain, and to arrange these in due order.

As to their duties.

Clauses 14 and 28. They are to examine into and control the construction, and the additions to and the alterations of all buildings of the *eighth rate*, a rate especially constituted for their express supervision and advantage, and comprising every kind of building used for public worship, or which can, in any way, be considered places "for public business, instruction, debate, diversion, or resort;" all breweries, distilleries, manufactories, or warehouses exceeding fifty feet in height from the basement floor, and all dwelling-houses containing more than seven floors, or exceeding seventy feet in height.

They are, in conjunction with the district surveyor, not only to see that the regulations of the Act, so far as they apply, are obeyed, but are to direct such additional precautions to be taken as

they may see fit. They are to survey, and to certify their satisfaction (if satisfied) within one month after each building is covered in (*i.e.* twenty-one days and seven days), and again to survey and to certify their approbation, as it would seem, within one month after the completion.

It may be remarked, that clause 28 is so situated as to render every kind of building whatever, excepting the nondescripts of clause 29, subject to this re-survey and certificate of the official referees. Probably it may have been a blunder of the printer.

Clause 103.—In conjunction with the district surveyor, they are to survey and to certify as to the state of all buildings which the overseers of the poor may think ruinous; and, clause 104, as they have to assess the costs, it must be a part of their duty first to examine into the state of chimney-shafts, chimney-pots, or other things thereon; slates, tiles, projections, or ought else that may be in imminent danger of falling; and, clause 115, which appeals to their certificate, necessarily carries with it that they must previously survey every drain, and "every other part of every house or building of every rate;" or, their certificates will be mere waste paper, and the poor wretch who may be sent to the common gaol for not altering any irregularity, may have good cause of action against them.

Clause 93.—*They alone* are to survey all ruinous party walls and party arches. Clause 98.—*They alone* are to survey and to award, in all cases of intermined property, as to the fit sites for party walls and party arches, and as to such compensation as may perchance be due to either owner.

The Bill indeed says, respecting which the owners cannot agree, but, as by clause 111, no account as to the reparation or rebuilding of a party wall shall be delivered, except it shall have been approved by the referees, the wall must necessarily be first examined by them, or how can they know any thing about the true value of the work, and the credit for old materials? for this clause 111, will not allow two friends to act like friends, and jointly pay their own bill, without first calling in and paying official referees, to do that which they are not wanted to do. Nor will it admit of persons employing their own architects, surveyors, or builders, of whatever rank they may be, upon this part of their houses.

Clause 88. *They alone* are to assess the cost of stopping up any window which may be made in a wall, contrary to the will of an adjacent owner; and, clause 91, to assess the value of the materials of an old half party wall, and of the ground upon which it stands; and clauses 103, 104, 107, 109, 110, 111, 112, to assess the value of every half party wall or party arch, and every thing appertaining to it, together with the cost of removing the furniture; and clause 104 even that of replacing broken tiles, slates, and chimney-pots, with new.

As to their authority.

Clauses 18 and 19. They are to decide between disputant builders and district surveyors, as to what rate a building is. Clause 60. What is the general line of a row of houses. Clause 90. Whether or not the builder who has cut off footings and chimney-breasts in a party wall is visitable or not with payment of the whole cost of rebuilding it. The obscure wording of clause 115 seems to intend that they are to determine what are the rules, directions, and regulations of the Act; for what else they would have to certify under this clause, is not very manifest. Clause 141. They are to adjust as to the limits of districts between two contending district surveyors; and, clause 142, they are to determine between disputants, as to the way in which the Act is to be carried out.

Clause 98. Their awards are to be conclusive against bodies politic or corporate, together with the Queen's Majesty and all other persons whatsoever. The production of their certificate, under clause 111, as to value, must at once stop any action under clause 110, and render nugatory all that apparatus of judge and jury, of which an Englishman is proud, inasmuch as that the plaintiff must necessarily recover the full costs of a bill, which cannot but have been certified by the official referees, or it is no bill at all. In fact, there will be no question to try. Judge and jury, plaintiff and defendant, may just as well stay at home.

Clause 140. No stamp duty is necessary to make their awards valid; and, clause 142, they are to have the same effect as if made under an order of reference from the Court of Queen's Bench, and are to be enforced by that Court.

As to their responsibility.

Excepting that they may be unmade by the hand that made them: excepting that they may be made to obey the Secretary of State, because that he is to have a control over the amount of some of their fees, they are to be entirely irresponsible; and, although the district surveyors, whose hands are tied, are to be sworn, even the common sanction of an oath, feeble though it may be, is not to be re-

quired of the unfettered official referees. The district surveyors are to make regular returns of their work and their emoluments four times in every year, and are not even to take their fees, without giving categorical written receipts; but the official referees are not required to make any returns, nor to give any receipts whatever. Excepting to their own consciences and the Secretary of State, they are, on earth, to be wholly unchecked and wholly unaccountable.

There cannot be a moment's question that the contemplated mode of constituting such judges is radically wrong. They ought to be as entirely independent and irremovable as all other judges, *quandiu se bene gesserint*.

There cannot be a moment's question that "architects" (in the elevated sense of the term) are not fit persons to execute the duties of such an office. All the duties are those of persons who sail under the humbler title of "surveyors." Men thoroughly acquainted with the constructive science of building; men thoroughly acquainted with the value of old and new materials, and of workmanship; and men who will not deem themselves dirtied and degraded by contact with a bricklayer's labourer or a moulder-ing wall.

In every qualification of mind, in every high and honourable feeling, they may be equal, nay, they may be superior to, but they may not be "architects." They may not have made any pretty, deceptive pictures; they may not have seen "the old stones;" they may not be able to act ecstasies, and prate about the "fine" things of the Continent; but they may be sterling men of business; and men of business, not artists, are wanted for such work.

There cannot be a moment's question, that the price to be paid for these men is not only most enormous, but that it is the very worst possible way of paying them, as judges, by systematically making it their interest to multiply surveys, certificates, and awards.

There is altogether a difficulty in this affair which does not appear to have occurred to the framers of the Bill. Architects of high rank would not accept such an office, nor could they attend to its petty duties; and architects of high rank would not with a very good grace submit to have the constructive portion of their works overhauled by less men than themselves. Indeed the supercilious, and even insolent conduct of some men, who think themselves architects, is equally disgusting to builders as disgraceful to the profession, and could be ill brooked by gentlemen of refined education and liberal mind.

It is quite right that there should be a high, and even a stern control over all buildings in which large bodies of persons may assemble, and their lives be jeopardized.

Might it not be that some one architect might be appointed, to whom the constructive drawings and specification of every such building should be submitted beforehand; that they should be approved by him, or altered under his supervision, as the case might be; and that, without his previous signature to all such constructive drawings, the work should not even be begun; nor should any departure from them take place without his re-signature?

It might even be well that such a man should be elected by his brethren, and approved and appointed by the Government. To him it would be one of the highest professional honours to which he could aspire—the crown of a whole life; and no architect of right feeling could hesitate to submit his intended work to such a man, but be proud of his approbation, and respectfully defer to his correction. To young architects especially, such a father and friend would be invaluable.

It might then be well to constitute an official refereeship somewhat after this manner.

As questions of property, as questions of legal interpretation may, and would arise, in a district about fifteen miles long and ten miles wide, it would be well to have one man well versed in the law, and the value of evidence, and accustomed to the sifting of conflicting testimony. Let that one man be a barrister, make him the judge; give to him as assessor, one (or more) experienced surveyor, and allow him to call upon the architect, whenever needful, for further advice. Remunerate them all with sufficient, nay, with handsome salaries, but interdict all other practice, unless indeed mere consultation were allowed, within the metropolitan district.

In every case of intermined property, or of ruinous party walls, partitions, or arches, let the owners agree, if they can, both as to the necessity for rebuilding or not, and as to market price. If they cannot agree, then let three district surveyors next adjacent to that in which the case might lie, make the survey and certify the facts to the official referee, with their opinions appended; and let it be acted upon, unless notice of appeal be given.

In like manner, if three district surveyors view

* I would recommend to the notice of your readers Mr. Bartholomew's severe but admirable invectives against compo.

and certify as to ruinous buildings, the official referee might direct the proper parties to hoard them in.

In like manner, the removal of common privies or other nuisances, the due ventilation of buildings, the height and construction of factory chimneys, and other matters of detail, might be safely and usefully left to the intelligence of such three district surveyors, who should certify the facts with their opinions; and the official referee, if satisfied that the spirit and object of the Act, as to stability, and as to security against fire, and as to the promotion of health and comfort, are carried out as far as possible, he might be authorized to make an order to such effect as he might deem right. Questions of window light, drainage, and other easements might properly be referred to such a tribunal, saving the superior judges much valuable time, and really having the business better done than any ordinary jury can do it. All disputed accounts as to party walls might advantageously be left to their decision.

If any person should feel aggrieved by the certificate of the district surveyors, and the decision of the official referee as an individual, he might have an appeal to a court of official referees, consisting of the barrister, the architect, and the surveyor. This decision might be made final.

The district surveyors would be fairly paid by one guinea each for every party wall survey and certificate, and in cases of intermixed property they might have two guineas each; and minor cases might be paid for in proportion.

It cannot be supposed that such an off-hand suggestion as this can be anything like perfect, but it may be worth consideration whether some such arrangement might not only be quite efficacious, but bring cheap justice home to every man's door; and the opinions of such well-practised men (for they would have quite enough for every day in the week) would be almost invaluable to the judges in difficult cases appertaining to buildings, and be almost, if not quite, equal in weight in their kind to those of the elder brethren of the Trinity House in questions requiring nautical experience.

As to the table of fees in clause 129, it is only marvellous that any expectants of office could have been so short-sighted as to open their mouths so wide. Strike off the fees of the official referees, and they are not quite so outrageous as at first sight they may appear, for it is to be remembered that all the rates are largely increased, and that additional labour and additional responsibility are imposed.

If the enormous fourth rates of the bill be legalized, a fee of four guineas might indeed be a little beyond the mark; but I doubt not the district surveyor had much rather have three times two guineas for the present fourth-rates, which would occupy the same ground as one of these monsters. As to two guineas for looking to the reparation of every broken tile or chimney pot, it is only a repetition of "too bad."

The truth is, Sir, that the whole system of leaving upon you, me, or anybody, to pay a man for not allowing us to do as we please, and for forcing us to do that which we do not please, is altogether vicious. The surveyors ought to be paid out of a county rate or some such fund, not by salaries, but in proportion to the work they actually do. Or if the same amount of fee were paid beforehand for a lease to build, as in the case of setting up a hoard scaffold, I am satisfied it would be pleasanter for all parties than now it is. It would not be paid under some indefinite notion that fee is but another name for bribe. We should not slip down one side while the surveyor is mounting another, to avoid being dunned; and it would be far more obtainable for the surveyor, it would be sure money, and he would not lose half his time in hunting after recoverable fees. We should meet as friends, not debtor and creditor, and all the world can understand that difference.

Having thus, Sir, passed through some of the more important provisions of the Bill, will you bear with me in a few desultory remarks.

It is proposed to re-enact, with more stringency, regulations of the existing law, as to the extent of warehouses and stabling. It has probably never been a thought of by the framers of the clause 32, that the term "warehouse" will include buildings of a different character and use to the "stacks of warehouses," that is, warehouse floors, often piled by different holders, and piled one above the other, with one or more tiers of loopholes, communicating externally with each floor or warehouse, specially described with mercantile accuracy in existing law.

The restriction even of these to thirty-five squares, as subdivided by party walls with iron doors, is shown to be commercially and uselessly inoperative, by the restriction being rendered inoperative by the legislature with respect to the warehouses of the several dock companies.

The same remark may apply to stables. Scarcely if any, separate stable reaches to twenty-five

squares; but the whole of an establishment of stabling may stretch far beyond it, yet subdivided by walls. *Cui bono* the enactment? You may indeed insist upon having iron doors, but what law can force them to be always shut?

As to the removal of dangerous or offensive manufactories within the next thirty years (clause 27). Independent of the inconsiderateness of measuring by one line businesses of ten pounds or one hundred thousand pounds capital, it does seem to me more especially unjust as respects fellmongers, where they are generally situated in a peculiar locality, where they were originally formed in open fields, far away from ordinary dwelling-houses. Roads have been cut through them, houses have been built around and hemmed them in; and now, not the doers of the wrong, but the sufferers, are to be routed out. Is this British justice?

That any two justices of the peace, that any two half-informed barristers, under the name of stipendiary magistrates, be intrusted with power to decide as to what is noxious and offensive, and to ruin a flourishing manufacturer, is certainly something less than wise.

Iuded the power to be given to any two magistrates to levy fines of from five pounds to five hundred pounds a day, under the proposed law, is so perfectly monstrous, that it can scarcely be persisted in.

A fine of five hundred pounds a day, if inflicted by a jury for some atrocious misdemeanour, would at once be set aside by the judges as excessive.

Clause 23. Rooms in basements are not to be dwelt in, unless they have areas three feet in width before and behind them. For what good reason? A dry area of one-third that width would be amply sufficient to keep the wall dry, and it would not force the front of the house to be set back behind the front line of its neighbours, leading to loss of ground, to loss in rent, to loss in trade, and producing unsightliness.

It is rather odd to find this clause so loosely worded, that while rooms in basements cannot be let, to dwell in, unless each have a window and a fire-place of specified size, the letting of upper rooms without windows or chimneys is not interdicted.

As to the formation of projections in front of a row of houses. Instead of having to call in, and pay district surveyors, and official referees, for deciding which line is the general line, could it not be enacted that, where two or more houses adjoin, and form a continuous row of less or greater length, no one shall build a projection on the ground story beyond the other houses, without the written consent of his neighbours and the owners of the houses? It may well happen that, in process of time, changes in the commercial character of a neighbourhood may render it necessary to convert a row of private houses into shops; and, to render shops profitable, they ought to reach to the public way.

A like restriction in the existing law has long been felt to be so serious an interference with the rights of property, that many magistrates have overborne the district surveyors, and, contrary to the law, have allowed front courts to be built over. And, if all the owners of one complete and undivided row of houses agree to do so, would it be wise, nay, would it be just, to interdict it?

It is curious to see that the same men who so wish to do this, cannot perceive any difficulty in especially providing that porticoes of churches and other structures may cover a public pathway, and destroy the show of a line of shops!

There are very many other comments which might be made upon this beneficially intended, but ill digested Bill; yet, have I trespassed too much already. I will close my paper with suggesting that, possibly, it might be well to direct that when doorways are found at the angles of houses, the whole height of the angle should either be canted or rounded off. Besides being a violation of the spirit of the law, as now often practised, it is an insecure mode of construction. This suggested alteration can do no harm, and while making it more convenient for passengers, it may render a room much pleasanter, by giving it an angular view along the public way.

I would also suggest that the water from the largely projecting cornices of houses and public buildings, and even of shop fronts, when overhanging the footpaths, should be so conveyed away, as not to drip upon passengers. It can very easily be guarded against, and I will also observe that if all rain-water pipes were made to discharge into the drain of the house, instead of their filthy waters running over the surface, London would be rendered much cleaner and less offensive.

I have but now, Sir, to return you my sincere thanks for your kindness. Conscious that I have been actuated by an earnest wish to see a wise and a good measure enacted, I trust that none of my observations have been uncourteous to those persons upon whom the very onerous task of producing the bill has devolved. In passing through it, I

have sufficiently seen how great the difficulty must have been to get it even into its present state, imperfect though it be; and, could I dare dream of such a thing, should be most amply rewarded, if the loose and ill-arranged remarks of an obscure and humble man, should in any way become conducive to the welfare of my fellow citizens, by drawing the attention of educated and experienced minds, to pursue the subject with far surpassing ability, although not with greater zeal.

Allow me to observe that, in your last number, page 233, the 47th line from the bottom, the word *not* should be expunged, its insertion spoils my meaning, which is this; that if the half party wall should cost seventy-five pounds, and the rack-rent should be one hundred pounds, fifteen shillings of that cost should be repaid by each receiver of rent, for every pound rent taken by him.

I beg to subscribe myself, Sir,

Your much obliged servant,

A BRICKMART.

TO THE EDITOR OF THE BUILDER.

SIR,—My last communication having been acknowledged, I hope it will obtain insertion, together with my answer to Mr. Dean's letter, in the next number of your very valuable paper. Certainly, I entertain not a doubt that the candid minds of your intelligent correspondents and readers will most readily, after perusing these papers, give me full credit for the discovery to which I lay claim, viz. the true laws of nature, essentially requisite to be known, for the perfect construction of fire-places, without previous experiment, and for warming and ventilating rooms or buildings, so as to diffuse an equalized temperature of wholesome air, and also for effectually removing all disagreeable smell from places subjected to noxious effluvia. That my science *does* embrace these laws, my practice has sufficiently proved; and that I can secure these most desirable effects by the most simple and economical means nature herself will testify, by necessarily performing her work *uninterruptionally*. Machinery of every kind, chimney-pots, coals, and all other elevations above the roofs of buildings, are as unnecessary as they are obnoxious to the eye of an architect, in destroying the uniformity or the beauty of architecture. The old system (if, indeed, that be worthy of the name, which consists in mere experiment, and subsequent correction of errors) I have proved to be incorrect. The laws of nature cannot fail, for they are uniform and immutable. Consequently, when positively attained, as they are by me, they may be applied with certainty of result.

Experiment implies ignorance of those laws, as essential principles of guidance; therefore, only seeks effects. This, at best, will but lead to art without science, to effects without reference to the cause or natural laws which produced them. Perfectly familiar as I am, per force of forty years' hard labour and study of natural philosophy in all its branches, I can always predicate and warrant the result of the application of an apparatus of a certain size to a given purpose. With my knowledge, subsequent alteration or amendment would be entirely precluded. In reference to Mr. Spencer's letter, I must refer him to the paper now under your consideration for *THE BUILDER*. But, in regard to economy, which he doubts, I beg to say that the architect, Mr. Charles Barry, ordered one of the firekeepers, in the severe winter of 1838, to measure the coke required to warm and ventilate the committee and dining-rooms, cloisters, &c. The result was this:—One apparatus warmed the five rooms above the crypt, or late Speaker's dining-room and passage, containing about 55,000 cubic feet of air. A mass of about 1,500,000 cubic feet of air was therefore warmed in twenty-four hours by one of my apparatus, and passed through the rooms day and night, constantly renewing the atmosphere in the same. Now, uniformly securing an even temperature of 65° to a million and a half cubic feet of air, in the severest weather, how small a quantity of coke or coal would Mr. Spencer call economy? Would he be satisfied with my answer, 3½ bushels? This was the quantity consumed during twenty-four hours.

Without wishing to digress from the subject of "warming and ventilation *alone*," I confess I think Mr. Spencer somewhat *intemperate* in his expectations, when he, acknowledging the vast compass of science embraced by this subject, viz. "physiology, chemistry, pneumatics, hydrostatics, hydraulics, pyromonics, mechanics, &c." almost in the same breath coolly demands my system for discussion! Had this very reasonable Mr. S. expended some thousands of pounds, as I have done, in the pursuit of science, in the course of 40 years' study and practice, and his exertions and immense sacrifices, to say nothing of personal perils and sufferings, had at length been crowned with success in the attainment of a valuable and most useful science hitherto unknown, I will not ask interrogatively, *would he?* but I will venture to assert affirmatively, *he would not make so light of the discovered gem in philosophy.*

phy. He seems to have doubts, he seems also to think at least, that he has reasons for them. My science shrinks not from scrutiny, for the laws of nature are invincible! But were I to publish these laws there would be an end of discussion. Let Mr. S. study as assiduously and perseveringly as I have done, perhaps similar success may crown his efforts. He enjoys the advantages of an advanced state of art and science, and improved facilities of communication with master minds. But let him not undertake those philosophical professors of whose acquirements he is entirely ignorant, and of whose talents he is totally incompetent to form a just estimate. I object not to give their names, should Mr. Spencer be so presumptuous as to attempt to correct them, in their judgment of my science. The report of 1836, Mr. S. must be well aware, was named as a testimony of successful result. "The great authorities" at which he seems to sneer, I esteem valuable for veracity. That I do possess the science I claim, facts (which are known to be stubborn things) sufficiently evince.

Effects will suffice to accredit a science, however ignorant the witnesses may be of its principles. The testimony of others, of course I am aware, is only valuable in default of demonstration by facts already in existence, or as corroborative of those that are. Both have been published, doubt who will.

With great respect, I remain, Sir,
Yours, much obliged,
F. A. BERNHARDT.

June 14th, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—In THE BUILDER of last week is an article from Messrs. Dean, Dray, and Dean, telling the readers of your admired journal, that they are the manufacturers of the ventilation apparatus (as he says, invented by a lady), which I mentioned in No. 14 of your journal. I never expected that this said Mr. Dean was the person who erected the cylinders mentioned, particularly as no person could tell where he resided. I made inquiry amongst the prisoners who the manufacturer was, but nobody knew his name or residence. I went to the vice-governor, and asked him, but he did not know it. He, however, advised me to see the clerk of the works, and assured me that he could tell me the name. I followed his advice, but I was astonished to hear from the clerk that he did not know the man; and he said he had received the order from the town clerk, and advised me to go to him, just opposite to his office. The town clerk was surprised that the clerk of the works denied knowing the person who worked under his direction, and told me that he was the man who must know the name of the person in question. I returned to the said clerk, and told him what I have stated. After a little more trouble, he brought forward a book, and read the name Dean. He said he had received the order from one of the aldermen, but he did not know where the man lived. I therefore believed that it might be a poor blacksmith who did not like to give his address, and I am obliged to Mr. Dean, that he, after the second trial, has made it known that he is the man.

I asked the clerk of the works for the name of the alderman, and he said it was John Johnson. I went to Guildhall, and waited till the said alderman arrived, and I asked him if the clerk's statement was true. The alderman told me that not he, but Sir M. Wood, had given the order, and he had heard it did not answer, and would be taken down.

I am certain that no alderman is acquainted with my patent principle for warming and ventilating buildings; and I believe that if they knew that no perfect ventilation can be effected without infringement on my patent right, they would not permit any man to put an apparatus for ventilation in any building under their authority.

If Mr. Dean works under the direction of women or men, and acknowledges that ladies are more ingenious than he himself, this is not my business; but I tell him, that I hold him liable for the ventilation in question; even now, and after the alteration made to avoid infringing my patent right. There is still a part of my patent right in use now.

June 6th, 1843. BERNHARDT.

TO THE EDITOR OF THE BUILDER.

SIR,—In last Saturday week's number of your valuable paper, you take notice of the twenty-first annual dinner of the Carpenters (not the eighth), at Highbury Barn, on Whit-Monday. So far as the detail of the proceedings of the festival goes it does you credit; in the latter part of which you express a hope that "the day is not far distant when the concessions of the workmen to the convictions of their reason and the principle of justice will be regarded as entitling them," &c. Now, it is possible for a body of men to act against the principles of justice, but never against the convictions of their united reason. It would have been well had you been less ambiguous, and gone boldly into the subject which you have only hinted at.

Come forward with "the principles of justice," and "the convictions of reason," that may judge this blind "justice," and ascertain if the convictions are ours or yours.

Further on you state, "The oath of enrolment and the secret convolve are matters of history; even Manchester has come to the resolution of recommending the dissolution of the old Trades Unions." There is either gross ignorance, or acting against the convictions of reason in the above passage. The administering of oaths in Trades Unions was abolished, not only in London, but throughout the kingdom, after the conviction of the Dorchester labourers, and are now "matter of history." Yet you state that even Manchester has come to the resolution of recommending the dissolution of the old Trades Union, which would lead any man to believe that that portion of society called the General Union of Carpenters of Great Britain and Ireland were acting in defiance of the law, and reckless of the dangers they were exposing themselves to. Why, Sir, it's plainly telling the government that there are illegal societies in existence, and Manchester is recommending their dissolution.

I trust, Mr. Editor, that the next time you interfere with Trades Unions, you will take your information from parties who know something about the matter they wish you to write upon.

In conclusion, allow me to inform you, the London Division of the General Union of Carpenters is in a more flourishing and healthy state than any local society in existence. Whatever Manchester may recommend, we will be guided by the convictions of our reason, without any concessions.

I remain, yours respectfully, for the name of the Members of the London Division of the General Union of Carpenters,

C. MAYNE, Sec.

Silver Cup,

Cromer Street, Gray's Inn Road,
June 21, 1843.

TO THE EDITOR OF THE BUILDER.

SIR,—In closing my papers upon the Metropolitan Buildings Bill, and reiterating my thanks for your indulgence, I beg to express a hope that your work will largely contribute to that good understanding between master and man which alone can promote their mutual prosperity.

Pray, Sir, let me entreat you to warn men against too eager a change of masters. When once they have mastered their business in its various branches, let them be content to remain with one employer.

"A rolling stone gathers no moss." It is a homely proverb, but I have acted upon it throughout a few years, and, thank God, have prospered upon it. And now that I am a sort of master, I hope that I have never forgotten that I once was a sort of journeyman.

Others may succeed as I have done, if they will not be impatient.

I am, Sir, your obliged servant,

A BRICKBAT.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—Through the medium of your excellent work, I beg to acknowledge, with many thanks, the information supplied by your correspondent, J. B., regarding St. Nicholas' Church, Newcastle-upon-Tyne. Although it is to be regretted that the information is not so satisfactory as could be wished, it is highly acceptable, and I may glean out more by the stimulant it affords.

In reply to J. B. regarding what he terms the sweeping censure I passed on the spire of St. Dunstan's Church, London, I have to state, that if he refers to my notice, it will be seen that the observations I made were of a rapid nature, and consequently did not admit of particular and accurate explanations; however, I shall take the earliest possible leisure to resume the subject, but cannot do so effectually until I have either a sketch or print of St. Dunstan's tower and spire, when I shall speedily attempt to explain "in what its failure consists," in comparison with the spire of St. Nicholas, Newcastle, together with other solecisms contained in the former edifice.

I am, dear Sir,

Yours truly,

GEORGE WALHEIM.

TO THE EDITOR OF THE BUILDER.

SIR,—It may not be worth your notice to list it, but in the list of tools in Vindex's "History of Labour," a navigator (which he had not heard explained), may have become an avenger, and now an auger; just as a new became an ewt, or an eft, as now. With anawl, an adze, a square, and an auger, the poor carpenter could do some work—not much without the last.

Yours truly,

C.

TO THE EDITOR OF THE BUILDER.

SIR,—Will your correspondent, "A Young Architect," inform me through your next paper, the cost of a cottage in the style given in No. 18, and oblige

A CONSTANT READER, & ADMIRER OF HIS TASTE.

Miscellaneous.

CITY ANTIQUITIES.—In Cateaton-street, on the east side of Milk-street, Cheapside, where the ground has been excavated a considerable depth for the purpose of making a foundation for some warehouses which are now in course of erection, the workmen have discovered a large quantity of Roman earthenware, consisting of jugs, &c., and many ancient coins. On Wednesday, on coming to a cesspool, which was under the surface about fifteen feet, a hen's egg was found quite perfect, which must have been there 200 or 300 years. A few days ago much curiosity was excited, in consequence of the workmen meeting with several piles of wood, which are fixed in the earth at a depth of about ten feet from the surface. There were two sets of piles, at about six feet from each other. In each set there are nine piles (forming a square) each pile being about five feet high. Upon these piles were several trunks of trees, which have been removed. They are supposed to have been placed there at a period long before the fire of London, as the transverse pieces of wood have no appearance of the action of fire upon them. Many antiquarians have been to view the spot, and have had a draught and plan of this mode of building of former times. It was thought by Mr. Hawke, the builder, that a cesspool might have been under, and that the piles were to support some large structure; but which was not the case. There formerly stood here an ancient public-house, called the Paul's Head. Some months ago the remains of a garden were found close by, while excavating for a sewer. Very extensive remains of foundation walls have been dug up, which were composed and cemented together in the most solid manner. The material consisted of cliff, flint and chalk, and sandstone, and was so firmly united, that the pickaxe could not penetrate, and, in order to break the walls into pieces, the wedge was applied. Upon these walls the houses, which have been recently pulled down, were built. They have been entirely removed, in order to make a foundation sufficiently firm for the houses now being erected.

VIENNA, MAY 27.—The number of workmen at present employed on the iron railroads to the south and the north is 40,000, and will be increased in a few weeks to 60,000.

MUNIFICENCE OF HER MAJESTY AND HIS ROYAL HIGHNESS PRINCE ALBERT.—Windsor, Sunday evening.—Her Majesty has just been most graciously and benevolently pleased to add to her former contribution in aid of the funds for erecting a new church (the exterior of which is now completed) in this borough, the further liberal sum of 200 guineas. His Royal Highness Prince Albert has also added 100 guineas to his former handsome donation to the same amount. The whole sum benevolently presented to the church building committee (through the medium of the Rev. Isaac Gossett, the vicar), by her Majesty and her illustrious consort, now amounts to 600 guineas!

In September, 1838, a valuable piece of mosaic, representing Orpheus and Ceres, with her attributes, was discovered in the forest of Brothorne, in Normandy. Since then the Archaeological Society of Caen have extended the researches, and found a long suite of Roman apartments, and several baths. One of the rooms is very splendidly decorated, and on the walls are the finest specimens of mosaic work, representing various aquatic birds. On one side is a large stove, with flues to convey the heat, and on the hearth were charcoal and ashes, as fresh as if newly brought there. Another room was entirely paved with mosaic, but unfortunately only a few fragments remain entire, the rest having been crushed by the falling in of a wall. There were also found coins, with the profiles of Nero, Antoninus, Gallienus, Claudius, and other Roman emperors, with bricks, tiles, double-headed nails, vases of terra-cotta of different colours, pieces of stone, marble, and glass, and several articles of iron, bronze, and ivory. There were also numerous stag's horns, boars' tusks, and bones of animals.

GRESHAM HALL.—The two fronts of this building are completed. That towards Basinghall Street is a tolerably good one, the other not so remarkable. It will, however, form a conspicuous feature in new Cateaton Street. It is, nevertheless, to be regretted that such a small building should be provided for the delivery of the lectures, as it will only tend to keep them at their present inefficient standard.

We would respectfully direct the attention of our Country Subscribers to the mode we have adopted of signifying to them, when the period of their subscriptions expire, and when they become due—the substitution of a BLUE envelope to their paper instead of one of the ordinary nature.

THE BUILDER,

NO. XXI.

SATURDAY, JULY 1, 1843.

WHEN we consider that there are some five hundred thousand working builders in this United Empire, and consider, also, the important influence these five hundred thousand have upon the working of events, and how, again, the events and changes in our commercial and civil polity act upon and influence the weal and woe of the five hundred thousand and their families, we never can lose sight of the fact, and never have lost sight of it, that if we are to have life at all, and if there be anything for which this paper may find it worth while to live, it must be through, dependent on, and working for, this mass of industry—this great republic of freemen. To carry knowledge and instruction to them, to collect for them, to consider and to act for and with them is our duty, or we have none at all. It is true and sound policy, whether of governments, petty governors, public functionaries, or public journalists, these are born of or grow out of the interests they are designed to protect or to advocate. Our eight of duty, if fulfilled, is the converse of our own personal humbleness. We may be great in the sense of our public, as we are little in the sense of our private position. We have a great mission to fulfil, but we are very humble missionaries; nevertheless, in all communications which pass between us and the accredited agents of any section of the great body whom we aspire to represent, we must beg to have a little dignity of speech and manner prevailing, and this brings us to dealing with the letter, signed C. Mayne, which appeared in *THE BUILDER* of last week.

That letter, be it remarked, came to hand as we were going to press, and was inserted in a hurry, and almost without examination; not that we should have presumed to alter it, or to have withheld it, but if more time had been, it would have been accompanied by our remarks.

And these remarks would principally have applied to that tone of querulousness which C. Mayne has indulged in. Are we to be for ever misunderstood and misinterpreted? No.

It is not we that have any cause of complaint; we cannot (if we would submit to it) quarrel along at cross purposes, even with an enemy, with friends it must not be for a day, for an hour; friends will see that we mean no guile, that we act none; and wherefore should we be questioned in the character of a culprit, or by those who insist upon the amenities and suaveness of dealing, who complain, and complain largely, of the high and insolent tone of their revisors ever and anon, why should they censure that impatient and brow-beating demeanour which but befits the tyrant in power and the slave in servitude? Our intention must be apparent to every well-intentioned man, unless he be blinded by the accident of position, or that as us through a coloured glass, when we well afford to be scrutinized with the pellucid. We have already bestowed our best efforts in vindicating our friends, and many of our class, from themselves—from their own faults, and we must do so, even by Mr.

Mayne and those he represents; we tell him and them, that their cause is not properly handled by this pouncing upon their friends, this punctilious and pragmatical seizure of a word, this trussing and dressing; and for their own sakes, for the sake of their class, for our own, and the whole cause we advocate, we are not here to submit to it.

We bid for no man's favour, nor for that of any set of men; and if we had been disposed, we frankly own, in the face of the world, that our first choice would be the workmen. We know their virtues, and we are not to be turned aside by the "sour-grape" disappointment of one set, or the contemptuous hauteur of another, who, standing above the workmen, or affecting to stand above them, talk of them as ingrate, lawless, turbulent, and the like. As we said to a lady, or a would-be lady, one day, declaiming against servants, and, in the hackneyed phrase of the times, deploring "that there were no good servants nowadays"—"Madam, we fear the good mistresses are as fast disappearing." So we say to these croakers, and impugnors of the virtues of the working men, "Give us good masters;" but still we are not to shut our eyes to the failings of the workmen—we will not mince the word—their vices. And who, pray, are their best friends? those who slaver them over with the hollow compliments of a knavish yea to their yea, and nay to their nay, or those who discriminate between their fancied and real grievances, and so advise them in the latter case, that they be not led to jump out of the frying pan into the fire?

Mr. Mayne demands of us to "come forward 'with the principles of justice' and 'the convictions of reason,' that" he and his friends "may judge this blind 'justice' and ascertain if the convictions are"—theirs or ours.

We will not quarrel with him, however, but we quietly tell him that, in general terms, we define justice to be "to do unto others as we would they should do unto us." When we have a particular occasion for exemplifying our sense of it, we shall not shrink from adopting it. There is a lull now, a painful troubled sleep, hard dreams and groanings of the body politic; no bed of feathers or of eider down, or if such, it might as well be the hard board or floor of stones; the intellect of industry is drowsy now, waiting and perplexed for the coming of events that shall infuse the agitation of a whirlwind, mayhap the burstings and upheavings of a storm. Wages will have their assault out of all this battling of the outer forces, and pleas will not fail to be urged that cunning men are hard forging now; then, may it please God to place us in the right, as we firmly believe our eyes to be thither directed now; then we shall lay fast hold of the "PRINCIPLES OF JUSTICE," when they shall serve as a rudder to guide us from the breakers; then, and without bidding for popularity, we shall be found at our post; then will the working man, as well as his master, find us to be animated by the right spirit, if prayers and sighs and earnest aspirations serve to make us deserve a hearing.

In conclusion, we will frankly avow, that as we never looked on the old constitution of trades unions with the abhorrent fancy of many; since we never saw in them half so much of crime as of folly; and that folly, as we observed before, amply partaken in by many of the presumed betters of the working men, so now that they are extinct, we are not going to kick the "dead lion." "PEACE"—we had almost said honour—"be to his manes." Oh! that we could see the "TRADE GUILDS" arise—the day is coming when they will be needed.

NEW METROPOLITAN BUILDING ACT.

At length, it seems; the public attention is becoming fully aroused to the necessity of grappling with this question, and in a manner likely to lead to some salutary modifications of the proposed Bill. We say modifications, for it will be gathered from the tenor of our previous remarks, that we are not inclined to its abandonment, and this is our feeling from settled thought and conviction. A better scheme than all the Acts that Parliament could pass would be, in our opinion, to have a council of the Building trade, who should lay down cautions and injunctions, such as their practical knowledge and experience would suggest, with a law founded upon them, but applying only in extreme cases; but this in the present state of the organization of the building classes we deem to be impracticable. That every thing should be done to obviate the introduction of the cumbrous and oppressive machinery which the new Act threatens, and to guard against over legislation is highly necessary, but it is equally so, that the ambiguity of the old Act should be cleared up; and we do in our conscience believe that a properly-constituted judicial board, composed of professional men, elected by the profession, say two architects and a barrister, would be the most salutary provision that could be embodied in any enactment of this nature. It would prevent that arbitrary and uncertain sort of decision which the present extraordinary tribunal of district surveyors involves us in; but we are not inclined to be dogmatical and captious, even in dealing with objectors. We are glad to see the matter handled with such ability as it has been; and if our paper had done no more than convey to the building and building-property classes the reports and incubations of committees and individuals as it has done, it would have justified its putting forth and its existence. The Master Carpenters' Society have performed good service in this work, and the letters of "Brickbat" we consider to be the most valuable commentary—caustic and critical though it be to a fault—that has been or will be written on the subject. We advise all to read these letters, they have on every hand given great satisfaction. We present to-day, in another part of the paper, the last petition that has come to our notice; this was prepared in consequence of resolutions passed at a public meeting on the 23rd of May. We can only say, that we shall be glad to assist in the object of obtaining signatures to the petition, by exposing a sheet on the table at the office of *THE BUILDER*, and in every other way exerting ourselves to obtain as perfect a Bill as possible.

For the information of those interested like ourselves, and the movers in this petition, we subjoin a notice which is now circulating, to which we beg to call attention.

"BUILDING ACT.

"5, Chancery Lane, June 6th, 1843.

"SIR,—By direction of the Committee appointed to watch the progress of this Bill, we beg to enclose a form of petition prepared in consequence of resolutions passed at a public meeting held on the 23rd May, and to solicit your earnest and active co-operation in obtaining signatures to it. When the sheet is filled with names, we shall be obliged to you to detach it and return it to us, that we may annex it to the original petition.

"As it is understood to be the intention of Government to pass the Bill this session, no time must be lost in bringing under the notice of Parliament the amendments sought to be introduced. For this purpose it is essential that local meetings should be held in each district of the metropolis, and petitions prepared and presented forthwith.

"The Committee will be very glad to receive any suggestions from you on the subject, and any subscription towards defraying the expense of petition.

ing will be thankfully received by the Treasurer, Arthur Asptel, Esq., Clapton-square; William Rhodes, Esq., Ball's Pond; J. R. D. Tyssen, Esq., Upper Clapton, or by us.

"We are, Sir, your obedient servants,
"WILKINSON & COBOLD, Secretaries."

PATENT OROPHOLITHE.

This is a new composition which has for some time been under our observation, though not so much so with the public. There is a terrible mania nowadays for inventing learned or far-fetched names and designations, and this, which is meant to be denominated a roof-stone, is complicated into Greek, to say as much under the term Oropholithe. However we will not quarrel with the word, so that there be utility in the material. For roofs alone it is not merely applicable, though as a cheap substitute for lead, zinc, copper, and even slate, it is in this respect an eligible product, but it goes farther, and will almost provoke a smile when we announce it for walls and ceilings. We have for ourselves preferred to denominate it a portable stucco, and in this respect we think its promise of greater import than many people imagine; of course the invention, like all new inventions, has not attained its perfect character, and we should think it will, like every thing of extensive application, be a considerable time before it does; but at present it has been brought into requisition, as the advertisement states, for various classes of building. For instance, there is in the Regent's Park a lodge to the Royal Botanic Gardens, the roof and walls of which are of oropholithe sheeting; and for such purposes, for moveable or temporary erections, for garden-houses generally, for emigrant dwellings, and the like, it is, in our opinion, admirably adapted.

The composition of the material is not exactly known to us, but it has very much the appearance of mastic plaster. Litharge, sand, and oil, we believe, are the main ingredients; these are laid upon a coarse canvas on both sides, so that it resembles much in texture and substance a stout oil-cloth, for which material, by the way, we must observe it is a good substitute, and being stouter, and more calculated to resist the wear of walking, besides being less liable to decay and attacks of insects, vermin, &c., will be in most respects superior to oil-cloth.

It will be understood, then, by our readers, that the material is prepared in sheets, and is sold at so much per yard. For covering flat or other roofs boards are used, in the same way as for lead, &c. We know of one instance wherein it is applied for a flat roof in a difficult situation, round and upon a lantern skylight; and of another where the facility of its adaptation was esteemed of great consequence to the owner of the premises; a large flat roof covered with lead was yielding, and otherwise suffering injury from the weight of the material; we recommended to take off the lead and cover with the oropholithe, by which a great saving was shewn, the lead being worth considerably more than the cost of the oropholithe, and the weight or pressure in like proportion greater. Old copper roofs, which cost so much in repairs and tinkering, may be exchanged in like manner, at great advantage to the owner.

One great advantage in the laying down, is the readiness by which the joints are formed; two edges being brought together, a soldering, if one may so term it, is effected by the simple use of the mastic itself, which unites the two together, sets rapidly, and is as firm as the prepared sheets.

In constructing houses as we have described or hinted at, upright divisions or quarterings of wood, or it may be, scantlings of iron, may be set up to form the skeleton of the structure, rebated or otherwise to receive the sheets of the oropholithe stretching across like a panel of wainscot, and smaller mouldings applied to cover the joints, bedded in the material. By this means a very ornamental character may be obtained; and it is applicable, in like manner, for interior partitions.

But as a vehicle for painting, we regard it with peculiar favour; and when it is considered that the most ornamental character can be given to it, even in the workshop, and so that the plastering of our rooms may be actually prepared, dried, and painted even be-

fore the roof of the edifice is reared—in the same manner as old wainscot linings were dealt with—so considered, we say, it has peculiar claims and recommendations, which the ingenious mind will not be slow to detect.

In this time of the agitation of a question which we predict will have an immense influence on building art, namely, the use of fresco painting in the new houses of parliament, this oropholithe will play its subordinate part, and enable those humbler aspirants to the enjoyment of artistic skill, as developed on walls and ceilings, to secure their measure of gratification in painted plaster-work. Artists, too, may rejoice in the supply of a new vehicle, or rather, the house decorator may calculate upon an elevation in the scale of his class, since he has presented to him a medium upon which he can at all seasons be employed; and this is very important, in many senses. Portable panels of oropholithe, painted, dried, and seasoned, before being applied in the building, will be a comfort to occupants, and will raise the material and the art into great request.

FIRE INSURANCE.

TRANSITIONS from fancied security to irremediable deprivation are amongst the keenest misfortunes we can suffer, and FIRE with its three ministering causes, *design, negligence, and accident*, the most active and relentless agent in inflicting them; as a common and fearful enemy it requires to be hedged in and fenced about by its antipathies, by bounds which repel its progress, and these are at hand in the resources of modern building art, aided by improved adaptations of metals, cements, and stuccoes: If on any subject we would indulge in repetition, it is on that which relates to the prevention of extensive fires, but our hints have already met the eye of our readers (No. 8), and we await a more forward movement in remedial measures before we resume them; in the meantime, the following extract from the *Times*, and the accompanying petition of the mercantile community of Liverpool, shew the excitement prevailing, and which is unfortunately kept up by a continuation of incendiary attempts:—

"The great interest which is excited at Liverpool by the late fires is shewn by a large meeting, held on Monday, for the sole purpose of taking into consideration preventive measures against the recurrence of the calamity. The meeting was adjourned to afford time for further deliberation, but the motion for the presentation of a petition to the House of Commons was carried. A few weeks ago, a bill was introduced into the house for the future protection of property in Liverpool from fire. This bill was, however, withdrawn before a second reading, the reason set forth for its withdrawal being that it was first expedient to try the experiment of a better supply of water under the bill of the Highway Commissioners. The danger appearing to the merchants too imminent to admit of further delay, they determined it should be ended, and the following is a copy of the petition:—

"TO THE HON. THE COMMONS OF THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND, IN PARLIAMENT ASSEMBLED.

"The humble petition of the several Commercial Associations of Liverpool,

"Sheweth,—That the frequency and magnitude of fires in warehouses have greatly increased within the borough, occasioning, during a short period, the loss of an enormous amount of property.

"That the extent of the losses is mainly to be attributed to the defective construction and management of the warehouses; the absence of all classification of goods and merchandise; the contiguity of buildings in which hazardous trades are carried on, and of small tenements, timber yards, and cooperages; and to the defective, and in some instances, total want of supplies of water.

"Your petitioners are aware that for the better supply of water a bill is in progress through Parliament, submitted by 'the commissioners for paving and sewerage the town of Liverpool.'

"That the mayor, aldermen, and burgesses of Liverpool submitted a bill in Parliament, with a view to remedy the defect in the construction and management of warehouses, entitled, 'A Bill for the better Protection of Property in the Borough of Liverpool from Fire,' containing provisions calculated greatly to increase the protection of warehouses against that calamity; the prosecution of which, however, was postponed in order to afford time for the further consideration of its provisions, and it has not yet been read a second time.

"That fires to an alarming extent have taken

place since, shewing the urgent necessity of proceeding forthwith with the proposed bill, as they have demonstrated that had the measures of protection and prevention sought for by it been in operation, the calamity might have been greatly mitigated, if not averted, and that without some such provisions as it contains being enacted, no supply of water, however abundant, will guard warehouses and their contents from the ravages of fire.

"That the rates of insurance against fire have been advanced to a most alarming and burdensome extent, thereby increasing the charge of holding produce and merchandise to such a degree, as is calculated to cause a diversion of trade from this port to other places, where a better construction and management of warehouses prevail.

"Your petitioners therefore pray, that the mayor, aldermen, and burgesses of the borough of Liverpool, may be allowed to proceed with the bill, 'for the better Protection of Property in the borough of Liverpool from Fire,' the consideration of which has been postponed, and for such purpose that the second reading thereof may be permitted, and that the bill may be referred to a committee of your hon. house, and that time may be allowed by your hon. house for the report of the committee thereon.

"And your petitioners will ever pray, &c."

Liverpool, where losses to an immense amount have rapidly succeeded each other, comes forward with a petition to Parliament for inquiry and remedy against the present insecurity in which property is deemed to be within that great commercial port. It was to be expected that sufferers to so great an extent should be the first to invite and advocate preventive measures; but though calamity has, in these instances, fallen heaviest upon Liverpool, the same liability, in proportion to extent, exists in every port and city of the empire. Partial measures will, by no means, meet the exigency now apparent and acknowledged. The view taken by the commercial associations will be gathered from the above petition, and the remedy adopted by the insurance offices of indemnifying themselves by increased rates of premium is already in operation; we may, in fact, contemplate great alteration in the system of insurance generally.

With respect to risks against fire, the plan upon which they are undertaken is obscure, and the grounds for calculation unstable; the premiums which, for so long a period, had been considered sufficient, are no longer so, and presently it may be that no fixed rate will prevail, but that, as in marine insurance, a special contract will be required, the offices apportioning a premium according to present conception of the nature of the risk.

AN HISTORICAL ACCOUNT OF THE PALACE OF VERSAILLES.

In the year 1561, the estate of Versailles became the property of Martial de Loménie, finance-secretary to Charles IX., and he continued to possess it for a long time. L'Etoile, in his Memoirs (tom. i. p. 26), informs us that Catherine de' Medici caused him to be strangled, in order to bestow the estate upon the Comte de Retz. This is not perfectly authenticated, though it bears some appearance of truth. But, however this may be, it is certain that Albert de Gondy, Comte de Retz, one of those Florentines who followed the fortunes of Catherine into France, became proprietor of the estate of Versailles. His son Jean François de Gondy, archbishop of Paris, and uncle of the Cardinal de Retz, sold it to Louis XIII. The following is an extract from the contract of sale:—

"The 8th April, 1632, the most illustrious and reverend Jean François de Gondy, archbishop of Paris, seigneur of Versailles, now present, agrees to sell, yield up, &c., to Louis XIII., Messire Charles de l'Aubespierre, keeper of the seals, and Messire Antoine Ruse, Marquis d'Effiat, superintendent of finances, accepting on the part of his Majesty, the lands and lordship of Versailles, consisting of an old chateau in ruins, and a farm with many buildings: the said farm comprising arable lands, meadows, woods, chestnut orchards, ponds, and other dependencies; with the homestead of Lessart, and its appurtenances, the said archbishop excepting, retaining, or reserving nothing of what he possessed at Versailles, but the said domain of Versailles, &c., to be enjoyed by his said Majesty and his successors, as private property. This sale is herein verified to be for the sum of sixty-six thousand livres, which the

said archbishop hereby acknowledges to have received from his said Majesty, by the hands of —, in pieces of 16 sous, with which sum he holds himself content, and gives quitance to his Majesty and all others." (*Blondelet, Arch. Franc. liv. vii. p. 93*.)

Louis XIII. had no intention of converting his new purchase into a royal residence, but merely a kind of hunting-lodge. For this purpose his architect built a principal corps-de-logis and two wings, which form to this day that which is called the marble court, with the buildings and offices in the entrance court. This little chateau was found to be an agreeable and convenient residence. The towers at the corners, and the moat which surrounded it, as seen in a unique painting which has lately been brought from St. Petersburg, remind one of the feudal buildings of the preceding age.

It should here be observed, that it was not upon the exact site of the old chateau of Marfai de Lomélie, that Louis XIII. built his new habitation, but upon a piece of land which he bought from Jean de Soisy, and which had been in the possession of his family from the 14th century. In the purchase of the chateau of Albert de Gondi, the intention was merely to pull it down, as it would have been an impediment to the royal residence. If tradition is to be believed, there formerly stood a windmill on the highest part of the plateau of Versailles, in the very place where the magnificent palace now rears its head: so that a miller was the predecessor of Louis XIV.

The resolution of this monarch to transform the little country-house into one of the most noble palaces in Europe caused much surprise among the courtiers, and was the occasion of numerous criticisms, though not openly expressed. Evidence of this secret opposition still remains. The situation appeared to be peculiarly ill chosen: "Versailles, dismal, ungrateful spot," said St. Simon, "destitute of wood, water, and even land itself, since all is either shifting sand or marsh, is unfit for any purpose."

Emboldened by the court, the architects stated to the king, that the palace of Louis XIII. was not solidly constructed: he replied, "I see plainly what you intend; if the building is in a bad state, let it come down, but it shall be rebuilt precisely in the same form." The chateau, however, was not demolished, but the two buildings were linked together so as to form one structure, yet they were kept so distinct, that the view of one gave no suspicion of the existence of the other. Placed, as it were, back to back, the two buildings have only one facade.

An hereditary or dynastic feeling doubtless entered into this resolve of Louis XIV. He wished to carry as high as possible the historical and royal date of this palace which he had selected as his future residence; and he imposed upon his successors the conservative spirit which influenced him. We shall presently observe how it was subsequently felt and expressed by Napoleon.

The new constructions were commenced soon after the death of Cardinal Mazarin. The plans were furnished by Leveau, and were continued and amended by Mansart.

The palace was opened to the king and his court in the month of February, 1672, although it was then in an unfinished state.

According to the most moderate estimate, that of M. Janson, the architect, the total expense, comprising the purchase of land, the buildings, the river Eure, and the machine of Marly and Clagny, amounted to 86,668,726 livres, and that of the chapel to 3,260,342 livres, making a total of 89,929,068 livres. This sum did not include the cost of the opera-house, which was built under Louis XV., nor that of the Rocher d'Apollon, built under Louis XVI.

In estimating these expenses at the present day, at the increased value of materials and labour, they would amount to at least four hundred million francs.

But there is no documentary evidence by which we can arrive at an exact estimate of the whole expense incurred. Volney fixes it at four millions, six hundred thousand francs. Firabree, in his 19th Letter to his Constituents, carries the total amount to twelve hundred millions.

In the estimate of M. Janson, the statues and paintings are estimated to amount to 517,000 francs.

Louis XIV. lived in the palace of Versailles fifty-three years. The Regent never left his palace in Paris. But Louis XV., whose reign was as long as that of his predecessor, made Versailles his habitual residence. This monarch added some dependencies, made many internal alterations, and ordered it to undergo a general renovation, which work was intrusted to the architect Gabriel, who confined himself to the construction of a single pavilion, and a part of the wing near the chapel, executed in 1772 and 1774.

As soon as Louis XVI. ascended the throne, he wished to repair the palace of Versailles; and he undertook to replant the park, and decorate it with a garden in the English style, which was the fashion in 1780. He applied to the most celebrated architects of the time for plans for the restoration of this great building, the parts built by Louis XIII. being almost in ruins, and those of Louis XV. having been left in an unfinished state. All these plans, however, were of no avail; the Revolution arrived, and no more attention was paid to ancient monuments, except to destroy them. The palace of Versailles, despoiled of its treasures, remained for fifteen years entirely unoccupied, after having served as a hospital and a barrack.

When, in 1807, Napoleon wished to restore the palace of Louis XIV., he was startled at the cost of the undertaking. M. Gondoin, the skilful architect to whom Paris is indebted for the Ecole de Médecine, had made a comprehensive plan, which would have entailed an expense of fifty millions of francs. Saint Cloud, Fontainebleau, Compeigne, Rambouillet, and the two Trianons, had just been repaired and rendered habitable. The restoration of Versailles was therefore necessarily postponed, and only a few slight repairs, which were absolutely required for the preservation of the building, were undertaken at this time.

Four years afterwards, Napoleon having been crowned by fortune in his quarrel with Prussia and Austria, and having a successor to his throne, indulged the hope of peace, and among his projects was that of the restoration of Versailles. MM. Percier and Fontaine were charged with the undertaking. In July, 1811, the Emperor paid several visits to Versailles, and his state of uncertainty as to what ought to be done was increased by a personal observation of the difficulties caused by the bad choice of Louis XIV. in the situation of his palace. The matter was still further adjourned. It was at this time that after having visited all the apartments, even the smallest, the Emperor, startled by the disorder and confusion around, and conscious of the difficulties which were to be overcome, cried, "Why did not the Revolution destroy the palace of Versailles? I should not then have to-day a sin of Louis XIV. to trouble me, in the form of an old, ill-built palace, a favourite without merit to enable us to endure it."

The campaign of 1812, which put the seal on the glory of France, was the means of stopping many grand constructive designs, among which the plans relating to the palace of Versailles may be particularly noticed.

Louis XVIII., on renouncing the throne, wished Versailles to be immediately made habitable, and gave the most urgent orders to that effect. The easiest and least expensive plan appeared to be, to make a thorough repair of the gallery, the royal apartments, and all that Louis XIV. had built; to finish the façade looking towards Paris, which was begun by Gabriel, under Louis XV.; and to fit up the interior in the taste of the present day.

Such was the proposed plan; but the return of Napoleon, in 1815, caused the works to be suspended for a short time. After the Hundred Days, they were resumed with activity, and in 1818, the façades and the principal dependencies of the palace were entirely restored; the paintings on the ceilings of the grand apartments, and the gilding, were renovated, and the general arrangement made more convenient. In 1820, the pavilion corresponding to that of Louis XV. was built, the approaches cleared, and every thing put in order: about six million francs were at this time expended. Nothing now remained but to furnish the palace, to render it habitable; but the works were entirely suspended under Charles X., and it remained in the state in which it was left by his predecessor, when the Revolution of July drove him from his throne.

Since that epoch, many projects have been indulged for the conversion of this striking emblem of absolute monarchy into a building of public utility. Some wished to turn it into a hospital for wounded and mutilated workmen,—an Hôtel d'Invalides, to rival that of Louis XIV.; others, to convert it into a model establishment for popular instruction; while others, again, urged the propriety of removing to it the Polytechnic and the other first-class schools of Paris. But none of these plans was adopted: the new monarch resolved to establish in the palace a vast historical museum.

To realize this plan, the old arrangements were necessarily modified, and the suites of small apartments were thrown into galleries and large saloons. The wainscots were regilt, the ceilings restored, the furniture completed, and numerous ancient and modern works of art, paintings, busts, and statues, were brought together, and properly arranged in chronological order.

I may perhaps at some future time take a rapid glance at the riches of this immense collection, passing through the different saloons and galleries as nearly as possible in the order in which they are traversed by the visitor.—*The Architect and Engineer.*

TO BOULOGNE AND BACK IN ONE DAY.

On Saturday last Mr. Baxendale, the chairman of the South-Eastern and Dover Railway, several of the directors, with Mr. Cubitt, the engineer, and Mr. Whitehead, the secretary, made a trial trip over the line, preparatory to its being opened to the public on Wednesday next, which will be before the period at which the engineer promised that it should be ready. The run to Ashford, 67 miles, was accomplished in two hours and five minutes; thence to Folkestone, as the works were all new, the speed was slightly reduced, and the 14 miles were passed over in 29 minutes. There some little delay was occasioned by the party marching in procession to the harbour, amidst an immense concourse of persons, and the usual noisy demonstrations of joy, such as drums, trumpets, and cannon; however, as the Water Witch was all ready, with steam up, her living cargo was soon stowed away, and in three hours the party landed at Boulogne, where the Sous-prefet, the Adjoint du Maire (Mr. Adam, the Mayor, being at Paris), and all the authorities of the place, met them, and offered the hungry travellers a superb *déjeuner* in the ball-room at the public baths on the strand.

The following statement of the times of starting and arriving will shew that any other than a cursory view of the railway works was impossible; but the new part appeared unusually sound, and the road was as even and well laid as an old railway which had been long travelled over. The excellent method of laying this railway on triangular cross-sleepers, fixing the chairs to them by compressed wooden trenails, and the rails in them by compressed wooden wedges, shewed itself to advantage, as even at the highest speed the junction of the ends of the rails could not be felt.

The train left London-bridge at six a.m., stopped at five stations, and arrived at Folkestone, a distance of 81 miles, at 40 minutes past eight o'clock, the average speed being 30 miles per hour. The steamer left the harbour at 19 minutes past nine, and arrived at Boulogne at 25 minutes past twelve o'clock. It started homewards at 38 minutes past two o'clock, and reached Folkestone at 23 minutes past six o'clock; the railway train started at 7 minutes past seven, and landed its freight at London-bridge, after seven stoppages, at 6 minutes past ten o'clock p.m.; the party having thus travelled, by land and sea, 225 miles in 16 hours and 6 minutes.

Exclusive of the chairman, directors, engineer, and secretary of the railway, among the travellers were—Sir P. Adam, Sir E. Fymer, Sir E. Ryan, Mr. Loch, M.P., Mr. Cardwell, M.P., Mr. Divett, M.P., Mr. Ainsworth, M.P., Mr. Justice Halyburton, Captain Loch, R.N., Captain Peel, R.N., Captain Drew, Mr. Wilkinson, Mr. Burton, Mr. Pim, Mr. George Stephenson, Mr. Herepath, Mr. Brockendon, &c.

A steamer is being constructed for Captain Hayward, which will do the distance to Boulogne (27 miles) in fine weather in two hours, so that the whole journey from London to Boulogne and back may under favourable circumstances be performed in 14½ hours.



DESCRIPTION OF AN ENTIRELY NEW SUSPENSION BRIDGE,

DESIGNED BY, AND ERECTED UNDER THE SUPERINTENDENCE OF, THOMAS MOTLEY, CIVIL ENGINEER, BRISTOL.

THE bridge, of which the above is a representation, was erected in 1837, over the river Avon, at Tiverton, near Bath, and is the first of the kind ever constructed. The span of the middle compartment is 120 feet, from centre to centre of the pyramids, the land ends are about 55 feet each, making the whole length of the bridge 230 feet. The road-way is 14 feet wide between the suspending bars. The four pyramids are placed, each pair, on a concrete foundation, 12 feet by 22 feet, 16 feet deep on one side and 9 feet on the other side; the concrete rests on a firm stratum of clay. The pyramids are each composed of six courses of Bath stone, 2 feet 6 inches deep, containing two blocks in each course. Their dimensions are—base, 5 feet 6 inches by 4 feet 6 inches; top, 3 feet by 2 feet 6 inches. They are covered with a capping, as shewn in the drawing. At the base of each pyramid, level with the lower part of the beam of the bridge, is a large cast-iron bed, secured by holding-down bolts inserted into other cast-iron plates in the foundation. In the centre of the large plate is inserted an iron bar, 3 inches by 1 inch, which passes up the centre of the pyramid to a cast-iron plate at the top, to which it is firmly secured. The suspending bars are 2 feet 6 inches apart, and the space between their points of attachment to the bridge about 9 feet 3 inches. The substance of these bars averages full 2 inches by 1 inch; they are welded in entire lengths, and connected on each side of the pyramid by two bars, 3 inches by half an inch, passing through the pyramid, bent in the direction of the strain, and fastened to the suspending bars by gibs and keys. On each side of the pyramid is inserted a cast-iron plate, from the base to the top suspending bar, cast with holes, through which these connecting bars pass.

The beam is composed of two bars of wrought-iron, 7 inches wide by $\frac{1}{4}$ thick, in lengths of about 18 feet, each properly arranged so as to break the joints, and are connected by brace plates. At the edge of each suspending bar which connects with the beam of the bridge is welded an upright piece of iron, about a foot long, of the same substance as the upright supports, $1\frac{1}{2}$ by 1 inch, and to this the upright supports are attached by coupling joints. In the uprights are made proper eyes, through which the suspending bars pass, and are made tight by a wedge in the eyes above and below the bar, and covered over with a cast-iron rosette. Each suspending bar is attached to a round iron bolt, 2 inches diameter, which passes transversely to connect the two ribs, or beams. At the land abutment, the rib, or beam, is secured to cast-iron chairs, held down by strong iron bolts, and firmly secured to cast-iron plates, inserted in the foundation.

The diagonal railing on each side of the bridge is filled in with upright round bars of iron, 1 inch diameter, about 6 inches apart—which are omitted in the drawing, to prevent a confusion of lines. The weight of wrought-iron in the suspending and upright bars is about 7 tons; the whole weight of wrought-iron, including transverse bolts, beams (or ribs), foundation plate bolts, railing, &c., about 18 tons; and of cast-iron about 5 tons. The floor is composed of Memel joists and oak platform. The joists are 12 inches deep by $3\frac{1}{2}$ inches thick, bevelled off on the top from the centre to 10 inches at the ends; the flooring boards are about 9 inches wide and $2\frac{1}{2}$ inches thick, and are covered with a thick coating of coal-tar and sand, on which is laid screened gravel, of an average thickness, in a convex form, to allow the water to run to the sides of the bridge.

The following was the mode of construction adopted:—The land ends of the bridge were first erected; the middle portion, over the towing path and river, was constructed by means of a platform, or hanging scaffold, suspended horizontally, by means of ropes and pulleys, from the top of the pyramid. This platform was chained to the iron work, as it extended out, so that the bridge was carried over the river without any support from beneath.

The foregoing description will, it is presumed, be sufficient to enable those who are acquainted practically to form a tolerable idea of the principles on which the bridge is built, and its effect. It may, however, be observed, that the principle is that of the inverted bracket, converting the force of compression into that of tension, and at the same time preserving as much compression as circumstances will permit, or as may be deemed requisite. It must be evident to the most superficial observer that this mode of construction and arrangement must be less flexible than a chain, and practice has proved that for stability it is unquestionably superior to suspensions with curved chains, and, therefore, will rank next to cast-iron. Loads of timber, of from six to eight tons, have passed over this bridge without producing any visible change in the floor; indeed, none can be made without either breaking or elongating the bars, except so far as the natural elasticity of wrought-iron will allow. The power of the above bridge may be nearly ascertained by treating it as a lever, which is, unquestionably, the law by which all bridges are governed. Thus the first suspending bar descends to the bridge at 2 feet 6 inches from the base of the pyramid, and extends on the floor nearly 10 feet, which is four times the height, and consequently one ton at the end would produce a strain of four tons at the pyramid, and so on in like proportion.

with each of the upper bars. Now there are 24 suspending bars, averaging a section of full 2 inches to each bar, which make 48 inches; then, supposing one inch of best cable iron to bear a strain of 20 tons previous to separating (though it would begin to stretch with half that strain), 48 inches would support a direct or perpendicular strain of 960 tons; but the average being 4 to 1, they would only support a uniform load of 240 tons, the weight of the materials included. Thus, if the proportion of the material were increased, say 50 per cent., it is presumed that this kind of bridge would be well adapted for railway purposes, even with such ponderous engines as are used on the Great Western Railway.

The cost of the above bridge, including the expense of masonry and very deep foundations, exclusive of embankments and approaches, was under 2,500*l.*, and was erected within 5 per cent. of the original estimate. Provided only that it be duly painted, it is presumed that the iron-work will endure even for centuries without requiring repairs of any consequence, as may be fairly expected, from its inflexible nature, and the almost entire absence of friction. It may be further observed that the joists, which are about 21 inches apart, the end projecting 9 inches, are notched about 2 inches down on the double iron beam, to which projection they are securely fixed by iron bolts with cross heads, so as to clip the lower edge of the beam, thus performing the office of cramps; and the boards being well laid, longitudinally, produce all the effects of horizontal diagonal bracing, and therefore no diagonal bracing is used, and hence the absence of an oscillating motion.

(copy.)

Newark Iron-Works, Bath, March, 22.

DEAR SIR,—In reply to your request as to my opinion of the present state of the Tiverton-bridge, which I assisted in the erection of, about six years ago, I beg to state (with the exception of an immaterial defect, produced by a slight sinking of the masonry on one side), it is as perfect and sound as when first erected, and, I have no doubt, will continue to be so for very many years, without requiring any repair, except occasionally painting. As regards my opinion, generally, of the principle of construction, I have no hesitation in stating that, under general circumstances, it is equally strong as the best proportioned suspension-bridge with curved chains, and vastly superior to them in stiffness, and the absence of all undulation, every part being supported by direct tension. It has also this great advantage, that the giving way, or removing, any one of the tension bars would not endanger the rest—any one of them being removable at pleasure.

I remain, yours truly,

Mr. Motley.

GEO. RAYNO.

REPAIRS OF WESTMINSTER BRIDGE.

We were tempted, in a moment of thoughtlessness, to extract an account of the works now carrying on at Westminster bridge from the columns of the *Times*. We saw

that some pains had been taken by our illustrious contemporary to gratify its readers by a description of that interesting and important work, and we took it for granted, on having the paragraph put into our hands, that as most things are done as they ought to be by the

Times, this was one to spare us the labour of criticism. In this, however, we were mistaken; and our attention was called to it by a correspondent who pointed out wherein the description revealed the want of a practical handling, and paid us the compliment of

wishing it had been done in the style of our article upon groining in the same number—(the 19th). Since this we have been to see the progress of the works ourselves, and have carefully scanned the paragraph in question, and we regret that errors and loose description of the sort referred to should creep into the pages of what should be a practical, and on such matters, a correct work. We shall endeavour to remedy this by a treatment of the subject ourselves, provided we can have permission from the authorities and the goodwill of the parties concerned, of which we make little doubt. It must be in the highest degree agreeable to communicate matter of interest to their fellow-brethren of the same craft, and through the pages of a work legitimately devoted to conveying information and instruction to them.

KEENE'S PATENT MARBLE CEMENT.

SEVERAL of our advertisement pages have been occupied so long in reference to this material, and that the public attention, particularly in this metropolis, has been still longer fixed upon and become familiar with it, it presses upon us as a duty to our numerous readers to make them acquainted with something more of its qualities and properties than a mere advertisement reveals. Our sense of duty, we trust, is one which, as we have said before, will not be misinterpreted; but we are resolved to puff nothing into notice, but we are bound to say what we think to be just of every valuable commodity, new or old—and the more necessary if new; our readers and the building public have a right to demand it of us; their interests are dependent on a right knowledge and appreciation of materials and methods, and therefore we gladly take occasion, though late, to do our best in bringing before their notice such particulars as we have gleaned concerning Keene's Marble Cement.

Of its component parts it may be somewhat satisfactory to know, and we are indebted to the candour of Messrs. White and Sons, the proprietors, in being able to state, sufficient on that head: they are sulphate of lime (gypsum) and sulphate of alumina (alum), which by a particular process of burning, saturation, and re-burning, are intimately mixed together, and then ground to a powder.

It should be understood that there are two qualities of cement, fine and coarse. It is possible, we know, by great efforts of niceness of workmanship and careful process to make many very inferior productions appear most attractive, and in some instances beautiful; but really we have seen things produced in this cement so exquisitely beautiful as to stretch one's credulity, if it were not upon the best evidence. A delicate piece of bas-relief was presented to our inspection, the execution, texture, polish—enamel we may call it—tint and all, were to our minds more of the character of the purest working in ivory, than of any factitious material like this—incredible it did certainly seem to us, and to have been produced from a mould! but that mould we were informed was an elastic one, after the French mode; and with this solution of our difficulty our incredulity vanished.

This fine quality of cement can have little more said as to what it is susceptible of than we have just noted, for it will be inferred that with this as a climax, it has, like all other plastic agents, its full range of inferior applicabilities—provided earths and metallic oxides are used as colouring matter, it will receive them, and facilitate the production of an endless variety of imitations of the precious marbles, mosaics, &c., and it will equally admit of a variety of new devices—but, above all things, is its power or susceptibility of polish—this, united to its whiteness, hardness, and closeness, gives the nearest approximation to statuary marble we ever beheld.

The coarse quality is used as a stucco, and for running mouldings, in lieu of common plaster, and even of wood. We cannot write this of it without a painful shrug or twitching, to think that another of the hundred and one competitors of the poor carpenter's craft is thus springing into existence, but so it is; skirtings, architraves, panel mouldings, and the like are produced in it, at a cost, we are told, under that of wood-work; and when we take into consideration its durable character, resisting alike decay and combustion, and find

that, like wood almost, it may be painted within a few days of its application, especially if laid upon laths and battening, we think we have conjured up, or had conjured up to us, a formidable rival, where rivalry was least welcome, and where the inroads of previous competition had before worked their tide of mischief.

The coarse cement we have seen also applied for floors; there is a floor at Mr. Mark's repository, Langham-place, upon which the carriages run, and to all appearance it is as hard, and certainly equal in beauty to Portland stone; for entrance halls, therefore, and for churches, it is undoubtedly a valuable acquisition, since it is said to be in cost something less than one-half that of Portland stone.

While we are on the subject of flooring, we must not omit to observe the point before adverted to, that is as to colour: the insertion of this in pattern, admits of every variety of imitation, from the minute tessera to the more expanded diamond and squares in pavement.

A great advantage in working Keene's Marble Cement is the greater facility which it gives to the operator by the more gradual setting and hardening, as compared with Roman Cement; and this, besides, prevents waste: for rendering, lime and hair will do, and, as a stucco, the cement will receive an equal part of sand. Care must be taken to mix no more water in the use of it than will bring it to the consistence of a stiff mortar.

We have mentioned one instance of its use as a floor, which we have ourselves seen, besides which we may add, that it is used for the same purpose in the French Protestant Church, in Aldersgate Street, where also the shafts of the piers are stuccoed with it in imitation of stone; the floor of the fire-proof offices in Shorter's Court, Throgmorton Street, the entrance to the Exchequer Bill Office, Whitehall, &c. &c., are also laid with it.

As a stucco, also, it has been used extensively in the recent improvements in the Guildhall, London, in the Hall of Commerce, Threadneedle Street, for pilasters, bases, skirtings, &c. In the normal schools, Beroughs, Southwark; at Greenwich and Chelsea Hospitals; in the alterations of the Duke of Norfolk's Mansion, St. James's Square, and in several of the Government works, both in and out of the metropolis. But we should multiply the instances without end, if we were to go on enumerating them, for the material is now in almost constant requisition among the better class of builders and buildings.

METROPOLITAN BUILDING ACT.

"TO THE HONOURABLE THE COMMONS OF THE UNITED KINGDOM OF GREAT BRITAIN AND IRELAND, IN PARLIAMENT ASSEMBLED.

"The Petition of the undersigned landowners, householders, and builders,

"Humbly sheweth,—That your petitioners have carefully considered the provisions of the Bill now before your honourable House, entitled, 'A Bill for better Regulating Buildings of Metropolitan Districts, and to provide for the Drainage thereof.'

"That an enactment which regulates and controls the domestic economy of between two and three millions of the inhabitants of the metropolitan districts demands the most serious consideration, and requires that an opportunity should be afforded to representatives of all classes who will be affected by it to be heard before a committee of your honourable House.

"That, in the opinion of your petitioners, the objects sought to be provided for by the Bill are threefold, viz.—

"1. The prevention of fire, by the erection of party-walls and external walls of a requisite thickness.

"2. Compelling more substantial erections by prescribing the minimum scantling of timber to be used.

"3. Sanitary regulations for securing proper ventilation and drainage.

"That the first object, the prevention of fire, is sufficiently provided for by the Building Act of the 14 George III., cap. 73, which will be repealed by the present Bill; and your petitioners humbly submit that, although this Act is, in some respects, open to objection from its ambiguity, yet that it has been so effectual in securing the object for which it was mainly intended, that your petitioners firmly believe there is scarcely

a single instance on record of fire having been communicated from one house to another where there was a party-wall built according to the regulations of the Act. Your petitioners therefore humbly submit, that the enactments contained in the Bill now in progress, requiring an unnecessary consumption of building-ground, by the unreasonable thickness prescribed for party-walls and flues, will be very injurious and oppressive, particularly in their application to fourth-rate houses, and will, in fact, operate to prevent entirely the rebuilding of houses included in that rate by the Act now in force.

"That with reference to the second object of the proposed Bill, compelling more substantial erections, your petitioners humbly submit that no cases of failure and consequent danger to life, from a deficiency of strength in the timbers used, have arisen in the numerous buildings recently erected in and about the metropolis, such as to call for the interference of the legislature between the landowner and the builder, in the mode proposed by clauses 43, 44, 45, 46, and 47 of the proposed Bill; and that the obligation thus imposed upon the district surveyor, of interfering with internal structure, not only at the first building, but on all subsequent alterations, cannot fail to be extremely vexatious, and productive of much unnecessary inconvenience in its operation, and that, in addition, the scantlings prescribed for the several bearings are extravagant in their dimensions.

"That the sanitary Regulations, which are the third object of the Bill, will be, in the judgment of your petitioners, much impeded, and in a great measure defeated, by the clauses hereinbefore referred to. The provisions of the Bill, by greatly increasing the cost of erection, will compel the builder to place more houses in a given space, to cover his ground-rent, or to lay upon them so heavy a rent as will exclude from their occupation that class of mechanics, clerks, and labouring persons by whom a large portion of this description of houses is now tenanted.

"That in many cases these clauses must operate to prevent altogether the erection of small houses in the suburbs of London, for the accommodation of the increasing population, which will not only throw out of employment a numerous body of mechanics and labourers, but will compel the present occupiers of this class of houses to resort to lodgings in the already densely-populated places where the lower classes reside, or will introduce into the neighbourhood of the metropolis the system of erecting large tenements or barracks, and of letting them out in floors, a system highly prejudicial, not only to the health and comfort, but to the morals of the inhabitants.

"That, in the opinion of your petitioners, the regulations relative to drainage and sewers will involve powers conflicting with those at present vested in the Commissioners of Sewers; the regulations relative to the rebuilding of houses, and the clauses interfering with large warehouses and premises, must be productive of much injury and oppression, and in many cases occasion a total forfeiture of property; and the clauses creating three new officers, under the title of official referees, and prescribing the fees to be paid to and the duties to be discharged by them and the district surveyors, will have the effect of promoting frequent and vexatious litigation—the powers given being very arbitrary and unusual, and the fees not only excessively high, but calculated on an uncertain and erroneous principle.

"Your petitioners, therefore, humbly pray that your honourable House will refer the said Bill to a select committee of your honourable House, before whom your petitioners, or parties duly authorized to represent them, may be heard."

IPSWICH CUSTOM-HOUSE.

A Correspondent writes, "Probably some of your readers would be able to tell me, why the Ipswich Custom-house Committee opened the letters of the competing architects, thereby infringing their own 'Instructions,' as they said the letters would be returned unopened."

EXTENSIVE ROOF.—Messrs. Thornton & Co. have just completed the roof of the new shed at the railway station, which is acknowledged by architects to be the best piece of slating in Hull. The weight of the roof is 115 tons.—*Hull Packet.*



INTERIOR VIEW OF THE PANCLIBANON, BAKER-STREET.

WE gave in No. 11 an engraving of the interior of the Polytechnic Institution, and follow up this part of our plan by presenting another of the Panclibanon; in like manner, that the sciences are brought under notice, and reconciled to popular understanding by the former, the arts relating to domestic convenience, exemplified in a thousand specimens of manufacturing skill, are exhibited in the latter; at this point comparison ceases. Our subject, the Panclibanon, is one of those great commercial establishments which the comprehensive, and, at the same time, refined notions of

later days has originated in the metropolis. Endless variety and luxurious display of all that can be sought for in the several departments embraced by the term "furnishing ironmongery" is the leading feature, and carried out in a way to gratify the most fastidious taste; the Panclibanon is therefore a mart peculiarly fitted to meet the requirements of the higher ranks of society. To invite their attention by an enumeration of the many tasteful objects which here meet the eye, would require a pamphlet, and their ever varying aspect a succession of

similar publications, for the inventive talent of both artist and artisan are liberally encouraged by the addition, to this already vast collection, of every forthcoming novelty, elegant or useful, having claim to notice.

And now a word or two on economy; our class, the builders, will do well to visit this establishment; in the first place, the choice of stoves suited to every kind of house and apartment, is unusually extensive, and there is in many of the examples submitted, both splendour and a felicitous harmonizing with the styles of building and decorating most

in vogue; also many varieties of bright stoves, well adapted for drawing and dining-rooms, good, attractive articles, at what may be called really moderate prices. Kitchen ranges and apparatus, including very recent improvements in the application of steam to culinary purposes, are present in abundance; and black stoves at a few shades above the price of the metal.

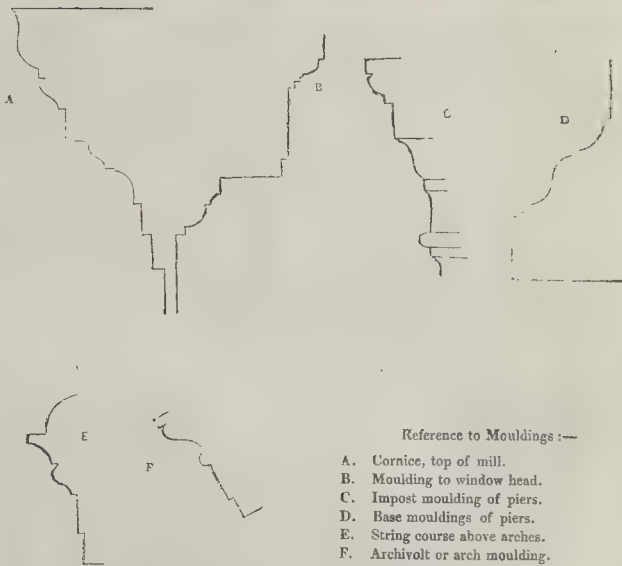
MR. ROE'S ANTI-FRICTION PUMP.

We have had an opportunity of which any practical inquirer may also avail himself, of inspecting a pump now preparing by Mr. Roe for her Majesty's dockyard, upon the principle denominated by him as his anti-friction pump. It is at Mr. Roe's establishment, in the Strand. It promises to be of great power and utility, and is very simple, which in all things of this class is a great merit. The principal difference between it and the old pump consists in a reversal of the old method, inasmuch as in the old pump a leathern bucket is made to work in the pump barrel or cylinder, while in this new and improved pump a cylindrical metallic piston is made to work in a metallic ring; and it will be instantly perceived that the difficulty of tight working may be abated with a corresponding decrease of friction. In the old pump the bucket plunger, by hard pressure against the sides of the pump-barrel, caused considerable labour to overcome, while in this the labour is so far diminished as to encourage the presumption that two men, with a double-action pump of 6½ barrels, will raise 120 gallons of water per minute. Indeed, we have heard it stated, that at a brickyard where the pump has been adopted, the difference in the water raised is almost as two to one compared with a pump in the same place on the old principle, while the power required to work it is as one horse to two. In ordinary calculation, however, it would be safe to say that the friction is diminished full 25 per cent. We can conceive nothing more admirable than this pump as a portable machine, to be fixed in a wooden case upon wheels, and transported to the scene of work in foundations, sewers, &c. The cost, we are surprised to learn, is not greater than that of the ordinary pump. Mr. Roe has two or three nice working models, which will well repay inspection, particularly one in glass, where the operation of the pump and its advantages are distinctly displayed.

ON SEEKING EMPLOYMENT.

In the earlier numbers of THE BUILDER, we made a few remarks on this head, the justice of which we are in some degree proud to have had confirmed, by the results of the plan we pointed out. Those remarks accompanied the very clever drawings of a young friend, who, under the signature of "A. B." applied for employment as an architectural draughtsman: his drawings procured him a choice of employers; and since then we have had another instance of something leading to a probability of a similar result in the case of a contributor of the design at page 219, signing himself "A. Young Architect." What we said in effect before we must again repeat: these are not the times for men, and especially young men, "to hide their light under a bushel." Real talent has nothing to fear from putting itself forward; every thing from hanging backward. There is a great deal of talent in the country, it is true, but not any great degree of excess of it; and while very middling sort of stuff can pass muster, backed by friends, fortune, and influence, can puff or laud itself, and be lauded into notice, it is too bad, if in excess of modesty, or chilled by disappointment and despondings, the really meritorious, from ability, should be kept in the back-ground. We have many other instances of our paper serving the cause of our class, and bringing together those who are dependent upon one another, in the light of one requiring and the other giving, useful service; and it is a matter of pride to us to find it so. All we desire is an increase of this faculty, or power, to do good; and this the building class have the power of conferring upon us, and then of effectually serving themselves.

LITERARY INSTITUTION, RICHMOND.—The designs of Messrs. Wardell and Littlewood, of Bishopsgate-street-within, have been adopted by the committee.



Reference to Mouldings:—

- A. Cornice, top of mill.
- B. Moulding to window head.
- C. Impost moulding of piers.
- D. Base mouldings of piers.
- E. String course above arches.
- F. Archivolt or arch moulding.

INIGO JONES.—EXTRAORDINARY MILL IN WARWICKSHIRE.

THE accompanying drawing represents the classic taste of our great master, Inigo Jones, in a somewhat singular light, but it proves, what we have undertaken to shew, that true genius can develop itself in the humblest as well as in the highest walks of art. Every thing that came from the hand of Jones had its expression of fitness: he had known and studied the practices of his art in a better school than Italy, and before he went there; but he returned to apply the fruits of a well-trained and well-furnished imagination in the corn-mill, now shewn before us, as well as in the Palace of Whitehall. Jones, too, was not so far removed from that period when England's sons entertained, and indeed were born, with a pure sense of the

picturesque—the blood, if we may so speak, of that race of men who had been bred to the achievement of great deeds in art, was running in his veins, the defilements of modern Vandalism had not infused their taint all thoroughly in him,—and hence we find that whether he would span the rustic brook with the simplest bridge, or exercise his great mind, worthily as he deemed, and as we deem, upon the simple structure of a mill, all was harmony and beauty; look at his mouldings too, every line an exemplar, and worthy of study and of imitation, steering the line even between the hard and rigid sternness of the Greek, and the free license of the Gothic contour. The workmen, the artist-workmen, had not all died off either, for without these, all that fidelity and life-like expression that each stroke of the tool would seem to have elicited, that rubbing up to a touch as it were

so as to leave each line a portrait, would have been wanting. Every thing of Jones's that we have seen, like this, and in the most obscure places, appears to owe a full share of excellence to the workmen. The very stone in which they wrought, fragile as it appears in many instances, seems imbued with life beyond its natural tenure, as if to preserve the line of the architect and the handling of the workman. The same stone, for less noble purposes, appears to hasten towards perishing.

LIFE AND WORKS OF PALLADIO.

PALLADIO was born in Vicenza, in the year 1518; from his youth he delighted greatly in architecture, as he informs us in his dedicatory letter to his first work; and in the preface, speaking more particularly of his genius, he says, that from natural inclination he was led to apply himself, from his earliest years, to the study of architecture, and took Vitruvius for his guide and master. This casual allusion to his early history destroys the belief founded on tradition that he passed his youth in the humble and laborious occupation of a bricklayer's labourer. The treatise of Vitruvius being a work unintelligible to those who are destitute of learning and of natural science, Temanza believes that he must at the age of twenty-three have possessed at least the elements of geometry and of a liberal education, which are the steps to celebrity in architecture.

It has been believed, and some persons are still of the same opinion, that Palladio was instructed in architecture by Giangiorgio Trissino. But Temanza and Count Alessandro Pompei, a gentleman as celebrated for his rare acquirements as for the nobility of his birth, are of opinion that Palladio never stood in this relation to Trissino, for in the preface to the first book of his Treatise on Architecture, he makes honourable mention of Trissino without alluding to the circumstance of his having been his pupil. But if Trissino was not absolutely his preceptor, it is well known that by his encouragement and example he inspired him with great ardour in the study of the fine arts, in which he afterwards distinguished himself in a greater degree than any of his contemporaries.

Palladio knew that to become an architect it was not enough to study the authors who have written on the art, but that it was equally necessary to see the application of their rules and precepts in practice. For this purpose he travelled expressly in different parts of Italy and in other countries, and stayed for some time in Rome, where many celebrated ruins and illustrious monuments of ancient architecture still remain. These models, far more instructive than the most accurate and minute descriptions of the compilers of antiquarian works, became his study, his school, and his books.

Palladio did not superficially examine these wonderful works, like many who are satisfied with being architects in name rather than in reality. He conducted his researches with diligence, availing himself of every means that was presented, and he succeeded in restoring and exhibiting all their parts, even when mutilated and in ruins. He examined even the foundations of these buildings, that he might determine the mode in which they were constructed; and he possessed himself of the original idea or perception of the artists who designed them, and all the minutiae of arrangement and ornament. It was by an extremely scrupulous regard to every circumstance in these examinations that he afterwards secured his own celebrity, and especially in the arrangement of the plans of his edifices.

In the year 1547, when he was twenty-nine years of age, Palladio was studying at Rome, and in the same year he returned to his own country with a rich store of available knowledge, and soon after highly distinguished himself in his art. His fame soon spread from Vicenza, and he was immediately employed in the erection of several important buildings. In the public palace of Udini, erected in his time, there are some parts which, according to Sig. Temenza, a great connoisseur in Palladian architecture, exhibit some well-expressed traces of the style of this artist.

The best opportunity that was given to Palladio after his return from Rome to exhibit his profound acquaintance with his art, derived from the study of the Roman buildings,

was a commission from his country to design porticos to the Basilica of Vicenza. In the same manner, he was chosen to prepare drawings for the public hall at Venice. Whether the porticos of this building were in ruins, or whether the government wished to substitute a composition of arches in pure and elegant taste in the place of the Gothic structure, it is certain that Palladio and other architects were ordered to present designs, and that of Palladio being chosen by the senators, the work was immediately commenced. The elegance of the orders, the grandeur and magnificence of the loggia, and the suitable materials employed in the construction would have united in giving such a superior character to this edifice, that it would have served not only as an ornament to a provincial town, but have been a great work in a metropolis; neither would it have lost in merit nor in the nobility of its character if it had been placed in comparison with the most elegant and lordly structures of ancient Rome. But the commissions given to the young architect in this work were not completed.

In consequence of his great celebrity, Palladio was called to Rome for the purpose of erecting the church of St. Peter. But his misfortune at this time was the means of affording him the finest possible opportunity of establishing his reputation. On his arrival in Rome, he found that the Pope, Paul III., was dead, and the whole city was in commotion and disorder. It is probable that Trissino, one of his most zealous patrons, who resided for some time at Rome, and enjoyed the confidence of the pontiff, had procured him the honour, after the death of Antonio di S. Gallo, of being selected as the future architect of St. Peter's church. The death of the pope must have been a great disappointment to Palladio, and not less afflicting the loss of Trissino, his patron, who died in Rome in the year 1550. But Palladio did not fail to avail himself of the opportunity of again examining and measuring the greater part of the ancient edifices in and near Rome,—the theatres, amphitheatres, triumphal arches, temples, tombs, thermes, and other celebrated structures. It was, perhaps, at this time he had the satisfaction of seeing some of his own designs executed in the imperial capital. But this was not the last occasion of his visiting Rome to study the ancient buildings; for, according to Giraldo, he returned for the fifth time with some gentlemen of Venice, his friends, and again, with the same diligence and zeal, applied himself to the measurement of the Roman antiquities.

Palladio having had opportunities, during his residence at Rome, of making himself acquainted with the finest relics of antiquity, and having minutely examined and sketched them, possessed all the information necessary to compose a work on Roman architecture. This book was written in 1554, and during the year two editions were published, one at Rome and another at Venice,—a sufficient proof that the book, although it contained only a brief account of the Roman antiquities, was favourably received by the public.

Hitherto we have watched Palladio in his study of ancient buildings. We have seen, him richly furnished with all the knowledge necessary for the successful practice of an architect, full of imagination, and with a store of novel ideas collected from ancient works, with an excellent discernment and an appreciation of all the elements of beauty, thoroughly acquainted with the elements of his art; and we have been struck with the originality of some of his productions. It is now time that we should watch the genius of the man in his power of invention and creation. Opportunities were not wanting to kindle the fire of his invention,—opportunities without which genius, however intense, must for ever remain hidden.

Settled at last in his own country, his fellow-citizens, who well knew the worth and merit of the new architect that had appeared among them, contended for the honour of devising new buildings to be erected by Palladio. By this means he was offered a vast field for the exercise of his rare genius in the invention of new forms for buildings, but always restraining himself by the sound principles of art, and soon acquired that skill, without which theory is unable to give expression and life to the preconceived idea.

Being thus occupied for many successive years, in the service of his fellow-citizens as well as in that of foreigners, our architect

produced numerous buildings of different kinds, so varied, so well designed, so elegant, so majestic, alike pleasing in their form and ornaments, that they excited the wonder of all lovers of the art, and procured for him the honourable title of the Father of Architecture.

Oppressed by the multiplicity of his studies, and the assiduity with which he pursued them, and not less by the untimely death of his two children, he was attacked, in a delicate state of health, by a pernicious disease, which proved fatal. He died in 1580, in the 62nd year of his age, lamented by all his countrymen, who were fully conscious of the loss they sustained in the death of a man of the greatest merit. The Olympic, an academy for whom he had designed a theatre, well known and much admired, and who were justly proud of having had him among their members, publicly testified its grief for the loss it had sustained, by accompanying the body to the grave, and by delivering several discourses in his praise.—*The Architect, Engineer, and Surveyor.*

THE NEW PROPRIETARY COLLEGE, CHELTENHAM.

THIS building, recently erected in the Bath-road for the reception of the Cheltenham Proprietary College, was, on Thursday, formally opened by the public distribution therein of the prizes awarded to those pupils who had most distinguished themselves by their proficiency in the various departments of education. This interesting and important ceremony took place in the large school-room, which was filled some time before the hour fixed for commencing the proceedings by a highly respectable and most influential company, consisting, for the most part, of the parents, relatives, and friends of the pupils, and which—including also the latter, in number 240—could not have fallen far short of 1,200 persons. Before, however, we proceed to speak of the proceedings which occupied the attention of this large assemblage, we shall endeavour to describe the building itself, seeing that this cannot but henceforth take a prominent and important rank among the public institutions of our town.

The general architectural appearance of the building is in perfect harmony with the objects to which it is about to be appropriated—the leading features of the perpendicular or Tudor style of the fifteenth and sixteenth centuries, being preserved throughout, and adapted to the design in a manner highly creditable to the professional skill and ability of the architect, Mr. J. Wilson, of Bath, who has succeeded in giving to his elevation a most ornamental character; much more so, indeed, than looking at the sum proposed to be expended on the structure, could have been possibly anticipated. This particularly applies to the square forming the centre of the building, which stands out in bold relief. Here it is that the principal entrance is placed, consisting of a large and lofty doorway, communicating with the vestibule and staircase; the latter leading to the library and the principal's room, apartments lighted by two beautifully-proportioned oriel windows, projecting above, on either side the entrance. A handsome square tower, with battlements and turrets, and having an elegant hexagonal flying buttress at each corner, rises from this part of the building, and is in height about eighty feet. On the right is the principal school-room, which is lighted from the clerestory by a range of square-beaded windows, with mullions and tracery; while the south end has a large and handsome bay window, twenty feet wide by thirty-five high, divided into three stories, and having mullions and tracery corresponding with the windows in front. Between each of the latter is a buttress, or pier, terminating in a crocketed pinnacle, and adding much both to the beauty and apparent elevation of the building; which, without these accessories would, from its great length, appear disproportionately low. Along the ground-floor front a range of building projects from the main wall, like the aisles of some of our old churches, and consisting of a series of separate apartments, lighted by windows of the same order as those in the clerestory, though smaller in size, having two instead of three lights each. The elevation and architectural arrangements of the left wing correspond, in every particular, with those of the right, above

described, the upper range of windows lighting the gymnasium, which is of precisely the same dimensions as the principal school-room, viz. 90 feet long by 45 wide. At the north end of the gymnasium, there is, we understand, to be a large and handsome window, filling up the open arch, which at present gives to this part of the building a naked and unfinished appearance. The entire length of frontage occupied by the college is 240 feet.

The ground plan of the building appears to be admirably designed with reference to the general economy of the institution which it is intended to accommodate. In the centre, immediately behind the tower, is the lecture-room, which measures 32 feet by 40, and is exceedingly lofty. This opens into the large school-room on the right, and corresponds with it in architectural design, the ceiling of both apartments being formed of deeply-sunk panels, somewhat similar to the ceiling of Christ Church. The six or eight rooms on the ground-floor front, being intended for class-rooms, and other offices connected with the various purposes of the College, open either immediately into the school-room or into other parts of the interior, as may best suit the purposes to which they may be ultimately applied.

The entire cost of the building, including additions to the original contract, it is computed, will not exceed 7,000*l*. The contract was taken by Mr. Davis, of Frome, who appears to have fulfilled his undertakings much to the satisfaction of his employers, who speak highly of the workman-like manner in which every part of the building has been executed. The stone used in the structure was mostly procured from the Dowdeswell Quarries.—*Cheltenham Looker-on.*

SERIOUS DISCOVERY.

A VERY serious discovery has been made as to the state of the almost matchless roof of St. Mary's Church, Norwich. Mr. Cottingham having been requested to examine some part of the steeple, the security of which was doubted, discovered that the battlement of the nave on the south side had bulged, and immediately suspected that the roof timbers had lost their hold at the bottom, which on stripping off part of the lead proved to be the fact to a very alarming degree. The plate, as far as yet examined, is entirely rotted away, as well as the feet of the rafters, and, what is still more important, the ends of the hammer beams, on the underside of which the angels are carved, have decayed, so that these principal timbers have no other support than the corbels forming the capitals of the slender shafts which rise between the arches, and these have in several instances become loose, whilst the upright between the corbel and the hammer beam has parted several inches from the wall, but according to the fashion of recent times has been stopped up and hidden from the eye by plaster and strips of wood. Mr. Cottingham is of opinion that the discovery is made but just in time to prevent a fearful desolation of this beautiful church, and it will be indispensably necessary to take out the unsound parts of the timber and thoroughly secure the abutments of this precious structure. The churchwardens have directed Mr. Cottingham to continue the examination, and to make a report for the consideration of the parishioners.

VICTORIA BUILDING COMPANY.

Yarmouth, May 25.

THE annual meeting of the shareholders, which should have been held in the month of January, was held at the Town-hall, on Wednesday, the 17th instant. B. Dowson, Esq., was in the chair, and the following shareholders were present: the Mayor, Capt. Baines, Messrs. G. D. Palmer, H. V. Worship, J. E. Lacon, R. P. Kemp, T. F. Steward, F. R. Reynolds, A. Woods, W. Worship, J. Pritchard, W. Smith, J. C. Smith, C. Sloman, C. J. Palmer, D. Swirles, W. Wright, and John, Key.

The time of meeting was 11 o'clock; but in consequence of the absence of the architect the business did not really commence till 12.

The Chairman animatedly upon the protracted absence of Mr. Nelson, the architect, who, as appeared by the minutes, had not been

in Yarmouth between the 25th August, 1842, and the 12th April, 1843.

Mr. C. J. Palmer read the following report: The Directors have the satisfaction of stating, that all the contracts, mentioned in their last report as having been entered into, are now completed.

The hotel and the adjoining house, and the stables and coach-house, were let on lease to Mr. Balls, from the 24th of June last.

The second house (being No. 3, Kimberley-terrace) has been let on lease to Mr. Freeman, of Norwich.

These houses have been handsomely furnished by the tenants; and the Directors have much satisfaction in stating that already one of the objects which the shareholders had in view when the company was formed, has been attained, namely, the inducing persons of high rank and wealth to visit Yarmouth.

The terrace has been furnished with seats for the accommodation of the public; and the numbers by which it was frequented during the summer months of the past year, sufficiently attest the estimation in which this splendid promenade is held, both by the inhabitants and by visitors.

The Directors have much pleasure in stating that, since their last report, the commissioners for lighting and paving the town have improved the roads leading to the Company's ground, both from St. Peter's church and the Jetty-road.

The Directors regret that the want of sufficient funds prevents their completing Kimberley Terrace: they trust that arrangements may be made by which that desirable object will be accomplished.

The Directors are ready to admit that they have met with many unexpected difficulties in the execution of their trust; but feeling satisfied that in what they have done they have been solely actuated by a sincere desire to carry into effect the plans as originally designed, they confidently call upon the shareholders for their approval and support.

By the account annexed to this report, the financial position of the Company will be seen. The Directors deem it necessary that the fifth call should be made, and suggest its being paid with as little delay as possible.

An income is at present derived from the rents of the houses already erected, but the amount is insufficient to declare a dividend. It is as under—

Victoria Hotel.....	£100 for the first year
	£200 for the second year
	£300 a year during the remainder of the term

No. 2, Kimberley-terrace £70 a year

No. 3, Kimberley-terrace £42 a year—until an adjoining house to the north is completed, when the rent will be increased to £84 a year.

The shareholders will bear in mind, that the profits of the undertaking must arise from the increased value which the building-ground belonging to the Company will attain, in consequence of the large expenditure which has taken place in the formation of the Esplanade, Terrace, and Roads.

The Directors have caused a plan of an intended street, to be called Camperdown-place, running East and West, to be prepared; the houses in which will be on such a scale as to command the attention of small capitalists, and each house will have a view of the sea.

The Directors are ready to treat for the sale of building sites; and, observing that houses are rapidly increasing in the immediate vicinity of their ground, they anticipate little difficulty in the disposal of them.

Since the Directors had the pleasure of meeting the shareholders last year, an Act has been passed to authorize the construction of a railway from Yarmouth to Norwich; the Eastern Counties Railway has also been opened to Colehester (thus reducing the time-distance between Yarmouth and London by several hours); the Northern and Eastern Railway has been opened to Bishop's Stortford, and an Act will be obtained to extend this line to Newport; a bill is also now pending in Parliament to authorize the extension of the London and Birmingham Railway to Peterborough; and a projected line between Norwich and Cambridge has already been surveyed by Mr. Stephenson. It is, therefore, probable that, at no very dis-

tant period, Yarmouth will have a direct railway communication both with the metropolis and the manufacturing districts.

When this takes place, there can be no doubt but that the property of the Company will be greatly increased in value.

In conclusion, the Directors call upon the Shareholders cordially to unite with them in carrying out the undertaking in which they are embarked.

H. V. Worship, Esq., has been elected to supply a vacancy in the direction, subject to the confirmation of the shareholders.

W. Johnson, Esq., and R. P. Kemp, Esq., are the Directors who go out of office by rotation.

VICTORIA-BUILDING ACCOUNT.

Dr.	£.	s.	d.
To preliminary expenses	403	13	6
To amount expended on buildings, viz.—			
Victoria Hotel	£4796	10	9
Two houses (Kimberley Terrace) ..	3457	1	11
Stables & coach-houses ..	822	7	11
Tap and additional buildings to hotel ..	1076	9	5
	10152	10	0
To amount expended for vaults and			
Paving for seven houses not yet built	290	2	0
To amount expended on esplanade, terrace, sea-wall, roads, and boundary walls	2002	16	9
To paid for well and pipes	59	10	0
To architect's commission and travelling expenses	795	8	0
To clerk of works, salary, &c.	297	1	2
	1092	9	2
To counsel's fees, deed of settlement, &c.	100	18	6
To advertisements, printing, &c.	38	5	6
To incidental payments, including insurance, use of hall, &c.	68	18	7
To solicitors' bill	130	19	11
	339	2	6
To purchase of land	1624	3	9
	£15964	7	8
Cr.	£.	s.	d.
By amount paid	12095	7	3
By balance due	3869	0	5
	£15964	7	8

CASH ACCOUNT.

Dr.	£.	s.	d.
To cash received on four calls	10060	14	7
To fees	£169	6	0
To rent to Christmas, 1842	85	0	0
To interest received ..	55	14	5
	310	0	5
To cash of H. V. Worship, Esq., on loan	1000	0	0
To the like of Messrs. Reynolds and Palmer	1000	0	0
To cash received in error	16	14	0
	£12387	9	0
Cr.	£.	s.	d.
By payments	12095	7	3
By paid rent-charge to Michaelmas, 1842 ..	£27	3	0
By paid half-year's interest on loan, to Jan. 16, 1843 ..	50	0	0
	77	3	0
By cash at banks	214	18	9
	£12387	9	0

Mr. H. V. Worship, who had been elected as a Director and sent in his resignation, disclaimed all the merit of that ingenious composition. He called the attention of the meeting to the delay of Mr. Nelson in complying with the request of the Directors to come down and attend to what was required to be done, till it was almost too late to do them.

The Mayor suggested that any remarks relating to Mr. Nelson might be delayed till his arrival.

In reply to some observations from Mr. Worship, Mr. Dowson admitted that there had been much money misspent, but said also the

fault was that of the architect and not of the Directors.

Mr. Lacon said that all were agreed that there had been extravagance.

Mr. Nelson having entered the room, Mr. Worship asked if the sum of 795*l.* 8*s.* included all the architect's charges from 1841 to 1843.

Mr. C. J. Palmer said it was a copy of the account furnished by Mr. Nelson.

Mr. Worship—Is there any other account of Mr. Nelson's anterior to this?

Mr. Palmer—Yes, they are in the preliminary account.

Mr. Lacon—There can be no objection to reading it.

The account referred to amounted to 229*l.* 4*s.*, including Baynes' drawings, 17*l.* 2*s.* 2*d.*; journey, and setting out the ground, 24*l.* 8*s.* 6*d.*; Willey, for survey, 15*l.* 13*s.* 6*d.*; Bane, painter, 34*l.* 9*s.*; Daye and Hague, lithographers, 33*l.* 12*s.*; Nelson, travelling expenses, 45*l.* 7*s.*; Nelson, professional account plans, 42*l.* 7*s.*, &c.

Mr. Nelson said those expenses were upon a preliminary survey of the Denes, for plans to send to the treasury, quite independent of the contract drawings; Willey was the land surveyor, and Barnes was employed to make plans, now in the possession of Mr. Palmer.

Mr. Worship wished to know of the Chairman, if the architect ought not to be held answerable for the consequences of his incompetency.

The Chairman could not oppose his private opinions to those of Mr. Worship, who was a professional man.

Mr. Worship, after some digressional conversation, said the question was simply whether or not Mr. Nelson was accountable for any misconduct, want of skill, and want of judgment—(Mr. Nelson smiled)—Mr. Nelson might smile, but there was nothing to laugh at. He wished to ask Mr. N. a question. It appeared that in August, 1842, he (Mr. N.) was applied to, and his attention called to the state of the kitchen, drains, &c., when he replied that the kitchens were but temporary. Had the kitchens been shewn on the plans as temporary? Had not the plans been adopted on the faith that they were perfect in every respect?

Mr. Lacon had never understood that the kitchen was a temporary one.

The Mayor said, Mr. Ballis had said he could not carry on the house if there were not another kitchen.

Mr. Pritchard—After spending ten thousand pounds, we find the kitchen and drains are incompetent.

Mr. Lacon—We are all agreed on that.

Mr. Worship said he regretted that he had felt it his duty to state a case for counsel, and had taken the opinions of the Attorney-General and Mr. Tomlinson. He offered to read the cases and opinions.

Mr. Pritchard moved that they be heard.

Mr. G. D. Palmer thought the thing laid in a nut-shell, and expressed a strong opinion relative to the architect, but they were bound as Directors to keep faith with the tradesmen. He did not wish to bear too hard on Mr. Nelson, but he felt strongly. They had arrived at an expenditure of 15,000*l.*, and how were the tradesmen to be paid?

Mr. Worship said, the Attorney-General had given his opinion that the architect was liable for radical defects, of which the Directors could not be judges. If the result of Mr. Nelson's conduct would shew the whole plans valueless, the Directors had ground in law to reject his claim for per-centage and journeys. He (Mr. W.) had been disgusted with the attempt to pay Mr. Nelson, by setting off against his calls on shares.

The Chairman contended Mr. Nelson had a right to do so.

Mr. G. D. Palmer asked if it was to be laid down as law, that however flagrant his conduct might be, they were bound to pay him any commission he pleased to charge.

Mr. Dowson could see no deductions that the commissioners could be subject to.

The Mayor asked if the Chairman were satisfied Mr. Nelson had done nothing but what he ought to have done, but received no reply.

Mr. Reynolds thought they had begun at the wrong end, and that the present discussion was premature. They ought now to settle as to

the tradesmen's bills, and go into the investigation of other things on a future day.

Mr. Dowson said, there was a disputed account between a tradesman and the architect, which was not noticed in the balance-sheet.

The Mayor asked the amount in dispute? Mr. Dowson said between 600*l.* and 600*l.*

Mr. Nelson said they were not liable to it.

Mr. G. D. Palmer said the architect had promised to furnish certificates, which would enable the tradesmen to recover certain payments, and had not done so.

Mr. Nelson found they were not entitled to the certificates.

Mr. G. D. Palmer told Mr. Nelson he had thoroughly humbugged them, and he was ashamed of him. He had not only disgraced himself, but the Directors, who, upon his promise, had told the tradesmen they would get their money. Mr. N., in his opinion, had betrayed great ignorance of architecture.

Mr. Nelson was sure, when they heard his explanation, they would be satisfied. A grosser attempt at extortion was never made than had been sought to be practised, and it then turned out that a part of the dispute arose from the omission of what ought to have been inserted in the specifications.

Mr. Spilling was called into the room, when, after a very warm discussion on the subject of difference between him and the architect, he said, in reply to an inquiry from Mr. G. D. Palmer, that he was perfectly willing to refer the matter in dispute to arbitration. To this Mr. Nelson objected, but, after a very long discussion, he offered, if the Company would pay his clerk 5*l.* for expenses, and a guinea a day, he should bring down the books in which the work was entered, and go through the whole with the tradesmen.

Mr. Lacon asked if the 800*l.* they had already paid for supervision was to be thrown away.

It was then proposed that Mr. Upton should come down with the books, and Mr. Lacon undertook to prevent any obstacles being thrown in the way of the tradesmen, when Mr. J. C. Smith moved, "That Mr. Nelson attend Messrs. Spilling and Swirles, at the Victoria Hotel, with all the accounts and books, to examine the dimensions and charges, with a view to a proper statement of the difference between them, in order to a fair adjustment of the same under the contract," which was seconded by Mr. Pritchard.

Mr. G. D. Palmer moved as an amendment, that 350*l.* be offered to Swirles and Spilling, in full, for their disputed demands, which was seconded by the Mayor, when the original motion was carried.

Mr. Dowson then asked for an order to make the fifth call, and hoped they were satisfied with the honesty of the accounts.

Mr. Worship never questioned the honesty of the Directors, but there were things in the accounts which ought not to be allowed. There was one charge, 59*l.* 10*s.* for a well, because Mr. Nelson had insisted on having dry wells so near the spring wells as to have poisoned them. Mr. N. had charged a commission on this, and if the chairman paid it, he (Mr. W.) would proceed against him.

Mr. G. D. Palmer was not satisfied with Mr. Nelson's charges.

Mr. Nelson spoke of the very LIBERAL spirit in which he had acted towards the Company, in having taken only 2*l.* per cent. on the accounts of Mr. Fenn, the road maker, and Mr. Orgill, the clerk of the works.

Mr. Lacon said that the word *liberal* was a very injured one.

Mr. Nelson said his expenses had exceeded his charges for journeys by 30*l.*

Mr. Worship handed a written notice to the Chairman, to the effect that if, in money or otherwise, Mr. Nelson was paid the 795*l.* he (Mr. W.) would feel compelled to proceed against him under the deed of settlement.

The Mayor moved the adoption of the Report, leaving 795*l.* 8*s.* out of the question, which was seconded by Mr. Worship.

Mr. Nelson was not prepared to give in. If Mr. Worship would give him his money back that he had paid on his shares, he would forego any claim he had, and that because of the feeling he (Mr. W.) had manifested. "If (said Mr. N., addressing Mr. W.) you had not retired from the direction, I should have moved that you be dismissed, I have a case against you. What is all this against me? Can you

point your hand to any man in this world, and say he never did wrong? I have risen by my own exertions, from being a clerk in an office, to be the third man in the kingdom."

After some further skirmishing between Mr. Nelson and Mr. Worship, Mr. J. C. Smith moved the adoption of the Report, which was seconded by Mr. Woods.

Mr. Nelson objected to it as a vote of confidence. Suppose he turned round on them and left them in the lurch by putting his hand to the amount of the tradesmen's claims. It was upon his professional qualifications, and no upon the accounts that they were endeavouring to attack him.

On putting the resolution to the vote, there were, for the amendment 7, for the original motion 7, including Mr. Nelson, and the Chairman gave the casting vote in his favour, having previously voted.

An order was then made for the payment of the fifth and last call forthwith, and it was resolved that the arrears be got in.

Mr. Spilling said he should take the earliest period to file a bill in Chancery against the Directors.

Mr. Worship said he should do it.

R. P. Kemp, Esq., and W. Johnson, Esq., went out of the direction by rotation, and declined being re-elected. The Mayor, J. Pritchard, Esq., and A. Woods, Esq., were elected in their stead.

The meeting, which was frequently one of great confusion, lasted four hours.—*Norwich Paper.*

Literature.

LIFE ASSURANCE.

The Hand-Book for Life Assurers. Cunningham, 1, St. Martin's-place, Trafalgar-square.

So important do we deem the system of Life Assurance, and so limited is yet a right understanding of its principles, and the benefits it is capable of diffusing, that we gladly welcome this effort to elucidate and extend them. The popular term "Hand-Book," we take to mean a guide, a chaperone, and a replication to current questions. The little work before us fully maintains its claim in these respects, but it goes further by placing before inquirers a familiar explanation of the science upon which the system is founded, with some well-devised operations in numbers illustrating it; notices of the most important tables of the decrements of life, and by means of tabular summaries shews the date of establishment, nominal capital, nature of risks undertaken, peculiarities of constitution, and rates of premium of each of the ninety or a hundred companies, all professing, says the author, "to have each discovered, and now exhibiting the best possible systems to make choice of among claims to notice so numerous and so varied." The whole of the subject indeed is treated with perfect fairness, a feature so valuable as to induce us to recommend it to all persons requiring information.

With respect to the principles which govern the assurance of life, and the modes in which they have been applied, it happens that years ago we occupied many periods of leisure in investigations demanded at the hands of those who would understand and be prepared to speak upon them. The fathers of the science, Halley, De Moivre, Simpson, De Parcieux, Price, Dodson, and Masseres, in treating upon the doctrine of probabilities, held up to view its application to casualty affecting human life from infancy to extreme age. In England the parochial registers had been imperfectly kept; the ratio of mortality for London, assumed by Simpson, was, in consequence, prodigiously high; the great talent of that eminent man, though it may be said to have broadened the system, led him to apply his reasoning to erroneous data. In like manner, Dr. Price, who, to high proficiency as a mathematician, united every benevolent purpose that can be embraced by the mind of a Christian minister, sought to lay down a basis for those transactions in annuities and life assurance which are so evidently beneficial to a community; in prosecuting this intention, he referred to the registers of births and deaths kept at Northampton, and deduced from them the celebrated table of the decrements of life named after that town. The motives of Dr. Price in making choice of the

registers of an inland town may be easily conceived; he had, no doubt, reason to presume that more care had been bestowed in making the entries, and that the population was more stationary than in great cities; but however scientifically his task was executed, the limited time and sphere over which the observations extended, the comparatively inferior condition of the mass upon which they were made, the circumstance of vaccination being then unknown, together with the unimproved state of medical skill, rendered the Northampton Table useless as a standard of values; yet upon this isolated and imperfect document not only was the Equitable Assurance Society established, but still continues to transact its business. At this period (1762) the system was novel and scarcely understood, and it resulted that for about fifteen years the newly-formed society struggled for existence; this was occasioned solely by paucity of numbers which constitute the averages requisite to ensure the safety of every society of this description, for no sooner were these acquired than the foundation was laid for an accumulation of wealth of which no parallel exists in the annals of any association, company, or corporate body. It is extraordinary that a system so attractive, and at the same time so capable of exciting and gratifying the speculator, should have so long laid, as it were, dormant; the Amicable Society, though more than half a century older than the Equitable, and nobly maintaining its engagements, wanted the confidence the latter had gained by adopting the calculations of Dr. Price, and during forty years the Equitable occupied the lucrative field without an efficient rival; for it was not until the year 1800, when this society already counted millions of treasure, that the public began to be astonished at what it heard of the success attending the quiet operations of a by no means large body of individuals, and a few forward spirits stepped into the arena of competition. In aid of this movement came the work of Mr. Francis Baily on Annuities and Assurances, and most opportunely so, to dispel the obscurity and ambiguity in which transactions implied by its title were previously involved. He it was who broke through and broke down the barriers that precluded extension of the system; his analysis of the modes of computation, and its accompanying praxis, rendered intelligible that which had purposely been hedged about with abstruse formulae and unintelligible symbols, demonstrated their absurdity and inaccuracy, and enabled persons, though not familiar with the higher branches of mathematical research, to understand and judge for themselves the value of every proposition offered for acceptance in the shape of annuity, or assurance for life. This work, we say, greatly extended the knowledge of the system, and induced the formation of new companies, though but with small advantage to the public; the prosperity of the Equitable Society had clearly shewn the wonders that might be accomplished in the way of accumulation, and the Northampton Table was clutched with the avidity and tenacity such a mine of gold merited at the hands of founders of splendid establishments, highly-salaried actuaries, and a host of minor but costly appendages; Mr. Baily had given an elaborate set of tables, deduced from observations made in Sweden upon a most extensive scale, shewing a much lower rate of mortality than exhibited by the Northampton Table, but the interests of the officers were so directly opposed to reductions of premium, that nothing was immediately gained beyond an extension of knowledge, the slow but sure precursor of improvement.

After an interval of a few years, appeared the work of Mr. Milne, actuary of the Sun Life Office; this gentleman gave to the world a most valuable and scientific treatise upon the subjects previously handled by Mr. Baily, with the addition of tables of the decrements of life, deduced from register's kept at Carlisle. This publication completed the revolution in assurance business which Mr. Baily had begun, and though the new offices still declined rates which they knew to be sufficient, modifications were adopted, and in these the Economic Society (in 1823) took the lead. The great confirmation, however, of the validity of the Carlisle Tables, occurs in the coincidence they bear to the actual rate of mortality amongst the members of the Equitable Society; we recollect to have seen the

comparison as furnished by Mr. Griffith Davies, to Committees of the House of Commons, in 1826-7, and printed in the reports on Friendly Societies. "The Hand-Book for Life Assurers," which we have just noticed, also gives it to a later date (1829), and we quote the following examples from that work, for the purpose of shewing that the Carlisle Tables truly represent the average rate of mortality prevailing in this country, and therefore a sufficient standard from which to deduce premiums for the assurance of lives.

Expectation of Life according to the Carlisle Tables.

	Years, and Decimal parts of a year.
At age 20 . . .	41.46
" 30 . . .	34.34
" 40 . . .	27.61
" 50 . . .	21.11
" 60 . . .	14.34

Expectation of Life according to the experience of the Equitable Society, over sixty-seven years, viz. 1762 to 1829.

	Years, and Decimal parts of a year.
At age 20 . . .	41.67
" 30 . . .	34.33
" 40 . . .	27.40
" 50 . . .	20.36
" 60 . . .	13.91

The more advanced ages alone present any material discrepancy, a feature easily reconciled by a precautionary increase of premium, which at those periods of life would be both reasonable, and readily submitted to.

At the time the experience of the Equitable first appeared, we observed its remarkable agreement with the Carlisle Tables, and then calculated a schedule of premiums according to the formula of Mr. Milne, for all ages, 20 to 70, at the current rate, three per cent., assumed by all the offices. This document, though grown old upon our hands, would, we believe, be new to the public; for if these tables, confirmed as they are by experience upon so large and authentic a scale, be the nearest to truth, then are premiums deduced from them, accurate in like proportion, and serve to measure the direct profits of the offices. Having had our attention drawn to the subject by the little work in question, which we again recommend to the perusal of our readers, we have, almost involuntarily at the moment, gone into it at some length; it is, however, one of vast interest, and we shall recur to it at an early opportunity, endeavouring, as we proceed, to render our remarks practically useful.

OUR CORRESPONDENCE.

ON TUDOR ARCHITECTURE.

(Continued from No. 20.)

TO THE EDITOR OF THE BUILDER.

SIR,—Among the many advantages of the Tudor style of architecture, it may be named that a house can be built in almost every situation with materials which are near at hand. The stone-work for the windows and enrichments need not be in large sizes; indeed, the practice of the old builders proves that they generally employed stone of small dimensions, the bond being shewn. Again, the walls may be built of brick of almost any colour, of rubble, of coarse stone or rag, or of flint, some one of which classes of materials cannot be very far from the spot on which it is proposed to build. But to attempt any thing like a correct imitation of Grecian or Roman architecture otherwise than in stone, or in still more expensive materials, cannot be commended; to build the walls in such styles of brick, when the portico and dressings are of stone, would be like a person wearing a splendid waistcoat under a mean coat. We put compo entirely out of the question, as unworthy of being classed with honest materials. The Tudor builders wrought out the most astonishing results from apparently mean materials; accordingly we find not only their elaborate chimney-shafts, not only string-courses, cornices, basemouldings, hoodmoulds, but even mullions, jambs, and other features usually worked in stone, most exquisitely produced in brick. Striking examples of how much richness can be evolved out of the mere brick may be seen in the late Mr. Pugin's excellent "Examples of Gothic Architecture," a work which cannot be too highly commended as illustrative of good specimens in church and domestic architecture. Wolterton House, at East Basham, and Great Snoring Rectory are admirable for their brick details, as given in that work. The very difficulties which the old English builders had to contend with in the limita-

tion of their materials, only increased their opportunities of proving how completely mind can triumph over matter; they struck beauties out of clay, Prometheus-like, and made even that which in other hands would be thrown aside or prove deformity, turn to good account. There is something very grateful in the harmonious colouring to be found in old English mansions, which tone in so well with the surrounding scenery; the tall chimneys rising with the "rooky wood" in height—the mellowed tints of the walls and roofs, the time-embrowned stone, are all a thousand times more refreshing to the eye than the pert white-washiness of a composed house, which never appears in its proper place in a landscape, but looks like a blot upon the face of Nature. Then, too, how many pictures the building itself presents to the spectator from different points of view in the grounds about; here the principal front, with its far-projecting porch, offering shelter and proclaiming hospitality; here a gable, there a bell-turret; in one point of sight some rich oriel is caught; in another a venerable ivy-covered tower; whilst the interior presents as many charming features in the deeply-recessed windows, with their ample volume of light subdued by the glories of stained glass; the richly-decorated screen or fire-place; the well-carved oak paneling; the highly-finished ceilings; and the general solidity and keeping of the whole. Nor is there any thing in the Tudor style, much as we are accustomed to admire it for its venerable associations, to hinder it from being applied to embrace all the modern notions of comfort. It is true that in the present state of society, we do not require the high-placed dais in private life, for those persons who are "below the salt" are excluded from the presence of their superiors during their meals: but much may be taken with advantage from the style of the early eating-hall for modern convenience; an apartment in the mansion of the Carew family, at Beddington, may be mentioned in illustration, which has the open-work roof, and is also a most comfortable room according to modern ideas of comfort. The adoption also of the four-centred window is rather conducive than otherwise to the comfort of apartments, for, as it has been before observed, every window may be proportioned to the room in which it is placed, without reference to the size of the window on the right or the left of it: the substitution of the sash window for the casement is, we think, clearly admissible, whilst the introduction of plate-glass, costly as it may appear in the first instance, is in reality more than counterbalanced by the greater protection it affords against the extremes of heat and cold; and by the eventual saving in breakage, whilst, for exterior effect, it has the advantage of setting off the stone-work much more than any assemblage of lines in a metal frame can possibly do. But, in this writer's humble opinion, one strong claim which this style has to favourable consideration, arises from the fact that it is more economical than almost any other style of building, from the circumstance that so few features are necessary to be introduced in order to produce an agreeable effect; and thus, whilst this style may be carried out to almost any extent of elaborateness, witness the new Houses of Parliament; on the other hand, it is evident that much may be done at little cost, in cases where persons, wishing to employ this style, do not intend to carry it out at much expense. Thus, it appears, that the Tudor style is as applicable for palaces, splendid mansions, town-halls, companies' halls, collegiate establishments, market-places, as for proprietary and parish schools, hospitals, parsonages, lodges, almshouses, and many other humbler dwellings; so that, although not disposed to agree with a well-known writer whose enthusiastic love of English and Christian architecture would carry it into every species of building almost without reservation, it seems but fair to contend that the Tudor style may, with propriety, be employed in certain situations for almost every conceivable class of buildings, from the least even to the greatest. Doubtless it would not be advisable that all buildings should be erected in this style, and we can concede that for club-houses, theatres, museums, and many public institutions for literary and scientific purposes, the Palladian or Italian style would be far more suitable. Mention has been made of the new Houses of Parliament, which promise to be a truly splendid, as they will be a national, monument of taste; and they are a strong case in point of the fitness of Gothic architecture for civil purposes, since only in a Gothic building can we properly introduce those heraldic embellishments which tell, in the most significant language, the events of centuries past. The writer of these few observations had the honour of being one of nearly one hundred competitors in the contest for rebuilding the houses, and he made a point of seeking to invest his design with interest by carrying out the historical associations beyond the mere knowledge conveyed by statues of the monarchs; thus he proposed (besides other decorations) to carry an enriched scroll all round the building beneath the effigies of the sovereigns, whereon would be in-

scribed the names of *subjects* who had distinguished themselves, thus beneath the statue of Edward III., would be found the names of Chaucer, "the Father of English Poetry," of *Warton*, "the Morning Star of the Reformation," and of *Walsingham*, "the Wise Churchman, the Pure Statesman," and one of the greatest architects of his country:

and the illustrations would be extended by inscribing victories, as in the same reign, *Cressy*, *Marston*, *Halidon*, *Nehill's Cross*, &c. This will serve to show how much of history may be expressed in a small space.

London, June 19, 1843.

PHILO-TUDOR.

TO THE EDITOR OF THE BUILDER.

SIR,—Being a reader of your valuable work ever since its issue, and thinking there is many a good man lost to himself and society for want of the resolution to take a pencil in hand, and to break through the first difficulties of sketching and drawing, I have made bold to attempt the drawing of a font, of which WW is in stone, and HH of oak. There are many who, for want of courage, or per-

haps encouragement in these things, turn their minds to something bad, and go on to be trodden under foot, and lead a life despairing of success.

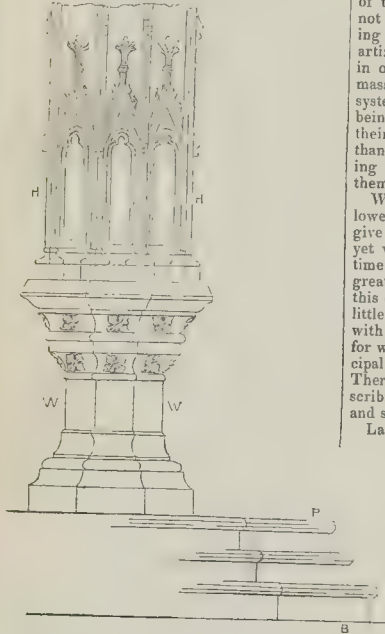
If you think this worthy of insertion in *THE BUILDER*, I will send the upper part next week.

J. C.

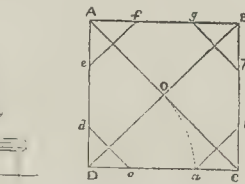
[We have inserted this drawing, and with as much pleasure as the more perfect works of the finished draughtsman. Our business is not to delight and instruct merely, by exhibiting the productions of the skilled artist and artisan, but by a much more effectual method, in our opinion—by raising the minds of the masses, through a painstaking and patient system of tuition, which better consists in being pleased with, and taking an interest in, their laudable attempts to improve themselves, than in doing their work for them, or presenting things to their view in an aspect to deter them by a sense of the difficulty.

We hope the example of J. C. will be followed by thousands; and although we cannot give place to all their effusions or draughts, yet we shall be careful to select such, from time to time, as we think will answer the great purpose of an effectual schooling. In this case we take occasion to administer one little lesson, of service to J. C. and to many, with regard to the drawing of an octagon, and for want of the knowledge of which the principal error of J. C.'s draught has occurred. There are several ways of constructing or describing an octagon, but we will give a ready and simple one.

Lay down a square, A B C D, of the same



diameter as the octagon required, find the centre by drawing diagonal lines, then, with the distance from any angle of the square to the centre, mark off on the sides, as shewn at *a b c d*, &c., and joining these points by oblique lines, that is, cutting off the corners or angles of the square, as shewn in the diagram, the octagon is completed.



J. C. will perceive that he has represented the side divisions of his font as too large for an octagon; and there are other little points as to the outline of his mouldings, the ornaments, &c., which we could comment on, but not too much at a time. We have followed his drawings, and commend him for his resolution, in which we say, "Go on and prosper."—Ed.]

TO THE EDITOR OF THE BUILDER.

SIR,—In addition to the remarks I have already made on the new metropolitan Building Act, some of which are now incorporated with the amended copy, I beg further to observe, as the subject by consideration becomes of more and more importance—

That it is desirable design be shackled as little as possible.

Clause 21 should, for many reasons, be omitted altogether.

Clause 24 is injudicious in fixing the size and description of windows in basements; let it be "a window opening at least four feet nine inches high, fitted in with a glazed casement or sash, at least one-half of which shall be made to open for ventilation." It is more necessary to provide for the escape of vitiated air than for the ingress of external air. I wish, therefore, that a ventilator could be provided in each chimney-breast, as near as possible to the top of the room.

Clause 25 in margin.—To "Regulating the heights of rooms" add "in roof."

All through the Act the word "obnoxious" is used instead of "noxious."

To clause 33 add "except such stables as shall have fire-proof floors and roofs."

In clause 35, in order to prevent the ascent of damp in walls, it will be better to have "the four courses of brickwork next above footings laid in cement, in party, external, and all other walls," instead of "below the level of bottom of timbers," &c.

Clause 43 in margin, instead of "purlin" insert "quarter."

Again, "no joist to bear above fifteen feet," This will have the effect of injuriously contracting the size of rooms; let it therefore be "twenty feet," and add two or three inches to the depth of the joists, and direct rows of herring-bone strutting about five feet apart.

In clause 44, after "trimming-joist, beam, or girder," insert "being of timber," shall be, &c.

In clause 47, after "but shall be supported by a sufficient brick or stone pier," insert "or sufficient brick or stone arch on piers."

Clauses 79, 80, 81, and 82 should be inserted after clause 55.

The clauses regulating the depth of footings are wise provisions where there is no basement floor, but where there is, six inches below the surface of such floor is just as well as twelve; in clauses 49 and 79, therefore, insert "six inches" instead of "twelve."

In clause 64, after "slate, tiles, metal, glass," insert "asphalte or other incombustible material." Without this addition to this clause, we can never have that best of all roofs—a terrace roof—without a covering of lead or zinc, two of the most dangerous coverings in case of fire, the one from its melting and running down, thereby preventing all access to the building; the other, from its flying off in red hot particles, carrying destruction to every thing around.

In clause 65, line 18, after "in front or sides thereof" insert "but such flues may be carried on arches rising on piers from the foundation, provided such piers shew a face of at least nine inches from the inside of the external wall, and at least nine inches on each side the quarter partition dividing

rooms." Thus there will be equal strength, without the extra thickness otherwise involved in this clause. Practically, the plan is of great utility, not only as carrying the chimneys without the necessity for corbelling out, but the arches covering the recesses on the sides of the chimney-breast support the joists, which latter are therefore not inserted in the wall, and the cornice is carried unbroken all round the room.

Clause 73 directs "all flues above roof to be nine-inch work." Most of the existing ancient chimneys which have withstood the storms of 200 years or more, are only four, five, or six inch work, although from twelve to sixteen feet high, and carrying heavy cornices; let, therefore, "nine inches" be altered to "four inches." It is probable that in a few years' time smoke will be entirely got rid of, and in that case flues one-fourth the present diameter will be amply sufficient both for ventilation and for carrying off the products of combustion.

The fees provided for the district surveyors are too much by one-half. These men are already among the best-paid part of the profession, existing without care, and with but little necessity comparatively for mental exertion. Many of the districts are too large, and might advantageously be divided. If this were done, it would also be advisable to give surveyors the power of removing from a poor to a richer district as such become vacant.

B.

TO THE EDITOR OF THE BUILDER.

SIR,—In your paper of this date there is a letter addressed to "A Young Architect," by "A Constant Reader and Admirer of his Taste," requesting to be informed "the cost of a cottage in the style given in No. 18."

I beg to observe the "Young Architect" will shew himself young indeed, if he gives this information without guarantee of remuneration.

If he does, the applicant will be thus furnished with plans and estimate gratis, for which a professional man would probably charge (and be justly entitled to) 20 or 25 guineas.

It is thus the profession is robbed, after paying perhaps individually three or four hundred pounds premium for learning it, by the folly of the young and inexperienced, and the cool complacency of the other party, who gets all he requires, and thinks, perhaps, he has given recompense enough, by "admiring his taste," and adopting it without further acknowledgment.

This is what I call stealing brains, the worst kind of robbery.

I should wish to impress on my junior professional friends, that the more they do for nothing the more they may. "Ex nihilo nihil fit;" so if they do one job for nothing, the result is, that they will be expected to do another on the same terms.

Let them not "listen with credulity to the whispers of fancy, and pursue with eagerness the phantoms of hope."

Yours and their wellwisher,

June 24, 1843.

IMLAC.

[We have no right to put ourselves seriously at issue with "Imlac," but we are none of those who fear any evil result from a business placed upon the footing which the one in question occupies. What nearer, let us ask, will the fraudulent be to the accomplishment of his object, by knowing something of the cost of the building? We like not too many cautions and suspicions, the country is broken down under them and their fruit—craft and cunning. We dislike all the professions involved in mottoes and secret competitions, for this reason; depend upon it, a good plan is seldom stolen—and a bad one is not worth it.—Ed.]

Miscellaneous.

ABBOTTSLEY.—In this church, a considerable quantity of ancient stained glass was some time ago removed from one of the windows which was under repair. Instead of being duly replaced, the portion thus detached was actually deposited (as useless rubbish it would seem) at a public-house, where it was carried away piecemeal by any person who chose to help themselves. After lying here, as we are told by our informant, a resident near the spot, two or three years, the last was utterly destroyed by being set up to be pelted at by the boys. This is one of the countless proofs of the almost incredible ignorance, stupidity, and brutality of the church-destroyers of the last generation.—*Ecclesiologist*.

ELTISLEY.—The chancel of this ancient and interesting church has just been rebuilt, of curtailed proportions, in the cockney villa style, of brick, with a low-pitched, overhanging roof of blue slate. The east window is a most miserable erection of three lights, without any foliations.—*Ibid*.

THE BUILDER,

NO. XXII.

SATURDAY, JULY 8, 1843.

SINCE our last number we have been favoured by one communication in particular, under the signature of "H.," which we had designed printing entire, and making our comments upon it; but, upon second thoughts, we felt that, whether right or wrong, it would be an act of some ungraciousness on our parts to bring our correspondent out as a "whipping-boy," whether for the edification or terror of the rest of his tribe. He complains of our twentieth number, and points out for objection the farmstead plan, Mr. Bernhardt's letter on warming and ventilating, and that we should put out inquiries, instead of procuring the information sought by our readers, by arrangements within ourselves. He, nevertheless, seems anxious for the success of THE BUILDER, as we believe and hope all right-minded men to be. And since success of a sterling character is only to be secured by an exhibition and practice of the manly virtues on our side; since we cannot preach that which we enjoin upon our auditory—forbearance and good temper—without at least shewing something of the possession of them within ourselves, so we have resolved to bend from our first purpose, and to turn our correspondent's expression of his own and others' feelings to the best account we may after another fashion.

It is well known by this time that our purpose is to aim at making those for whom we labour happier and better men, as well as more skilled as artists and artificers; this can only be done by a constant, steady, and familiar union of the requisites in ourselves and in all. We have had very little to complain of, it is true, from our correspondents. Where we receive one letter in a carping or fault-finding spirit, we have one hundred to the direct contrary: and where the ground is so new, and of consequence ourselves new to the duty of walking over it, it is not a little consoling, not to say flattering, that among so many thousand readers we should have so many approving and indulgent. We have our faults, and many, but among hands we trust there is nothing to disqualify us for our high office, in the way of the petulant-humoured—the envious—the malignant—the conceited—the intolerant—or the grossly ignorant. Our friend H., and others with him, will excuse us, therefore, if we presume to consider our conduct and judgment unfairly called in question by them in such matters as the insertion of the farmstead plan.

We know there are several imperfections in it, but this is the fault of the best of things, and the nearer the approach to perfection, the more readily sometimes the defects are perceived. We scanned the plan for ourselves and approved of it in the main; it was for our purpose—anxious for the sound and effective tuition of a large class—more to our mind than any beau-ideal affair or thing of high pretensions, and we will venture to say, that its effect will justify us. To ten thousand readers of THE BUILDER it will be more useful and valuable than a refined and far advanced design. To ten only of that ten thousand would things of a refined and far advanced class be germane or acceptable—and these are served in their turn. Ours is a large table; there are many hungry for knowledge, and we must cater considerably and kindly for all. So that we avoid the deleterious and poisonous, we are content—or

rather, we are resolved to avoid them; and whether the food be high or homely, to derive our chief consolation from the assurance we have, that on the whole the regimen is wholesome and worthy of approval.

H. will pardon us if we are unable, and if for his good we are unwilling, to restrain ourselves from dealing with an objection he has urged against the insertion of the farmstead plan; perhaps, he says, it is contributed by a son of "H. G. Ward, Esq.," or uses words to that effect; "small blame" to the son, we say, for it; honour and applause to the filial pride of that son—if such he be (but of which we know nothing)—we wish every father of our craft such a son, and so little to blame in them.

Then as to Mr. Bernhardt, we have not been unheeding of the discussion, nor do we think lightly, as some do, of a discussion, in a paper like THE BUILDER, on that all-important subject, that too long neglected subject—Warmth and Ventilation of Buildings. The popular ignorance among Builders, and even among that class of engineers, practical and professional, who devote attention to such subjects, is a disgrace to us—and this is a strong word for our lips; but we have been indifferent to any personal conquest in this matter, and could wish that Mr. Bernhardt and those who dispute with him would exercise the temper of philosophers—let them strive for truth, not for self-vindication or paltry personal triumph. We know, or think we know, something of the merits of Mr. Bernhardt's and many other plans; and again we say, that our own judgment is involved in giving admission to his communications. We are not yet, nor do we think it likely to come to pass that we shall be, ashamed of our decision; but again, we urge upon all good temper, and Christian, or, if some like it better, gentlemanly feeling—we shall be understood in this enlargement of our definition.

As to the third point, that we should not rely upon chance correspondents for information, but provide to secure it within ourselves; we are content to bide our time, to shew whether our plan or our correspondent's suggestion was likely to have been the best. An increase of our editorial staff and machinery for the conduct of the paper would involve what H. expresses himself to be prepared for, a rise in the price of THE BUILDER, and this we should be most unwilling to resort to; but what would be of greater evil consequence in our minds is the reversal of our plans for diffusing information and extending our usefulness. All the craft for whom we labour must be our staff, and when we have effected this desirable consummation, which we are every day the nearer tending to, THE BUILDER will have a proud pre-eminence. It is already, and we challenge—humbly challenge—proof to the contrary, one of the cheapest, and, in most cases, by far the cheapest work of its class; but it will be more so, and must be made such by steady purpose and friendly aid and confidence, the which we presume to calculate upon and to claim from all.

We are tempted to make extracts from an article in the *New Zealand Journal*, of a few weeks back, because they cannot fail being of interest to our readers as they were to ourselves. The very heading of the article had its attractions, "To Builders," &c.; and since we believe it to have been written by one intimately acquainted with the subject upon which he writes, and possessed of a large share of influence in the matters of the colony (although the style may appear a homely one), we think it not

unimportant to bring the subject forward again in this guise, for the benefit of intending colonists among our friends to whom it is addressed:—

TO BUILDERS, BRICK AND TILE MAKERS, POTTERS OF EVERY DESCRIPTION, NAVIGATORS, &c.

"MY FRIENDS,—I address you at this time in consequence of the times. It seems to me that your business mainly depended upon the increase of manufactures, for upon their increase depends the increase of your towns. In those towns of England, where there is no increase, and which are not more populous than they were fifty years ago, more builders, more artificers, were not wanted, than were sufficient to keep the old houses and their furniture in repair; but in your great manufacturing towns, the towns themselves have increased in size, and in the number of their houses and their contents, with the increase of the manufactures; the one has been dependent upon the other; but if the manufactures as they increased, create an increase in the numbers of the people, they increased also the number wanted of masters in the line of building the new factories, and the houses dependent on them, and of all sorts of workmen employed by them, either in creating all these buildings, or subsequently furnishing them. If, then, the manufactures remain as they are at this moment, we will neither speak of increase or decline, but let them remain exactly where they are, and at once all these masters and their workmen, who depended upon their increase, are without work, and this is evidently the case with thousands of you. Well, then, what is to be done? You are no longer wanted where employment depended upon this increase of buildings. Complaining will not lead to the building of new factories which are not wanted, and if new factories are not built, new cottages will only be built to remain empty. Is it not evident that you must find out some new employment? and if you cannot find employment at home, will it be wise to remain, and live as the bears do in winter, by sucking their paws; or to speak to you in plainer English, by eating up your property instead of putting it to active use? This, then, is the subject about which I wish to talk to you, and put you in the way of making a change for the better. Listen to me! * * * *

"Now the object of my letter is to find for many of you a home—not a ready-built home, but a spot that is healthy, and where you will find immediate and profitable employment, and work for those who go with you. Perhaps you are thinking that I am about to recommend you to New Brunswick, Canada, or to America. No, I am not. The climate in New Brunswick and the Canadas is horrid—there are nine months winter, and three months summer, of intense heat, in those parts. In short, the climate is so bad, the majority of children die, and after a time of suffering, the greater number emigrate again to the United States; but there they are no longer under the English flag.

The writer now proceeds to give his opinion in disfavour of America, adverting to the ruinous and bankrupt state into which that country had been thrown, as he alleges, by a reliance upon a false system of trading, false banks, &c.; and he concludes that it is something like "jumping out of the frying-pan into the fire," to go there. He proceeds thus:

"The going to America is thought an easy matter; for some, no doubt, who can go in a great hotel driven by steam in 10 or 12 days, it is very easy, but not for any of you whom I am now addressing. The prevalence of westerly winds is such, that the voyage from America is a much readier one than to America. You must all go in sailing vessels. It is a remarkably stormy sea between the North of Europe and America. In winter time uncommonly cold. The average time of a sailing vessel from the western ports, say Liverpool, and Glasgow, and Ireland, to America, is from 47 to 50 days. But, suppose it is done, this is but the first stage to an emigrant voyage. New York is full to excess with English and Irish emigrants, many of whom are in a state of complete poverty. What have they to do? Why

some return, and all who do not, seek a home in the West; and many do not find a resting-place until they have gone 3,000 miles into what is called the Far West, and that which stops them chiefly is having expended their means. This is not the sort of emigration which I can advise any of you to make. But you will ask, where is the place you recommend us to go to? My answer is, to one to which there is a longer voyage, averaging 120 days instead of 50, that is a little more than double the length of voyage; but over a much smoother and warmer sea, but where there is no necessity to seek a far west. I speak of New Zealand; to the new towns of Wellington, Nelson, New Plymouth, and Petre. There you will find work on the sea-shores, there you will find employment of your capital—work for your people, and all upon very different terms to any thing of which you know in England. There is no excuse to confine you to the size of either brick or tile—there is no heavy duty upon the finest red deal for building purposes—there is no reason to economize in size on account of its price; the hills are covered with it, and those who are cultivating the land, if they cannot get rid of it otherwise, are obliged to burn it; all buildings which you may make there may be done in a much more solid manner than in England; the walls may be much thicker, the flooring and roofs stronger, and all at a less cost than at home. Invest your capital in buildings there, and they will last double the time which those do which have been built at home; and as these towns increase and become more populous, the value of the ground they stand on, and the buildings you may erect there, will increase in value. I wish I could hold out to you a hope that many could go there, but this cannot be; I advise none to go but the young, either just married, or who are willing to marry for the purpose. To young people, desirous of settling, it affords a probable opportunity of establishing themselves well; well, then, the number is prescribed by age, not that I point out to any very particular age, but I would not recommend a man to go who is more than 26 or 28 years old, and whose wife exceeds 25. Young children are bad travellers at sea. Infants at the breast are the best, but I recommend none with a swarm of little ones to think of adopting my scheme; indeed, those to whom it will prove most beneficial will be steady young people who are desirous to marry, but who dare not on account of the bad times. Again, I am talking to those who can muster between them at least 1,000*l.*; this again limits the number; then to go without sufficient knowledge in their respective lines would be a great folly; neither do I recommend any young pair of persons to go singly; my recommendation is addressed to ten pair of such young people, to go together for mutual co-operation and assistance to each other, and with such complete knowledge of each other, that I recommend a union that none should be admitted into the society unless with the consent, indeed the approbation, of all the rest; and then each must be able to put five pair of young people like themselves starting into life of industrious, sober, moral workpeople, healthy, and of sterling character, great pains being taken that there is not a drunkard or a bad woman amongst them. Four months' voyage together in the same ship will form intimate friendships, and all will go on in life with the harmony of one great family; mutual forbearance towards each other should be impressed upon all; if such conduct is pursued, with books and moral amusements, the voyage will be a pleasant time. There must be a surgeon on board, if possible, a young married man with his wife; a schoolmaster also, a married man and his wife; if amongst the workpeople any cannot read and write, they should be taught during the voyage, and those who can should be taught accounts and mathematics. This will give them great advantages as workmen; the women also should be taught to read and write; they should be divided in messes of five pair each, or ten persons; to these a reader should be appointed to read whilst the rest worked. The women should be all taught to cook; we will say two women per day, with the ship's cook. Sunday should be strictly kept, and divine service performed by the best reader or schoolmaster. Now, you will ask, who, after the society is formed, is to find the ship and put all this into practice, and how is the £1,000 to be employed? Well,

then, you must know that there has been an association or company formed in London, of which Mr. Somes, the greatest shipowner in the world, is the Governor, and the Honourable Francis Baring, the son of Lord Ashburton, whom I have before named to you, is the Sub-Governor, and other gentlemen of great respectability. Sir John Pirie, the Lord Mayor of London, is one, and Alderman Thompson, the member for Westmoreland, is another. But without going into farther particulars as to their names, I must tell you that the Queen has granted them a charter, so that they are a corporation: and in New Zealand, for every 5*s.* of their expenditure, they have an acre of land, and this they sell out to persons who wish to emigrate and settle at New Zealand, which is the finest climate in the world. But the Queen most wisely has bound them to expend three-fourths of all for what they sell the land in paying for the passage of working hands. Now, if they did not sell the land there would be no means of sending working or labouring people; that you will perceive. It is to carry into execution a principle of combining land, and labour, and capital together. It is on this account that I am obliged to limit my advice in the first instance to young pairs having 1,000*l.*, and to young people in a line of life who can find young working hands willing to go with them. The land is there without people—it is there useless. Suppose that a number of only capitalists were to go out there, what would there money do without labour? Nothing at all; they might stand on the beach and count their money; and let it be in any quantity, and it, like the land, would be useless. Well, now suppose, instead of the capitalists, the labourers were to go alone, what could they do, without farmers with money to pay them for cultivating the land,—without ship-builders to pay labouring shipwrights to build ships,—without ship-owners to pay sailors for navigating them? But to come more particularly to brick and tile-makers, and journeyman bricklayers, and journeymen carpenters and joiners, &c., why they might stand on the beach and starve, unless there were master bricklayers, and master tilers, and master carpenters, &c., possessed of capital to set them to work and pay them for their labour; and thus you will perceive that it is to combine land, labour, and capital together, that I am recommending you to form this society; and that each of you must lay out a part of your 1,000*l.* in buying a section of land. This will cost you 300*l.*, but will entitle you on arrival to an acre of land in the town; to a suburban section a little way out of town of fifty acres; and to a farm beyond these suburban sections. You will arrive in a very superior condition to what the first settlers did. The towns are already marked out; many houses are run up with wood, thatched with straw, and the settlers already there, many of whom are people of property, and, as fast as they can find labourers, converting them into brick and tile dwellings. You and your workmen will, the day after your arrival, fall at once into this sort of work. But it is to be expected, that amongst you there will be a brickmaker. He will form a brick-kiln, for there is plenty of clay upon which he can go to work. There will be amongst you a lime-burner. He will make a lime-kiln, for there is plenty of lime. There will be a tile-maker; he will build a tile-kiln; and so on with all the rest. You must do all this before you begin even to think of using your own land, except your town acre, that, perhaps, will come into immediate use. On it you may build your own house. At first you must hire lodgings, which are not very cheap. You must pay for your passage out. This will be 50*l.* for yourselves; a child at the breast, I believe, nothing; but, if older, some trifle per head. I do not recommend you to go if you have many of them; then I calculate that you may land with 600*l.*. This will soon establish you. You will carry out with you garden seeds; you and all your labourers should, within the week of your arrival, dig a part of your town acre, and form kitchen gardens. Early attention to this you will find of great importance; indeed, I think you will do well to give to every pair of labourers who go out the use of a garden, rent free for two years, with permission to build a cottage on it, under an agreement to be paid for at the expiration of five years, provided he built it agreeable to your directions and plans,

Suppose he worked four days a week for you, and two for himself, your acre would soon be covered with brick and mortar.

"I must tell you that at each of these towns the Company have an agent, who will give you his advice and be your friend in telling what is best for you to do. This, I can tell you, is an immense advantage, and one which is not to be obtained by spontaneous emigration. Go to America, go to Canada, go to New Brunswick, no such person greets you, welcomes your arrival, and points out to you where and in what way you can best employ your capital. But some may say, but why should I, a builder, who mean to reside in town, buy land? The answer to this is, that it is only another name for paying for the passage of your labourers; for the Company will take them out scot free, and then, although it is locking up 300*l.* for a while, the town acre may, or may not, turn out worth the money; but, at any rate, if your land lays idle for awhile, say two or three years before you can let it, it will increase in value as the colony prospers, and most likely prove a nest-egg of no small value for your family. Respecting tools, &c., to take out with you, I recommend, for the service of the community of ten masters, a pair of very high wheels for a timber whim; the axle-tree and pole you will make for yourselves at any time; but a useful pair of wheels you will not find in the colony, or the means of making them. I would also take four pairs of smaller wheels for hand whims. You should have a smith amongst you; he should carry out his anvil and bellows, and all his tools. The workmen of every kind should carry out their respective tools of their different trades. I am ignorant whether—after having paid the Company for the section of land and the passage money—whether the Company will receive the remaining balance of £600, and give you an order to receive it on arrival; but if this could be done it would be much the best way; it would put you on even terms, and none could creep into your little society without the means of thriving afterwards. There must not be a drone amongst you; it must be a community of working bees.

"You will have to apply to the Company's agent in your town, and you must write to their secretary in London, John Ward, Esq., New Zealand House, and a ship will be immediately chartered by the Company, that is, hired, under certain conditions, for your passage.

"The hive will consist of ten masters and their wives, for whom passage-money must be paid. There are 20 people
Each to take out a servant girl of good character 10
For whom the Company will pay the passage.
A surgeon and his wife 2
Their servant girl 1
A school master and his wife 2
Their servant girl 1
50 pair of working hands and their wives 100
136

"Hoping that all may succeed who go, I subscribe myself, as I sincerely am,
"YOUR WELL-WISHER.

"P.S.—Glass is an article which must be taken from England; you will do well to carry a quantity out with you."

BUILDING SOCIETIES.

THE rapid formation of societies of this kind sufficiently proves that the enactments encouraging them (6 & 7 Will. 4, cap. 32) were well devised. To use the words of the statute: "Building Societies, established principally amongst the industrious classes, for the purpose of raising, by small periodical subscriptions, a fund to assist the members thereof in obtaining a small freehold or leasehold property," can hardly fail to be popular. The view taken by the legislature is clear and satisfactory, but the modes in which the Act is made to operate are various and intricate. The desire to possess property, and particularly that species which bears the endearing title of a home, independently of the threatenings or warnings of a landlord, is inherent and commendable. The paramount aim of the members of these societies should be to arrive at

THE WORKING CLASSES.

Proposals of a Society for Improving the Habitations and Bettering the Condition of the Poorer and Working Classes.

ALTHOUGH established upon principles of philanthropy, this society contemplates no pecuniary sacrifice but that of an annual subscription from those who may be disposed to aid the undertaking. The object is to set such an example to landlords, as, if generally followed, will lead, it is expected, to materially benefiting the comforts and moral and social habits of the poor—the basis on which the society rests its exertions. It is not intended to hold out any inducement for the investment of money, beyond the usual rate of interest, as it is proposed to devote the surplus profits to the extension of the objects upon which it is founded.

That the condition of the houses of the poor, their personal appearance, their domestic and social comforts, and their moral conduct, are intimately connected, is painfully exhibited and truly depicted in the various reports addressed to the Poor Law Commissioners on the sanitary condition of the population. The uninhabitable condition of their abodes leads to domestic discomfort, which drives the unhappy parents to the ale-house or the gin-shop, and reduces their hapless children to misery, want, and starvation. The crowded state of the houses, and particularly of the courts, leads to the confirmation of their inhabitants in careless, improvident, or vicious habits, because they are without the range of the observation, and the wholesome control of their more prosperous neighbours. The want of an adequate supply of water induces or perpetuates uncleanly habits. The want of ventilation, drainage, and sewerage, with accumulations of heaps of filth, induces contagious diseases, not confined to the locality, but propagating their baneful influence in the districts around. The want of a proper means for performing culinary processes induces wasteful expenditure, and causes a neglect in the preparation of food. The want of a proper subdivision of apartments, or a substitute in the domestic arrangements of the bed-room, with the promiscuous herding of the sexes, leads to immorality, and that often of the most awful description; and the want of privies leads to habits of filth and overcomes all notions of delicacy. How much the advice and instruction of the benevolent and charitable, and the hopes of bettering their condition here, and securing their happiness hereafter, are counteracted by the depressing circumstances of their domestic and social condition, is lamentably too painfully known to those whose avocations or philanthropy bring them in contact with their abodes, or who are cognizant of the misfortunes, poverty, and crimes of the poor. Nor are the conditions of the mendicant paupers, and other residents of the lowest lodging-houses, less pitiable. Nurtured in poverty, and peradventure crime, they become the victims of the worst of oppressors, in the shape of the lodging-house keepers. For accommodation in cleanliness and warmth (less than that afforded to domestic cattle), they are charged higher prices than the reputable tenantry of more respectable neighbourhoods; whilst the wretched harpies reap a fortune, sometimes very large, from the fruits of their poverty, profligacy, and crime. The next resort for the final expenditure of their resources is the gin-shop, always convenient, and most profitable in the poorest districts. There is no comfort, and of course no mutual greeting for the parents at home; there is no kindly embrace from healthy endearing children, for they are unhappily squalid beings, shoeless, and nearly naked, wandering in the street or court, taking the advice or following the example of children more advanced in years and vice. The husband squanders his wages, the wife aids in destroying her own and his mind and humanity, and too early the children inherit the pernicious influence.

The object of the present society is to afford better residences for the poorer and labouring classes, either by the erection of new tenements, or the adaptation of old ones for their better accommodation. The houses and apartments will be properly ventilated; and where one room only is required for a family, it shall have arrangements for its subdivision into sleeping apartments. A copious supply of water, and where possible, a sink and privy, shall be provided for every two floors. Each

room shall have one or more cupboards for the reception of domestic utensils and clothes, and safes for the preservation of meat and food shall be provided in a convenient spot. In each room there will be a well-provided kitchen-range, with oven and boiler, so that many culinary operations may be performed at home, and there will always be a supply of warm water for purposes of cleanliness. Provision shall be made likewise outside the windows for the adornment of flowers, in which all classes take delight. Proper attention will also be paid to the sewerage or drainage of the street or place in which the houses are situate, and the removal of all local evils, impediments to cleanliness, and incentives to vice will be attended to. The apartments will at first only be let or granted to persons bearing a good character from their employers, and no additional charge will be made for rent; though it is expected that, on the other hand, the charge will be materially reduced. The efforts of the Christian and the philanthropist may be added, as at each tenement the person in charge, and who will be responsible for the rental of the house, may have at command a select library of books, newspapers, &c., for the use of the inmates. Where possible, in order further to promote habits of cleanliness, there shall be a warm or tepid bath in the vicinity, and this may readily be supplied by the waste water from a steam-engine, when this is handy.

The first experiment with the above will be to provide lodgings for the upper classes of workmen.

The second object will be to provide furnished apartments for the married couples among the poor, and for working men and artisans, who are either casual or constant residents, when at work in the neighbourhood. Adequate accommodation will be provided for that object of sympathy, the hard-working, industrious, ill-paid, and virtuous female. The inducements of the lodgers for their homes, and of their removal from temptation, will be, in having clean, substantial, and wholesome beds and furniture in clean and well-ventilated rooms. A general room for the single men and another for females (where they are admitted) shall be well fitted up, and furnished with books, &c. for the accommodation of the lodgers. There shall be a plentiful supply of hot and cold water, with soap and towels for washing, and brushes and blacking for cleaning clothes and shoes. It shall also be part of the duty of the housekeepers to provide the inmates with coffee, tea, soup, and other refreshments at a cheap rate, and on their own responsibility. Every facility will be given to the tenants or occupiers for the purchase of the property of the room in which they reside, so as to render themselves more economical in their expenditure and independent in their feelings. Small sums may be paid weekly, for which a reduction will be made in the charge of rental.

The provisions of accommodation for the most unhappy of all classes, the wretched mendicant or casual pauper, will not be neglected, although their details must be subject to the most rigid precautions. Every attention will, however, be paid to this class, so far as may be their condition. There is pity and hope for the lowest in the scale of humanity, and the thief and the prostitute may be afforded accommodation, by which, rescued from the influence of their associates in former wretched haunts of crime, with better comforts of living, their minds may expand to hopes for the future, and their condition be materially improved.

In these details it will be seen that the chief object is to raise the poorer classes in their own estimation; their improved comforts will soon become wants; whilst in the proposed plans there will be nothing degrading in the name of charity. Their feelings of self-dependence and respect will not be interfered with, nor will there be any thing to derogate from the honest and upright feeling of self-pride which, unencumbered by the ties which adversity inflicts, or unenthralled by those of misfortune, is ever the character of the British labourer.

The operations of the society can, it is expected, be carried on at small expense. The annual subscription of members is fixed at 10s. 6d., and if adequate support be obtained, this will be sufficient to make an experimental trial, which, if successful in its operations, will,

is consummation by the shortest and cheapest methods, by a road, in fact, upon which there be the fewest toll-bars. Eventually, no doubt, the plan combining in the greatest degree these simple elements, will supersede those cumbered together in haste, and in which recklessness of cost is but too apparent and detrimental not to excite remark.

Building Societies, as at present constituted, scarcely differ in composition or trafficking from ordinary society; borrowers and lenders, the credit-giving and the credit-taking—the dependent, and his master the money-lord—either does the ready union of capitalists with these societies appear at all extraordinary; money, the article in which they deal, is required in bulk, and they are ready to advance upon security of purchases to be made therewith, with the addition, be it remembered, of the contributions of the members which are near by year increasing the validity of that security, and returning an extraordinary rate of interest; these advantages, backed, to boot, with a special exemption from stamp duties on conveyances and transfers. The practice of Building Societies, with scarcely an exception, exhibits two features which require notice; the first is that of *anticipation*, or the price to be paid for immediate possession of a house by a member paying say 20l. per annum, and which ere it is a paying for *erecting*, as the contributions accrued, buildings suited for residence of the industrious classes, he might not come to possession of for some ten or twelve years. Now, as we at present understand the matter, this object is effected by the intervention of the capitalist, who stands by with his cheque-book, and affixes his signature for the amount required in favour of the highest bidder or that act of grace and condescension; the desire of possession is indeed gratified, but at a cost exceeding its value in proportion to the improvidence or avidity of the builder. The next point is, how, in societies who do not themselves build, are the purchases of houses regulated? Is the highest bidder for possession of a house entitled to select one at his pleasure, in a locality suitable for his business transactions, or preferred as a dwelling? or is there a mass of house property ready for competition in this newly-revised market, and of which, *par excellence*, the industrious classes are to be the future proprietors? We really ask these questions for information, and shall be glad to be undeceived in whatever may have appeared to us to militate against the perfect fairness of these transactions. One fact connected with them beyond disapproval—large gains cannot be realized unless upon corresponding losses; it matters not whether in the shape of premiums or preference, interest upon advances, or defaults, and they must fall upon the weakest.

If it be that house property, already in existence, is to be bidden for under the sanction of the Act for *Encouraging Building Societies*, then we say to the industrious classes, amongst whom the builders themselves are the most numerous and influential, leave the speculators to dispose of these houses at their leisure, and by other means than those instituted for our special benefit. If they build, we go with them heart and hand, as members and as workmen; so far, however, as the working of the Act has gone, little has been done beyond exciting a *rush* towards a goal, where each would strive to be foremost in arriving. It may happen that other plans not less advantageous—such as building societies, where there shall be competition without ruinous outbidding, realisation without extraordinary cost—will be sought forward. At any rate, let employment of the tradesman and labourer be the basis of every undertaking of this description.

SUSSEX MEMORIAL.

A Meeting was held last Saturday, of noblemen and gentlemen, friends and admirers of the late Duke, and resolutions were passed, with a commencement of subscriptions for erecting a memorial structure, the subscriptions being limited to 20l. each individual—upwards of 600l. was subscribed on the spot. We hope it will be seized as an occasion to exhibit better talent in our artists, and a wiser purchase in the patrons of art, than to set up the everlasting pedestal, column, and statue.

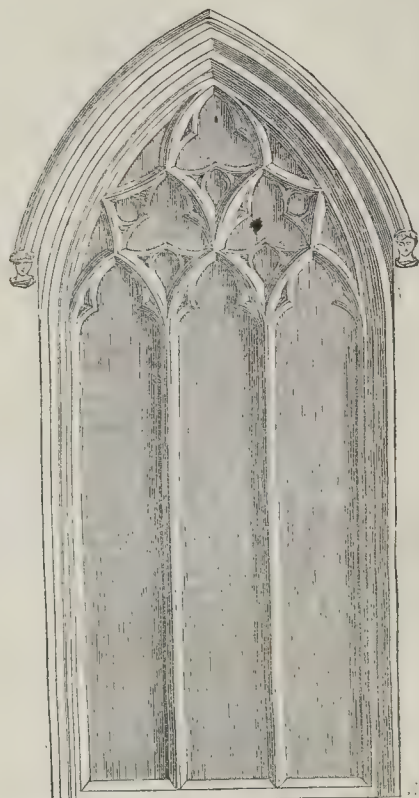
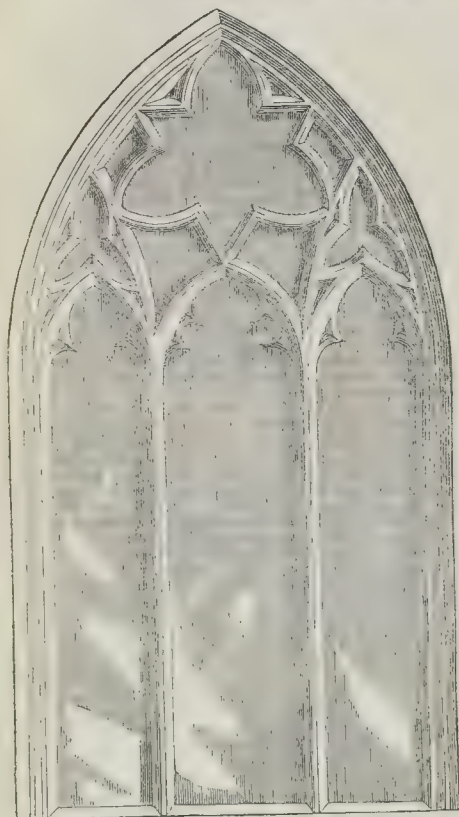
there is no doubt, soon meet with imitation, in different parts of the metropolis, from private speculators or public philanthropic bodies. As a pecuniary speculation, there can be no doubt but that an investment would prove as remunerative to the capitalists in the undertaking as it is to the lodging-house keeper, who, without the additional profits which he

often receives as a "fence," and in many other ways, realizes a profit of 200% per cent. The disposition of the profits will, however, be left to the option of the shareholders.

It must be borne in mind that the object of the proposed society is not one of monopoly, but of wholesome competition, with the hope that if its results are successful, they may be

more fully and effectually developed by the efforts of private enterprise and speculation, by builders or district philanthropic bodies.

Communications are for the present requested to be addressed to Mr. Booth, chemical engineer, 2, Upper St. Martin's-lane, Charing Cross.



CHURCH WINDOWS.

TO THE EDITOR OF THE BUILDER.

SIR,—Agreeably to my promise and your request, I again trouble you with some sketches of windows in a fine old abbey church at this place; there are

many other fine parts belonging to this church, but being delineated in Britton's Ecclesiastical Antiquities, it would be folly to engrave them again. The two windows which I send you are not engraved there or elsewhere that I am aware of; and as you remarked of the one at Grantchester, your readers

may amuse and advantage themselves, by drawing the strict geometrical forms first, and then filling in afterwards.

I remain, dear Sir, yours truly,

J. C. L.

Malmsbury, June 27, 1843.

EXHIBITION OF THE CARTOONS, WESTMINSTER HALL.

AMONG the memorable circumstances connected with the history of the "Hall of Rufus," may be reckoned that of its being applied to a purpose which, so far from ever being contemplated for it, would, not many years ago, have been considered altogether chimerical in itself. Scenes both festive and solemn have from time to time taken place within its walls,—coronation banquets, and judicial proceedings, which unkinged and more than uncrowned an English monarch; yet never till now has it been made a theatre for any pageant of art. Doubts were entertained beforehand as to whether the place itself was suited for the occasion otherwise than by its spaciousness; but they are now removed by almost the very first glance, for though hardly noticeable in themselves, the windows that have been opened in the sides of the roof afford quite sufficient light, attended, too, with a very different effect from that proceeding from skylights or lanterns of the usual form,—quiet and solemn, yet strong enough for viewing the cartoons distinctly. The space enclosed for the exhibition is divided by a lofty screen running down the middle of

it, and extending nearly from end to end, so as to form in manner two separate rooms or galleries, about 25 feet or more in width, and not much less than 200 in length. By this means nearly double the extent of wall for hanging the cartoons is obtained; and they also shew themselves to greater advantage than they would have done in a space double the breadth.

Thus much for the mere *locale* and the accommodation provided for the occasion; to come to the exhibition itself, it may fairly be called a striking one, if only because it is so very unlike what we are accustomed to. Excepting in its singularity, there is nothing at all catching in the general *soup d'oeil*. Instead of a dazzling array of gilded frames, and pictures got up for effect, and painted up to exhibition proof, we behold only a very Quaker-looking assemblage of what may in the eyes of many appear very much like engravings magnified; nor are the subjects themselves of a kind calculated to interest, or to be relished by every one. There is nothing here that is "very charming," or "very pretty," nothing to call forth exclamations of "How very natural!" or "How very nice!" Ordinary criticism feels itself quite put out, and at a loss; for hardly can people all at once expand their ideas so as really to feel merits they have

scarcely had any notion of before. Whether they care to own it or not, on many the first impression will not be a particularly favourable one, and not a few will go away dissatisfied, not so much with the cartoons as with themselves, on finding that they can only acquiesce in that admiration which they give others credit for really feeling.

As to our own first impressions at the private view, they were greatly more favourable than we dared venture to anticipate, and of a kind that gave us assurance of a higher sort of interest than that immediately felt at the moment, when the excitement of curiosity was perhaps uppermost. At present we can speak only in very general terms, having been able to do little more than reconnoitre the collection, without dwelling at all leisurely upon any of the individual subjects. We saw enough, however, to convince us that many of them are highly worthy of attentive examination and study. In any other exhibition, a single work of the kind would show itself as a star, and attract attention accordingly; but in a constellation of poetical and historic compositions like the present, many that might elsewhere shine "as bright particular stars," are overlooked. Of course there are various degrees of merit, yet no works of positive demerit—

certainly none of those outrageous absurdities which found their way into the exhibitions of the competition designs for the new Houses of Parliament and the Nelson monument. Yet have we here no fewer than 140 subjects; the productions, not of a series of years, but of a single one, all belonging to a branch of art in which we are as yet unpractised; at the same time that it is one which demands assiduous practice and profound study.

Where, it was asked—and the question seemed not an unreasonable one—was the talent required for the occasion to come from all at once, just when it was wanted? And lo! we find it has started up and burst upon us from those to whom it was least of all looked for. It is a most remarkable and a no less satisfactory than remarkable circumstance that those to whom the premiums have been awarded, are names either quite unknown, or comparatively obscure, and very secondary indeed to many that stood high in public favour; and though in our paper of last Saturday, the adjudication of the premiums was spoken of, we may as well briefly repeat the names of the successful artists—viz., E. Armistage, G. F. Watts, and C. W. Cope, 300*l.* premiums; J. C. Horsley, J. Z. Bell, and H. J. Townsend, 200*l.* premiums; and W. E. Frost, E. T. Parris, H. C. Selhous, J. Bridges, and J. Severn, 100*l.* premiums. Besides, that this circumstance is a pledge that the rewards have been bestowed with perfect impartiality, and with regard only to the intrinsic merits of the respective productions, it is of good augury to find that there is rising talent, and, as yet, almost untried strength, in art among us, fraught with high promise for the future. Of such talent there may be even more than we can ascertain, for several works there are which deserve to have been similarly distinguished, could the number of premiums have been increased. Of these the authors are now unknown, no other names than those of the premiated being published; whereas in the case of the two architectural competitions above referred to, the names of all the exhibitors were given in the catalogue. In all probability, however, the secrecy now observed will not be kept up much longer—at least not entirely—since there are many who will lose no credit, on the contrary, gain honourable distinction, by declaring themselves authors of productions alluded to as “approved of,” although the premiums being exhausted, no such testimony of their merit could be conferred upon them. If it be strange that the names which have been disclosed are themselves nearly entire strangers to the public ear, quite as extraordinary would it be should there, among those which remain to be revealed, be none of artists of established repute, and to whom we have been accustomed to look up as the leaders and chief supporters of our school of painting. Should it, indeed, turn out after all that the other next best productions we meet with here—and there are several which are so nearly equal in ability to the premiated ones as to render the distinction which has been made seem somewhat disproportionate—are also by persons scarcely known to fame, all the more reason will there be to congratulate ourselves on possessing a fund of talent in this country, not even so much as suspected to exist among us before. In that case we may fairly conclude, that if, notwithstanding its excellencies in many respects, the English school has attempted to exert only in the subordinate walks of art, and even when it has touched the historical style at all has rather sought to lower it and keep it down to the level of familiar composition, this has been chiefly owing to the cause so frequently assigned—want of adequate encouragement or of even fair opportunity. Hitherto, if we have had eagles at all, they have been tamed ones; we have either clipped their wings or cooped them up in cages. At length we have permitted them to take flight and to try the strength of their pinions, but it still remains to be seen whether they will be able to draw up public taste from its present “low terrene” into a more empyrean sphere of art. The exhibition of the cartoons, which in themselves are merely preliminary studies, but partially decides the question: it affords evidence that there is talent among us, which has till now been latent; yet it is not therefore quite certain that such talent will be hereafter fully encouraged, and that the future frescos

of the “Palace of Westminster” will give an entirely new direction to English art, so as to establish a new era of it, when historical painting will both become more familiar to us, and be less familiarly treated by us—be treated less mello dramatically and with more of poetical gusto.

Of subjects professedly poetical—at least, derived from our British poets—there are many in the present exhibition, in fact rather more than one-third of the entire number; for there are no fewer than 29 from Milton, 16 from Shakspeare, and nine from Spenser. Among them all, however, only one has obtained a premium—viz., No. 10, by Frost, representing “Una alarmed by the Fauns and Satyrs” from the “Faerie Queene,”—a poem of which many will now read more in the extracts given in the catalogue than they have ever yet done. Milton is far less a poet for painters than Spenser, at least in his “Paradise Lost,” where it is hazardous for the pencil to attempt to follow his flights, and palpably embody to the eye either superhuman beings or our first parents—

“Adam, the goodliest man of men since born
His sons; the fairest of her daughters, Eve,”
have always disappointed us upon canvas, and sometimes appeared to us but very ordinary mortals; nor do they shew themselves much otherwise in any of the present cartoons. There are, however, several scenes from the “Samson Agonistes,” and one or two from “Comus” among them that of “Sabrina releasing the Lady” (No. 57), is one of great merit as a composition. Shakspeare would of all our poets seem the one the most congenial for the painter’s purpose, because supplying both dramatic action and accurately defined character; yet while some of his pieces afford the artist no more than what he may derive from professedly historic sources, others furnish merely familiar subjects, not above the level of ordinary life. His dramas have, besides, been so frequently “illustrated,” as it is called, by bookplates and similar graphic manufacture, that subjects derived from them are become rather a drug; and what is not least of all, the Shakspeare of the stage has generally been substituted for the Shakspeare of the closet. Most of the Shaksperian subjects we here meet with are from *Macbeth* and *Lear*, and that representing the death of *Lear* (No. 16) is one of the best and most vigorous cartoons, ably composed, and broad and bold in execution.

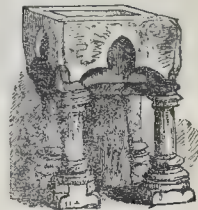
Here we must be allowed for a while to pause until other visits to the cartoons shall have enabled us to speak more fully as to some of them individually than we can as yet pretend to do; for works of the class are not to be read off-hand or at sight; on the contrary, the greater their merits, the more leisurely do they require to be perused. What we have seen relieves us from a good deal of mistrust and apprehension, by satisfying us that we have already artists equal to the task in some of the main requisites for it, and who, if they do but go on as they have commenced, will greatly advance historical and poetical design in this country. Still the cartoons themselves may not satisfy the general expectation, if merely because the exhibition in Westminster Hall does not afford the public the means of judging of the effect of fresco-painting itself, and as an integral portion of architectural decoration. In order to do this, it would be necessary to fit up a temporary apartment, in every respect similar—perhaps even in size—to what Mr. Barry purposes for his building, with cartoons fully coloured and arranged on the walls exactly as they will be according to the architect’s designs. For such exhibition, however, there is yet ample time; in fact, in the present initiatory stage of the business it would be somewhat premature, since it would be desirable in such case that the cartoons should be fac-similes of the intended frescos, and represent some of the subjects actually fixed upon for execution, which is not the case with those forming the present exhibition. Some of the compartments which will be allotted to fresco in Mr. Barry’s structure, will, in all probability, be very much larger than these study cartoons, whose average dimensions do not exceed 10 by 15 feet. The works exposed to view in Westminster Hall are to be received, not as samples of fresco-painting, or of the intended style of decoration to be adopted in the palace of Westminster,

but merely as primary evidence to shew what prospect there is of success; and they satisfy that there is among our artists “stuff” of more sterling quality than that which has been chiefly in request with the public.—*Morning Herald.*

TICKENHAM CHURCH AND FONT.

TICKENHAM Church, Somersetshire, dedicated, it is said, to the saints Quiricus and Julietta, is a building of considerable antiquity, about three miles from Clevedon, and ten from Bristol. It consists of a nave with north and south aisles, a chancel which has a south aisle, a small porch on the south side, and a tower at the west end. Most of the piers and windows are of the perpendicular style; but the outer doorway of the porch is early English, and there are one or two decorated portions. The most interesting objects in the interior are the font, and three recumbent figures; the latter lying in line, towards the eastern part of the north aisle. Two represent warriors, of whom one was a crusader, or had at least made the vow of pilgrimage, as apparent from the crossed legs: he has a lion at his feet. The other is a female figure. Probably all three were formerly tenants of the neighbouring manor-house, though no inscription declares the names of the persons they are intended to represent. There is an altar-tomb, likewise, in the south aisle, on which is carved a cross (disary), but this, too, is without inscription.

The font is an interesting specimen of early English work; it is supported by four small pillars



with capitals and bases at the angles, and a larger one in the centre. The roofs of the nave and of the south aisle of the chancel are semi-cylindrical, with longitudinal and transverse ribs, which have flowers at their intersections. The tower is well proportioned and of three stages, but at present has no battlement or parapet. There is a staircase-turret at the N.W. angle; and the belfry contains five bells.

Over the eastern end of the north aisle there remains a gable cross, which (though but of small size) has upon it a delicately-wrought figure. It is seldom that a true crucifix in such a situation can be found, as images of the Saviour were sought after and destroyed with even greater zeal than those of saints.

Of the cross which formerly stood in the churchyard, only the base and a small part of the shaft remain.

In close vicinity to the church stands the ancient manor-house, now converted into a farm-house, but still the property of the lord of the manor. It has several pointed windows of the Decorated style. Two curious ceilings remain in the building, one of oak, and one of plaster: the former is nearly flat, and divided into square compartments, with delicately carved flowers at the intersection; the other has a four-centred arch, with numerous small ribs.

In the time of Richard I., the manor of Tickenham was held by a branch of the Berkeley family; (the arms of the Berkeleys occur, with several other coats, in the chancel-window,—*gules, a chevron between ten crosses patée argent.*) and this branch assumed a name from the place, and called themselves De Tickenham. It afterwards passed into the family of Poyntz. The church was held formerly of the monastery of St. Augustine, in Bristol. In Abbot Newland’s accounts, as *cellarer* of the abbey, 1491-2, we find payments for the carriage of grain from Clevedon and Tickenham to the granary of the abbey.—*Archæological Magazine for Bristol and the West of England.*

THE GREENWICH PIER.—The proprietors of the pier at Greenwich, which lately fell and is now in ruins, have commenced proceedings against the contractors (Grissell and Peto), for the recovery of damages in three different forms. The penalties sued for amount to 50,000*l.* It is understood that the contractors intend to defend the actions, and rely on the fact that when the stone pier gave way some time previous, the expenses (1,500*l.*) were jointly borne by the company and the contractors.



ADLINGTON Church, dedicated to St. James, bears marks of great antiquity; and, by some late repairs, makes a decent appearance. It has a small wooden turret, with two bells, on one of which is inscribed "E. Arnold fecit, 1793."

The entrance to the chapel is through a porch on the south side. There was within memory a large old door on the north side, now stopped up. Part of the arch remains filled up with modern brickwork. At the west end is a very old circular font; and on the south side of the chancel are two piscinae. In the inside is a very old town chest, without date.

In this chapel (1810) remains a large folio Bible, in black letter, imprinted by Robert Barker, 1613, in very good preservation, from which the lessons are now constantly read.

"Nov. 30, 1646. Upon consideration had of the petition of the parishioners of Dadlington, in the county of Leicester, a copy whereof is hereto annexed; for that the said rectory, as by the said petition is alleged, is inappropriate to the Dean of Westminster, by whom the cure of the said church is maintained: This Committee do recommend the same to the committee for the said rectory, who are desired to take the same into their serious consideration, and to do thereupon as they in their serious wisdom shall think meet."

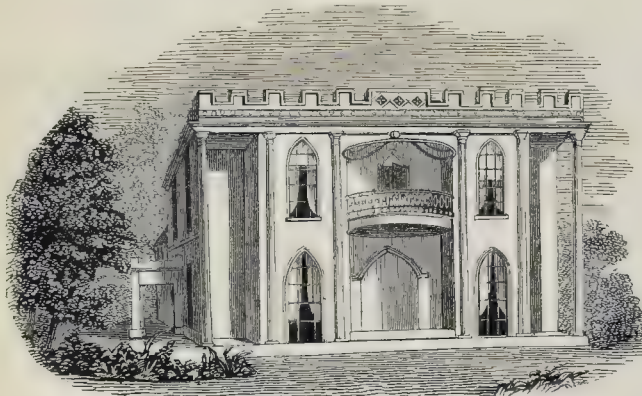
"April 20, 1648. Upon information that — Salisburie, Esq., farmer, of the impropriation of Dadlington, in the county of Leicester, under the Dean and Chapter of Westminster, being by his lease enjoined to provide for the cure of the church of Dadlington aforesaid, did usually heretofore allow but 5 marks, and *sithence* but 5*l.* a year, for the maintenance of a minister, whereby the said parish has been supplied with scandalous ministers, and is now wholly destitute of any: It is ordered that the said Mr. Salisburie do provide some godly and orthodox divine to the contrary before this committee on the 18th

officiate in the said cure, and allow a competent maintenance for him, or shew cause to the contrary of May next."

We have thought to amuse our readers by this much of an extract from a local work, which so far enters into the general history of Dadlington Church; beyond this, we have little to aid us, and as our present purpose is with the architectural aspect of the church, we care less to enter into historical particulars, or mere matter of narrative. It strikes us that the present roofs have been added in the period of half-timbered erections, and that no mean talent of the quiet, secluded district in which Dadlington is situated has been called into request, to recrown this church on the decay of the original roof. No man will stand to dispute with us that this attic—for so we suppose we must call it (it is not a clere-story)—has not a charm and an appropriateness infinitely superior to all the bald cuttings-down of later emendators. Would that the substructure of our ancient churches had been always so worthily and so reverentially canopied as this is—where the ravages of time and desolation of years had claimed, as this no doubt did, protection; here are germs of style, and style for churches too, in this little picture that it would be well for our young architects to turn their minds to, but we fear, on the other hand, that the mannerism, or the dogmatism, of the day may deter. Churches with iron roofs, and an attic on this principle, would, thrown from the hand of the artist, be susceptible of exquisite beauty of general character, and, above all things, in detail, and with the lights thus raised, the walls would be left in their full breadth and scope for painting and sculpture. We are not to be told that the magazine of pure devotional art has been ransacked and cleared out; it has not been more than looked into; and we protest that we are pleased to have to submit this undeniably pretty church to our readers, in the hope that it may be as the fertile seed of an expansion of ideas the fruits of which our young architects are destined to bear, for their own and their country's advantage.

ROSE HILL VILLA, HAMPSHIRE.

(The Walls built of Mud.)



HOUSES BUILT OF MUD.

TO THE EDITOR OF THE BUILDER.

SIR,—I have been a reader of your invaluable paper since its commencement, and have gained much useful knowledge from it. This useful knowledge I feel as something for that to rest upon which you have yet in store for me, as you think my mind is prepared to imbibe it.

In perusing THE BUILDER, I have found descriptions of buildings built of timber, stone, brick, &c., but not any with mud: I think it time we

should have a little of the mud, or we shall get, I am afraid, so lofty in our aspirations that some of us will lose ourselves. Permit me, then, if a little of it will not soil your columns, to inform my brother readers how much we think of it, and how we use it, in this part of the country.

The above represents a villa built of mud, as we choose to call it. The walls are carried above the ground two and sometimes three feet with brickwork (depending on the locality), to prevent the damp from rising to the mud, which, if it gets in, the action of the frost would make it scale off.

The kind of earth used in this part of the country is fine chalk dug from the surface; if timely notice of any intended building will permit, it is best dug in winter that the frost may act upon it. Buildings, built of this material, can be done only in dry warm weather. The workmen, in preparing this chalk for use, put about a cart-load of it together, throw water over it, tread it with their feet, turn it over, again tread and turn it until it begins to bind, something like loamy clay, then let it soak a little while, when it is ready for use. The waller is able to put on a layer of about fifteen inches; he begins at one corner, and goes round the building, putting one layer on another, taking care that the lower one is sufficiently dry to bear the other. In buildings of two stories high, the walls are generally about eighteen inches thick. When the walls are got up five or six feet, and pretty dry, the quoins are plumbed, and the walls dressed down a little, in order that the waller may see what he is about. A small short spade is the best tool for this purpose, with short handle and rather bent. The work is then proceeded with as before, until the walls are got up to the square of the building, when the walls get their general dressing, ready to receive their coating. The building the above represents is coated with stone lime, coloured and drawn. There are many buildings of this kind in Stockbridge, Winchester, and several other places in this neighbourhood.

A much better plan for constructing earthen walls than the one I have described above, is recommended in a work by William Wilds, surveyor, for the peasantry and emigrants; this consists in having a wooden box or trough made strong, and on a principle that it will take from together in parts. I do not recollect the size he gives, but I should say about twelve feet long, by eighteen inches deep. This trough will rest on bearers put across the wall, with a mortice at each end wide enough apart to receive the sides, and the thickness of the wall; in these are the inserted uprights to prevent the sides giving way, with other pieces to go across the

top. This trough should be made strong, and with plenty of play in the mortices, so that it may with ease be taken to pieces. The earth should be prepared as in the former method, but will not want quite so much being applied to it. When the stuff is ready, it is put into the trough, in which a man stands with a beater and beats it inside the trough until it is quite solid; when the trough is full, it is removed to the next length, &c. I saw a building put up with the trough at Winchester; the walls were very much better than those done without it, and had a much better face to receive the coating.

Knowing you have matters of more importance than my mud, I shall conclude.

I am, Sir, your obedient servant,

JAMES FLITCROFT.

Near Stockbridge, Hants,
June 27, 1843.

[The example which Mr. Flitcroft has been pleased to supply us with is a notable instance of the perversion of every principle of sound taste. Here is a building of mud, the most inferior of our building ingredients, aping an exterior of fine stone, or it might be marble. It is too bad to criticise—but Mr. Flitcroft's instructive letter is not the less valuable, and it will be acceptable in many instances.—Ed.]

EARTH BRIDGE.

Mr. JACKSON, clerk of the peace for the Isle of Ely, was present, and Mr. Green, clerk of the peace for Huntingdonshire, who read the minutes of the last meeting at Ely, and the advertisements for tenders for building an iron suspension bridge over the river Ouze, at Earith, according to the plans and specifications of Capt. Sir Samuel Brown, R.N.

The tenders being opened, were as follows: Harratt and Balbernie, £2,237; Eagle Foundry, Cambridge (Headley), £2,030—additional stone facings, £229.10s.; Henderson and Co., London Works, near Birmingham, £1,350—additional facings, £175; Briggs, of West Ferry, near Bawtry, Yorkshire, £2,480—additional facings, £170; Sharp, Long Sutton, Lincolnshire, £1,900—additional stone facings, £150. The Directors of the Stockton and Darlington railway company offered a suspension bridge, erected in 1830, and since taken down, for which they would be disposed to treat on advantageous terms. Sir Samuel Brown, £2,500, which was to include the costs of drawings, specifications, expenses, &c. already incurred.—On the proposition of the Chairman, it was determined that Sir Samuel Brown's tender should be dispensed with, and a resolution was passed, that Sir Samuel Brown be sent for and appointed engineer.—Sir Saml. Brown (accompanied by Mr. Hopkins, an architect) attended, and withdrew his tender, accepting the appointment of engineer, and expressed his intention to charge £300., as his expenses for drawings, specifications, &c., up to this time, and his own and Mr. Hopkins's professional services to the completion. The Committee to play the clerk of the works, who is to be appointed by Sir Samuel Brown. Under Sir Samuel's recommendation, the proposal of the Directors of the Stockton and Darlington railway was dismissed. It was resolved that Sir Samuel Brown should write to Henderson and Co. for specimens of the materials purposed to be used, for him to inspect and try.—Mr. Sharp was next called in and questioned by Sir Samuel Brown and Mr. Hopkins. Mr. Briggs was then admitted and questioned, as was Mr. Headley and Messrs. Harratt and Balbernie. Mr. Harratt stated that the additional stone facings would amount to £160. extra. Mr. Henderson was not in attendance. It was proposed that Henderson and Co.'s tender be accepted, subject to the approval of Sir Samuel Brown of the specimens to be furnished, and report to an adjourned session. It was finally determined, that all the tenders be referred to Sir Samuel Brown, to report thereon at an adjourned session, to be held on the 9th of June next. On the 9th of June, the sessions was further adjourned until the 24th, in consequence of the necessary specimens of the iron work not having been furnished to Sir Samuel Brown, when it was determined to accept the tender of Mr. Sharp, of Long Sutton, subject to the approval of the Isle of Ely magistrates and Mr. Hopkins, on behalf of Sir Samuel Brown, arranging for some extra works.—*Cambridge paper.*



NATIONAL SCOTCH CHURCH, CROWN COURT, BOW STREET.

THE occasion of the refronting of this church, which was an ugly brick building, caused some difficulty to the architect, Mr. Robert Wallace, in selecting an appropriate design, on account of the building being in a narrow court.

The conventicle or sectarian character was broadly impressed upon it. Its plain brick front, extending to 60 feet, was pierced in the upper part by a range of 7 semi-circular headed sash windows, between which and the lower openings, consisting of 5 windows with outside shutters, and 2 wood door pieces, with fan-lights over, was a considerable space (10 ft.) of plain brickwork, occasioned by the steep rise of the gallery within. The projection of the porches was about 3½ feet, leaving an unoccupied space or area intermediately, and at the ends, inclosed by an iron railing. With these elements for the architect to deal with, and with the desiderata impressed upon him, first, of imparting to the building an ecclesiastical character; and, second, of obtaining an external access to the galleries, without injury to the existing lights, he has produced the facade represented in our engraving, the round-headed windows which prevailed throughout the upper story of the building, having suggested the Norman style.

It may help to explain the diagram to observe, that the large open arch in the centre of the front gives access to the new external

stone stairs, which ascend to the right and left (passing over the heads of the two ground-floor entrances) between the pierced screen and the main wall; that the two higher features which break and give variety to the line of front, result from the necessity of forming a headway to the staircases, continued up in them, and entering to the highest level of the gallery, below the sills of the two extreme windows, which receive their light from the front and lateral openings in the towers which mask them in the view. It may further be observed that all the apertures in the new front are open, or unglazed (except the two lowest ones in the turrets), in order not to impede the light to the old ones in the main fabric, all of which retain their old forms and positions.

The effect of this is extremely pleasing, and well merits a visit, which its obscure situation is otherwise little calculated to attract. We wish much that an equal attention to adaptation were to be more frequently found among architects, who are too well satisfied generally to supply the place of originality by copying from a stereotyped set of designs, in which the greatest merit consists in making the most servile imitations. A novelty, even if it were a bad one, which it is not in this case, is vastly preferable to such want of talent and industry, by which architecture is degraded to so low a pitch, and the character of its professors reduced below the right standard.—*Polytechnic Review.*

BEDFORD.—PROPOSED NEW GAOL.

THE Chairman called the attention of the court to the fact, that at the last session, a committee had been appointed, consisting of Mr. Pym, Lord Charles Russell, Mr. Orlebar, Mr. Livius, and Mr. T. C. Higgins, to visit the new model prison, and take such steps as they thought fit for the purpose of ascertaining the expediency of building a new gaol for this county. The committee had obeyed their instructions, and would report to this court; but before they did so, he (the Chairman) begged to remark that he had received a letter from the Secretary of State, calling the attention of the magistrates to the inspector's report, as to

the defective state of the Bedford prisons, and to the circumstance that it was impossible for the regulations of the Act to be complied with; and he recommended that one good prison, rather than two under the present plan, should be constructed.

After a few remarks, the Chairman was requested to reply that no material alteration had at present been made, but that several improvements had been adopted, and many objections removed; and to add, that the subject of a new gaol would be brought under the notice of the magistrates immediately.

The Chairman then read the report of the committee, which stated that, in pursuance of their instructions, they had visited the model

prison of Pentonville, and they were of opinion that it was constructed on a good principle, and was well calculated to maintain discipline, method, and good order; and particularly so under the expensive system of management there carried on, and the peculiar inducements held out to good behaviour; but the cost of a prison upon that model, suitable for this county, would not be less than 25,000*l*. Some of the committee had visited the county prison at Hertford, which had been remodelled at a comparatively small expense, and would now accommodate 140 prisoners in separate cells. The sum already expended there was 3,200*l*., and a further outlay of 1,000*l*. was contemplated. These alterations had been sanctioned by the Secretary of State. The works had been carried on under the able superintendence of Mr. Thos. Smith, the Herts county surveyor. The committee were not sure that the Bedford prison could be altered in the same manner, at so small a cost; but before they recommended so large an outlay as 25,000*l*, they begged to have the authority of the court to direct the county surveyor to confer with Mr. Smith, and visit the Hertford prison, and to request Mr. Smith to meet the committee at Bedford, to ascertain whether the prison of that county could be so remodelled, and ascertain the probable expense of doing it. The committee were of opinion that the house of correction must be reconstructed, if not altogether given up; they also proposed to apply to the Secretary of State for Major Jebb's assistance, when they have ascertained whether it would be practicable to alter and enlarge the present gaol at a reasonable expense.

The report was received and adopted, and the court requested the committee to continue their labours.

Lord Charles Russell said, he regretted that other duties would prevent his attendance on the committee, and requested that some gentleman living near Bedford might be appointed in his stead.

The name of the Rev. W. S. Chalk was submitted to, and approved of by the court, in the room of Lord Charles.

The Chairman then suggested that the gaol committee should meet on the 7th of July, and that Mr. Giles should be directed to attend them, and that he should visit the Hertford prison in his way. These suggestions were unanimously approved of.

PAYNE'S WOOD PATENT.

At first reading of the above head, we had, with many others, concluded that Mr. Payne's was another of the many wood pavement patents now before the public, and we had reserved ourselves in this expectation, until we paid a visit to Mr. Payne's office and works the other day. We were then undeceived. It is a WOOD PRESERVING PATENT, and for preserving other vegetable substances.

Most of our readers are familiar with Kyan's patent. And the word Kyanizing, as applied to timber, is now one of the household words of the same *structure*, a *shophold* term. A good deal of controversy is on foot as to the merits, or rather the demerits of Kyan's process, but we will not anticipate.

We have Sir William Burnett's and Margary's processes also to make our readers acquainted with, and for the present, therefore, confine ourselves to Mr. Payne's.

Oh that somebody would undertake to write a proper manual or "hand-book" of chemistry; and that the good old Saxon phraseology could be adhered to in it, or, at any rate, put in that juxta-position with the ponderous nomenclature of classic derivation, so as to enable an English reader who boasts of proprietorship in no more than his "mother tongue," to keep pace with the pedantry of the scholars. Two bodies—sulphate of iron and sulphate of lime—are used by Mr. Payne to effect the preservation of timber, &c.; both bodies are held in solution with water, and when united form what is termed an insoluble compound. The union in the case of timbers is promoted after this fashion: the wood is placed in a solution of iron, and the cylinder in which it is placed is exhausted by the air-pump, which causes the solution to take possession of the interstices of the wood instantaneously. It is then placed in a solution of lime, and enormous pressure applied, by which it is forced into the

wood, and the two solutions instantly solidify, and make the timber as hard and pretty nearly as heavy as stone. At all events, it makes a piece of fir as hard as oak, and would render the most spongy substance solid. To shew the effect of the combination of the solutions, a small quantity of each is placed in two glass vessels, and when separate, are as liquid as any water or spirit. They are then poured together, and instantly become solid. This exemplifies the effect of the solutions meeting in the pores of wood or any other open substance. Pieces of various kinds of wood submitted to the process were exhibited, and on cutting them open iron was detected in the very heart of the most solid kinds. A small piece of beech was then weighed and placed in the solution of iron, under a glass receiver, and the air exhausted, the wood giving out its air bubbles from every portion of its surface; in an incredibly short space of time it was saturated, and had nearly doubled its weight. It was split open, and shewed the presence of iron in every part. We then saw small pieces of the wood, which were perfectly dry, submitted to the flame of a candle, when they would not ignite, but were charred by holding them there some time, getting red hot only as a piece of metal would. At any rate, the active combustible character of the wood was destroyed, and reminded us of the effects of fire on poplar, which, as many of our readers know, is used for floor-boards in many rural districts for the safety of bed-chambers.

It certainly seems an extraordinary change for the wood to undergo—that in being deprived of the air and moisture by exhaustion, and the place of these being supplied by foreign bodies—they appear to make good their usurpation against all the dislodging forces of fire or water. The wood, in fact, is no longer wood; if we may use the expression, it is a block of compounds of which vegetable fibre forms hardly a superior part, for in the case of a piece of beech that was saturated, nearly 100 per cent. was added to it in density. There, in one you have fibrous texture, with a strong metallic and calcareous impregnation; light, spongy, and decaying woods are made by this process ponderous and durable—the change is as great, and to the eye as marvellous (we have no doubt it will become as common-place) as to see, by the union of powdered plaster, and the flowing liquid water, a solid almost instantaneously formed; the which to speak of, is to give a good key to the nature of the chemical working and transformation in this case.

Need we say after this that the wood is next to imperishable? Talk of trade-unions, what do you think of this? If it is not a union of the carpenter, the iron-founder, and the mason, it is very like it; the materials upon which these craftsmen work are united in one, and a thoroughly practical union it is, and an exemplification of the proverb, "union is strength." With strength, also, is secured beauty; the cabinet-maker is not removed from interest in this process, ordinary deal, and our native woods are so usefully charged with this new body, as to prevent the absorption of oils and polishes to a great degree, and so to facilitate the operation of polishing; half the labour and half the material may be said to be saved in the process of polishing otherwise soft woods; and it will surprise many to see how the despised tribes of the English hedgerow may be set forth in successful rivalry with the prouder products of Hispaniola, Cuba, and Honduras. Our glorious oak is converted by the magic of a day's *pain*, or *PAYNE*, as we suppose may be said, into the deep ebony of its thousand years' acquirement in a substratum of peat—a dainty strip of vainscot of yesterday's importation was laid before us at the same time with the venerable fragment of one of the piles of old London Bridge, and the junior emulated the senior most vainly and effectively, in colour, weight, and impenetrability; strips of deal, beach, ash, &c., had been operated on and French polished, and might be termed perfectly beautiful. Who shall say what changes in modern joiner's work this process will not be necessary to? we see and anticipate many.

But it has been objected to Mr. Payne's process, that there is a complication in it, a cumbrous and expensive arrangement of machinery, and so it might seem to those who stand at a distance, and do not satisfy themselves with an examination, or do not understand the sim-

pliances of mechanical and chemical science. The truth is that the process is one that may be made comparatively self-working; the air pump is not yet so familiar and popular an engine as the water pump, but who knows how soon it may become so? With steam power to the working, and a proper arrangement of cisterns for the respective solutions of iron and lime, exhaustion, charging, immersion, every branch of the process may be effected with the intervention of merely a finger; and what we like best in this great improvement is, that it makes no inroad on the prescriptive territory of human industry—this it is which, by the way, we may be permitted to observe, is the grand distinction between machinery as a friend and machinery as an enemy. The former comes in to aid man in his emergency—the latter thrusts himself forward, coveting possession of the workman's territory. Air and water, the greatest blessings to man in their way, are devastating curses out of the way. There is indeed such a thing as "too much of a good thing."

Mr. Payne's process is a cheap one, and must, with the improvements and familiarity we have hinted at, become more so. At present the charge is 1*l*s. per load of 50 cube feet, which may be taken at an average of 8 per cent.

Where the tool has to pass over the wood thus prepared, it is clearly an advantage that this be done at an early stage, before the compound solution has had time to become thoroughly solidified; but we have not experience enough yet to say what, and if any, amount of damage is sustained in the general working; and the more general introduction of the patent, which is sure to follow of its being more generally known, will solve all doubts upon this head; but we do not apprehend any difficulty.

We trust we have thus given a sufficient special exposition of this matter; but we may have occasion to return to it again, on noticing the other plans of a kindred character under the designation of the several gentlemen whose names we set out with enumerating.

MADAME TUSSAUD'S HISTORICAL EXHIBITION OF WAX FIGURES, BAKER-STREET, PORTMAN-SQUARE.

It has been the custom to describe this exhibition in ordinary and common-place terms, and to dwell chiefly upon the glittering and Alladin-like surprise which it excites. Differing, however, from some of our contemporaries, whether in the impression a view of it often pleasantly repeated has made upon us, or that our particular vocation inclines our attention towards the foundation upon which any remarkable superstructure may happen to be reared, we know not, but we think of it as higher in motive and effect than many have expressed. Exhibitions of wax figures were always popular: we remember, in our boyish days, to have gazed delightedly upon humble attempts of the kind to represent actors in some or other of the gloomy or gorgeous scenes with which the drama of life abounds, but of the dignity and circumstance Madame Tussaud and Sons have contrived to throw into and around this particular species of artistic modelling, there is no previous example: the result is a striking instance of successful enterprise.

The elements combined in creating this superiority are, evidently, a nobler conception of the art itself, a more perfect manipulation than heretofore attained, and a mastery in the distribution of colour; comprehending not only the endless variety of tints shewn in the human countenance, from infancy to extreme age, but those incident to climate, habit, and the predominating characteristics of individuals. It is, therefore, in truth, a new development of the principles admired and cherished in painting and sculpture which here constitute the basis of continued attraction—form and colour—shadowing forth participators in great events, and reviving a recollection of the heroic and talented amongst mankind. Such are our impressions of the merits of the exhibition as one of art, and of the talent applied to produce it. The fitting and decoration of the spacious and magnificent saloon, or hall, in which the figures are grouped, is an additional evidence of the taste of the proprietors; historical reminiscence is the feature constantly kept under view, and accomplished by placing

in juxtaposition personages whose co-operation in splendid achievements, or whose irreconcilable opposition in principles and action, have influenced the rise or accelerated the fall of nations; wherever this arrangement is departed from by isolating a figure, it has been done with judgment, and an eye to peculiar dignity, intellectual superiority, or memorable proficiency, that may have distinguished the living individual: thus the figure of Washington stands alone, as did its original in every attribute revered in the patriot and statesman. In like manner those of Shakespeare, Siddons, Malibran, Paganini, and others, are submitted to contemplation, in attitudes appropriate to an exercise of the brilliant conceptions and faculties with which they were endowed.

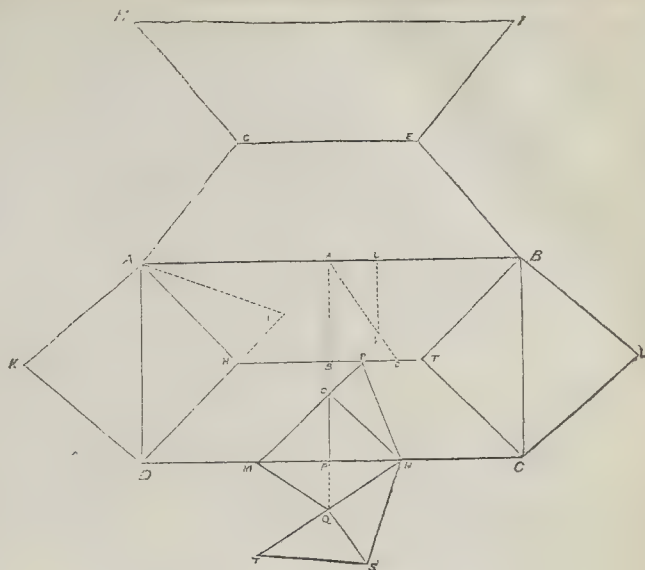
In the very imposing addenda of costumes, the collection is rich and effective: the main interest of the critical observer, already conciliated by the intrinsic merit of the plan and purport of what he sees, dwells with increased pleasure upon the peculiarity or sparkle of the habiliments of various ages and courts. The pure, delicate, and becoming vesture of Mary Queen of Scots—beautiful and unfortunate lady! “more sinn’d against than sinning”—contrasted by the rigid canonicals of Knox, is a picture to be remembered; that of the philosopher of Ferney amused, while those of the Chinese mandarin, Lin, and his pretty Tartar wife, delighted us by its singularity and richness, and its superiority to anything of the kind that had previously met our notice. But we are giving precedence to inferior dignitaries, while emperors, kings, queens, statesmen, and chieftains surround us; the figure of George the Fourth, apparelled in the veritable robes embroidered to his own designs, and worn at his coronation, stands before us; need we say that it is a gorgeous sight, an example of spirited catering for the gratification of the public, and a most loyal perpetuation of the tastes and predilections of that luxurious monarch? The apartment, or recess, prepared for the reception of these vestiges of departed royalty, is in keeping with the subject. We are also presented with two groups, a principal one of our present gracious Sovereign, and many personages of her court; and a second of the royal marriage, in which the likenesses and appointments are admirably preserved. There is another, not of the court, but of the camp, of a mighty spirit—of Napoleon—surrounded by warriors, who won their way to fame by indomitable bravery, and by the tributary monarchs of his hour of glory.

We might go on enumerating objects of passing interest to a length wearisome to the reader, whom we can assure that these are but jottings of a splendid scene, where the eye and memory may revel to satiety. There is a recent addition to Madame Tussaud's exhibition of a distinct kind, consisting of relics of Napoleon—Emperor, King, and Captive—illustrating remarkable periods of his career and personal habits; it has been named, we believe, the Shrine-Room. This we purpose visiting, and will faithfully report the result of our observations.

ON ROOFING.

WITH regard to roofing, it is important that we begin rightly, by throwing as few difficulties as possible in the way of the student. Simplicity must be aimed at, and not a show of knowledge or pedantry on our part; we have to teach, not to display.

The first thing we shall instruct our pupils to do is, to cut out a piece of stout paper or card, exactly to the outline of the above diagram, which we may tell them is called the “ledgment plan” of a roof; in other words, it is the covering of the roof of a house whose area is $ABCD$ laid out flat. Having cut out this piece of paper as directed, let them proceed to fold or crease it at the several lines $g e$, $A B$, $B C$, $A D$, $m n$, $q n$, and $q s$, observing to fold inwards, that is upwards; when these are all creased, it will be found, by bringing $H I$ over to $D C$, and folding in the two ends $B C I$ and $A D k$, that a hipped roof is formed in model over the space $ABCD$; then raising $m n q$ to an upright position, and folding $t s$ to come over $m o$, a small pediment roof will be set on the main roof, and the whole principle of laying down “roofs in ledgment,” with this and the following working, will be fully developed.



ROOF LAID DOWN IN LEDGMENT.

And now we state our proposition, in rather an odd place it is true, but we choose this mode, believing that the task of the learner will be more agreeable; and it is by strewing the path of knowledge with flowers that we think most likely to win votaries to her pursuit.

The proposition is, to lay down in ledgment the roof of a house $ABCD$; it must be “hipped in” at both ends, and have a pediment in the centre of the front.

A word or two, before we proceed farther, as to the utility of this mode of laying down roofs in ledgment: the prominent merits are, to give a correct idea, not only of the form of the proposed roof, but of its admeasurement: a person who can lay down the ledgment plan of a roof, cannot be at a loss to measure any part of it; as for instance, the length of the slope, whether for slates or rafters; the length of the hips, for slating, timbering, and for lead; the length of the valley gutters of the pediment for the like purposes; and not least, it is an amusing and sensible recreation.

But now to the working of our proposition—first, lay down the outline of the plan of the house $ABCD$, draw a centre line $h i$, to represent the seat or position of the ridge, and with the distance of half the width, set off from the ends to fix the points k and t ; join these points by lines to the corners of the building, and you have the seat of the hips defined; next, find the centre of the side DC at p , and at right angles rule $o p$, the seat of the ridge of the pediment; the length of $o p$ may be determined by setting up the height $p q$ of the pediment (one-third of its width) at $u v$, and ruling a line parallel to $a b$, till it cuts the slope of the roof $a c$ in v — $u v$ is the length of the ridge $p v$ —join $o m$ and $o n$ and the seat of the valley gutters of the pediment is defined.

We have anticipated ourselves, by referring to the line $a c$; we have yet to explain its necessity and use. So far the mere plan of the upper surface of the roof is determined; we come now to finding the lines for the ledgment.

We said before that the height of the pedi-

ment was one-third of its width, and we will therefore make the pitch or height of the roof one-third the width of the building, or, as is usually said, one-third of the span; this pitch or rise of a roof is deemed a suitable one for tiles, while one-fourth of the span would be thought in most cases sufficient for the rise of a slated roof, and in many instances it is done with less (two-ninths and even one-fifth); but great care is necessary in the “lap” of the slate, and much depends on situation. This is a digression, but it is to bring in accessory points of knowledge. We will now proceed to find the width of the slopes of each side of the roof.

Draw the line $a b$ square to one side, and at b on the ridge, set up $b c$ equal to one-third the span of the building; join $a c$, which is the length of the slope, set off the length to $g e$, and forward to the line $H I$ parallel to the sides of the building; $g e$ must be the same length as the ridge line $h i$, and $H I$ equal to the side $A B$: join the points $B e I$ at $A g H$, and the ledgment of $A h D$, $B t C$ is determined.

For the ends; on $D h$ the seat of one hip, set up perpendicular $h i$ equal to $b c$ (the rise of the roof), join $D i$; and this is the length of the hip for the ledgment upon D and A , with the distance $D c$ describe intersecting arcs at k , and $D h A$ is the ledgment of the hip end; proceed in like manner by $B t C$ —thus the main roof is formed.

Now for the gable or face of the pediment. On p , with the height equal to one-third the width of the pediment, set up $p q$, join $m q$ — $n q$, upon $o n$, set up $o r$ perpendicular to $o n$, and equal to $p q$, join $r n$ —this is the length of the valley $o n$.

At the point n , with the distances $o n$, describe an arc at s , and at the point q , with the length of the ridge $g p$, intersect by another arc; $q n s$ is one side of the pediment in ledgment; make $t s$ equal $s n$, and $t g$ equal $q n$, and the other side of the pediment is laid down in ledgment, and when all cut out and folded over as first directed, the complete roof is presented to view.

ON TUDOR ARCHITECTURE.

(Continued from No. 21.)

TO THE EDITOR OF THE BUILDER.

SIR,—A stranger, conversant with classic architecture, visiting London for the first time, would suppose that we had never had a national style of domestic architecture; for of really ancient structures, Westminster Hall and Crosby Hall are almost the only remaining examples, whilst but few imitations are to be met with. Of these, one in the immediate neighbourhood of the Abbey cannot be commended for displaying much taste or

conformity with early precedents; whilst another may be mentioned with honour, the St. Olave's Grammar School, Southwark, which, though unfortunately now much obscured by a railway, shews in the designer an intimate acquaintance with, and right feeling for, the beauties of Tudor architecture.

It is surprising how many opportunities have been suffered to pass by for reviving this English style of building; among these the companies' halls, which have been rebuilt within the last few years, presented glorious occasions for carrying out the best features of a style more appropriate than any other to institutions so thoroughly English in

their character. It is particularly to be regretted that the gifted architect of the Goldsmiths' Company had not the choice allowed him of rebuilding their hall in a style which, whilst it permitted the company to display the resources of their great wealth, would have been far more appropriate to the very confined situation in which the hall is placed than the colossal order now employed; and fine as many of the features are in the present building, what a scope was presented to the architect for introducing every variety of Tudor detail, in a structure possessing an advantage so rarely to be met with in London—that of a distinct frontage on four sides! and, connected as the Sovereign is with the company, a great field was open for adorning both the exterior and interior with the embellishments derived from heraldry in sculpture and stained glass. Had the example been set by this rich body, it must have had a great influence on other similar corporations, which have in some instances rebuilt their almshouses in the old English manner. One could wish that another great public building—

“Even there, where merchants most do congregate”—

a building associated with the recollections of the last sovereign of the Tudor dynasty, the princely foundation of a Gresham—had been rebuilt in a style of national architecture. And here again the peculiarities of the old English method were admirably adapted to the locality, which is too confined, and the value of the surrounding property too great, to admit a sufficient area to be cleared for the due display of classic architecture, especially if, as in this instance, the order employed is large. In narrow thoroughfares, columns and pilasters take up much of valuable ground; whereas, in a Gothic building more effectual shelter would be obtained by arcades. No room would be wasted, since the arcades would carry the walls immediately above; and light, that most important point to be studied in a London situation, would be obtained in much greater abundance from the oriels and wide-spreading bay windows of a Tudor building, than from the comparatively narrow openings of the classic style, with half their quantity of light obscured by columns. In a “Royal Exchange,” also, the introduction of the effigies of our sovereigns (but not in Roman costume) would be so very appropriate. And that expense which is now lavished in producing elaborate carvings, which awaken no responsive chord of sympathy in our bosoms, would have afforded a series of portraits of departed worthies to excite the emulations of future Walworths and Whittingtons; and, instead of (as in the “Old Change,” and perchance it may be in the New) introducing beings which never existed but in the poet’s fancy, we might have sculptures which should more particularly commemorate the greatness of England in her character of a maritime power. The sum of money allowed for the New Exchange would produce much more display in a Tudor than in a classic building. In the different inns of court various occasions have likewise arisen, from fire or other causes, of restorations and alterations being made in the old English manner; but although one would think that here there could be no hesitation about the matter, since most of these institutions have actually some building or other in that style, we see sometimes new buildings erected in the most bald and characterless style possible. A happy example on the contrary is, however, now in progress of being built by the society of Lincoln’s Inn; and in the adoption of this style on the occasion, we see precisely its fitness for the purpose, since in such societies (to name only one peculiarity) the distinctions still prevail which formerly gave rise to the dais, or raised place of honour; and the building in question, erected as it will be with good, honest materials of brick and stone, will be far more appropriate, picturesque, and economical than any tame or cramped imitation of the styles of Greece or Rome.

A town which should be built entirely, or nearly so, in the Gothic style, would be one of the most interesting places in the world, at the same time one of the most economically built and enduring. The churches should be the most prominent objects, their spires or lofty towers distinguishing them from buildings devoted to secular purposes; the town hall, with its ample arcades, affording shelter from rain, protection from heat, and convenient space for out-of-door meetings; the market place, with that beautiful feature, the market cross; the free and grammar schools, the almshouses of a substantial and plain character, and the various public and private buildings, might all be designed with an appropriate general effect, and each in a manner suited to its particular purpose,—laid out in broad streets, some of them perhaps wide enough for rows of trees; a beautiful supply of water issuing from ornamental conduits, and happily situated with the mighty ocean for its boundary and chief attraction. Such a town would be better

than all the whitewashed and fimsily-contrived structures which adorn (?) our newly-erected towns. If we go back to early times, we shall not find in one city a confused jumble of the styles of all nations. In Athens the Agora, or market-place, partook of the same Doric character with the more majestic Parthenon; and the exquisite little structure erected at the individual expense of a Chorgus (Lysicrates), is yet as much an example of the Corinthian order as the vast temple in honour of the Father of the Gods (Temple of Jupiter Olympus). In ancient Rome, also, we find one national style of architecture pervading, as well as her theatres, her forum, her baths, her triumphal arches and honorary columns, as her temples and religious structures. And wherefore should not something of the same kind exist in London? Why should we not return to a style which is our own, which has always proved attractive to the general observer as well as to the enlightened amateur, when a really good and spirited imitation has been produced, as, for instance, the great hall of Christ’s Hospital, London, by Mr. Shaw, or the Grammar School at Birmingham by Mr. Barry? It is probable that nearly all foreigners who visit England think more of Oxford as a school of architectural display than all the rest of England put together; and this feeling must arise from the fact of so many fine and beautiful specimens of our national style of building being collected together in one city, and where the works even of a Wren, a Gibbs, and a Vanbrugh, look sadly out of place amid the glories of a Wykeham, a Weynflete, and a Wolsey.

London, 28th June. PHILLO-TUDOR.

NEW CHURCH.

CHELSEA COLLEGE.—The governors of Chelsea College have purchased, at 1,200*l.*, a piece of ground adjoining the college, for the erection of a church for the pensioners, which church will be also free to the public. A bill is before Parliament, authorizing the governors to apply a portion of the property bequeathed to the college by Colonel Drouly towards the erection of the proposed church.

OUR CORRESPONDENCE.

TO THE EDITOR OF THE BUILDER.

SIR,—I have been struck with an account in *THE BUILDER*, No. 21, of an extract from a Norwich paper, in which Mr. Nelson is made to say, “I have risen by my own exertions from being a clerk in an office, to be the third man in the kingdom.” of course he means as an architect.

Now, Sir, I believe it is not usual for any professional man to arrogate to himself precedence; the public voice generally proclaims the parties who are entitled to the front rank. But without waiting to inquire who are the *two* gifted beings to whom Mr. Nelson is content to yield the pride of place, the public and the profession will be inclined to ask if the gentleman in question has distinguished himself more in Grecian architecture than a Smirke, a Burton, a Basevi, an Inwood, a Verilliam, or a Wyatt; in Roman and Italian architecture, than a Cockerell, a Hardwick, a Tite, or a Cundy; in Gothic, than a Barry, a Blore, a Cottingham, a Terrey, a Hopper, a Lamb, a Pugin, a Salvin, a Savage, or a Shaw. These are a few names of some eminence, and those well known, picked out at random, and though classed, nearly all are familiar with one style as much as with another. But I believe that not one of this list would say of himself that he was first, or second, or even third.

London, July 3, 1843. AN ARCHITECT.

TO THE EDITOR OF THE BUILDER.

SIR,—In the article headed “Serious Discovery,” and which appears to have been copied from *The Bury and Norwich Post*, you, I believe, have made a mistake, it having reference to St. Mary’s Church, Bury, and not Norwich, as described in *THE BUILDER* of last week.

The architects to the Church at Wimbledon were Messrs. Scott and Moffatt, and the contractors Messrs. Goswell, Parsons, and Finch, of Wimbledon. H.

TO THE EDITOR OF THE BUILDER.

SIR,—I think if a part in *THE BUILDER* was allowed for inquiries and answers on building subjects, it might be the means of exciting an interest, and, as a beginner, allow me to ask a few plain questions of the writer of the description of the Model Farm House, No. 20, page 247:—I am at a loss to know why the pantry should be made behind the kitchen fire-place, and where is the light and air admitted into the pantry? as I have always considered that a pantry should be well lighted and airy, but by this plan it appears from the apartment No. 5, to be just the reverse: and it also appears

very strange to me that the dairy should be connected with the brewhouse and wash-house, as shown by Nos. 7 and 8 on the plan, and I have always thought it the best for a dairy not to be connected with any other apartment, but here is quite the reverse, the entrance being from the brewhouse and wash-house, so that the steam and stew made in them will find its way into the dairy, and also the heat from the back of the boiler; the same as the pantry from the kitchen fire-place; perhaps your correspondent will give a reason why it should be so, that a pantry should neither have light nor air admitted into it, but only when the door is open, and also what advantage the dairy will derive from the steam and stews that are made in the brewhouse and wash-house. I am, yours,

A FARMER.

TO THE EDITOR OF THE BUILDER.

SIR,—Mr. Peck, of Cambridge, is building the “Cambridge Almshouses;” his estimate was either 20*l.* or 30*l.* under 6,000*l.* Mr. Webster’s tender was the next in amount, 6,200*l.*; the others I know not.

I suppose you are aware there is a Cemetery building here. Mr. Lamb is the architect, assisted, I believe, by Mr. Loudon, in laying out the ground. The committee for this said Cemetery advertised for and received tenders, but the materials are found, and the building going on under direction of the architect.

I have been looking rather anxiously in your valuable publication for some further articles on emigration. As my anxiety is shared by others, perhaps you will take it into consideration.

I am, Sir, your obedient servant,
Cambridge, July 3, 1843. W. W.

LETTER II.

THE DWELLINGS OF THE POOR.

TO THE EDITOR OF THE BUILDER.

DEAR SIR,—In connection with my remarks on this interesting and important subject of social economy, which you did me the favour to insert in your journal of the 17th instant, I would further impose upon the attention of your readers some of the facts developed by the Poor Law Commissioners in their numerous inquiries into the sanitary condition of the population. I have selected the evidence chiefly from the populous districts of Manchester, Liverpool, and other large towns where the manners and conditions of the inhabitants assimilate most with those of the metropolis. My present remarks will be devoted more particularly to tenements let out as unfurnished apartments, and on a future occasion to the commoner lodging-houses. My object, as I stated in my last, is to draw the attention of the philanthropic to put into operation some plan which a knowledge of these circumstances may suggest, whether as a matter of private speculation or of benevolent co-operation.

Mr. Chadwick, in his report, presented by order of her Majesty to both Houses of Parliament in July, 1842, justly observes that “one of the circumstances most favourable to the improvement of the condition of an artisan, or an agricultural labourer, is his obtaining as a wife a female who has had a good industrial training in the well-regulated households of persons of higher condition.” He gives the following instance of the effect of the dwelling itself, however, on the condition of such a female servant when married:—“Her attendance to personal neatness,” says a lady, who is my informant, “was very great; her face seemed always as if it were but just washed, and with her bright hair neatly combed underneath her snow-white cap, a smooth white apron, and her gown and handkerchief carefully put on, she used to look very comely. After a year or two she married the serving man, who, as he was retained in his situation, was obliged to take a house as near his place as possible. The cottages in the neighbourhood were of the most wretched kind, mere hovels built of rough stones, and covered with ragged thatch; there were few even of these, so that there was no choice, and they were obliged to be content with the first that was vacant, which was in the most retired situation. After they had been married about two years, I happened to be walking past one of these miserable cottages, and as the door was open, I had the curiosity to enter. I found it was the house of the servant I have been describing. But what a change had come over her! Her face was dirty, and her tangled hair hung over her eyes; her cap, though of good materials, was ill washed and slovenly put on; her whole dress, though apparently good and serviceable, was very untidy, and looked dirty and slatternly; every thing, indeed, about her seemed wretched and neglected (except her little child), and she appeared very discontented. She seemed aware of the change there must be in her appearance since I had last seen her, for she imma-

diately began to complain of the house. The wet came in at the door of the *only* room, and when it rained, through every part of the roof also, except just over the hearth-stone; large drops fell upon her as she was lying in bed, or working at the window; and, in short, she had found it impossible to keep things in order, so had gradually ceased to make any exertions. Her condition had been borne down by the condition of the house. Then her husband was dissatisfied with his home and with her; his visits became less frequent, and if he had been a day labourer, and there had been a beer-shop or public-house, the preference of that to his house would have been inevitable, and in the one instance would have presented an example of a multitude of cases. She was afterwards, however, removed to a new cottage, which was water-tight, and had some conveniences, and was close to the road which her former mistress and all her friends must constantly pass along. She soon resumed, in a great degree, her former good habits, but still there was a little of the *dandie* left about her, the remains of the dispiritedness caused by her former very unfavourable circumstances.* Another instance he relates of a female who had been brought up as a servant in a well-ordered house, and who, for her station, had received a very excellent religious and moral education. Before her marriage she had been distinguished by the refinement with which she sung national airs, and for her knowledge of the Bible and of the doctrines of her church. Her personal appearance had now become, however, of a piece with the wretched stone, undrained hovel, with a pig-sty before it, in which she had been taken. With the men as well as with the females, the wretched condition of the tenements formed a strong barrier against personal cleanliness, and the use of decent clothes.

On the above subject I may refer to some remarks made on the habitations of the lower orders in Paris, contained in "Classes Dangereuse," tom. 2, p. 126. It is remarked there that "the labouring classes are obliged to live in houses almost always dilapidated, insufficient, or unhealthy. Such is the lot of the poor man in all countries; the force of circumstances, the hard law of necessity, compel it. Yet, if it is impossible to remedy completely this state of things, may we not approximate to it, by building houses for every grade of the lower orders, not only of the lowest poor, but of the debased and depraved? It appears to me that these houses would have a double advantage: they would diminish the causes of public insalubrity, and offer to the honest and economical workman the means to procure a residence equal to his necessities, and capable of producing in him the taste for retirement and domestic peace so favourable to morals. It is especially in this last point of view that the amelioration of the dwellings of the poor and laborious class is to be ranked among the preservatives against vicious habits." This report goes on further to state that "rent being one of the most important and indispensable domestic expenses, the father of a family, pressed by other wants of the same necessity, naturally seeks the least costly habitation. These exist only in certain quarters and certain streets of those quarters; they are old, ruined, and filthy. The proprietors, in order to tenant them, let the lodgings very low, and thus attract the poorer families. If these lodgings were healthy and sufficient for all the members of the family, there would be no room for censure, but they are foul, badly lighted, and neither air-tight nor water-tight. They are small, and as parents and children sleep in the same room, the over-crowding is both a cause of unhealthiness and an offence against good morals. Moreover, the bad state and filth of the passages, privies, and sinks give rise to infectious exhalations, which vitiate the air of these humble abodes, and affect the health of the inhabitants in a manner so much more mischievous, that the greater part of them work all the day in crowded and ill-ventilated shops."

It is to be regretted that we have no such accurate statistical details of the condition of the poor in the metropolis as distinguish many of the reports from the country. But the condition of the dwellings of the poor in London is little different, unhappily, from those of the country. Forced from the nature of their occupations to lodge in central districts, and from the high charge of rent compelled to put up with one room, in which all culinary processes are performed, it is alike the kitchen, parlour, and bedroom of a whole family. I speak now of even the higher classes of the poorer population, men who are in the receipt of superior wages. On this subject the Leeds report justly says: "It must be manifest that one sleeping-room, though it may be quite sufficient for a young couple, must be very inadequate to a family of five persons, or oftener eight. It is no sufficient answer—in fact it is an answer founded in error—that with the increase of a poor man's family his means of affording them accommodation increase. On the contrary, an operative is almost at the head of his wages when he becomes a

house-keeper and married; and if his means are then inadequate to pay the rent of a house with two sleeping-rooms, they rarely or ever become so. The wages of children, added to the common stock, are more than consumed in food and clothes, during the earlier periods of life and parental control. At the period when it is essential that the separation of the sexes should be enforced, there is often the least ability to effect it; and thus in the houses of the working classes, brothers and sisters and lodgers of both sexes are found occupying the same sleeping-room with the parents, and consequences do occur which humanity shudders to contemplate. It is but three or four years since a father and daughter stood at the bar of the Leeds sessions as criminals, the one in concealing, and the other in being accessory to concealing, the birth of an illegitimate child, born on the body of the daughter by the father; and now, in November, 1841, one of the registrars of Leeds, has recorded the birth of an illegitimate child, born on the body of a young girl only sixteen years of age, who lived with her mother, who cohabited with her lodger, the father of this child, of which the girl had been pregnant five months when the mother died." Instances of this kind might be given in the most sickening and painful succession from these reports, and unhappily cases of a similar description are too numerous in the metropolis.

The report from the town of Manchester, by Dr. Richard Baron Howard, shews the deplorable condition of that town in 1832, which now represents its state as faithfully as it did then. Of 697 streets inspected, 248 were reported unweaved, 53 partially paved, 112 ill ventilated, and 352 containing heaps of refuse, stagnant pools, ordure, &c. The number of houses inspected was 6,951, of which 2,365 were reported as requiring white-washing, 960 requiring repair, 939 in which the soughs required repair, 1,435 damp, 452 ill-ventilated, and 2,221 were reported as wanting privies. The state of some of the streets and courts examined was found by the inspectors abominable beyond description, and exhibited a melancholy picture of the filthy condition and unwholesome atmosphere in which a large portion of the poor are doomed to live. In some districts the sewers were in a most wretched state, and quite inadequate to carry off the surface water, whilst the privies were in a most disgraceful state; inaccessible from filth, and too few for the accommodation of the number of people, the average number being 2 to 250 people. The reports next allude to the inhabitants of cellars—a species of accommodation happily next to unknown in London. The interior of the dwellings accurately correspond with the filthy condition of the exterior, and present every indication of negligence, slovenliness, and discomfort. The wretched occupants of these miserable abodes, as might be expected, are grossly negligent of personal cleanliness, and what with deficiency of food, clothing, and bedding, have altogether a squalid and unhealthy appearance; the natural consequence of living amidst such fertile sources of disease. It is in loathsome and pestiferous localities like these that disease reizes in all its malignancy and power; that contagion seizing victim after victim, commits, unchecked, its dreadful havoc, and the average duration of life allotted to man is so lamentably curtailed. Here the services of the medical officer of the infirmary and various dispensaries are principally required, and it is amidst such melancholy scenes that he, more than others, becomes acquainted with the hidden sufferings, miseries, and almost incredible destitution of his fellow-creatures. In his daily visits to these neglected haunts of disease and wretchedness, he seldom encounters an individual but the indigent inhabitants themselves; except perhaps the parish overseer, and haply some minister of religion in the exercise of his sacred office, endeavouring to afford religious comfort to some suffering mortal, whose last moments in this world, hastened by the pestilential atmosphere in which he has lived, and the privations he has endured, are drawing to a close. Would that the condition of the poorer classes in the metropolis had been described by such equally energetic and graphic pen, to rouse up the spirit of philanthropic exertion towards their benefit. Unhappily it would be found that the picture was not overdrawn, as many neighbourhoods in and near Buckeridge Street,* St. Giles'; Wentworth Street, Whitechapel; Field Lane, and Saffron Hill, Holborn; Golden Lane, St. Luke's; Charles Street and King Street, Drury Lane; the Almonry and Orchard Street in Westminster; the Mint in Southwark, and many other vicinities would testify.

* In earlier life, when attending my duties in connection with the medical profession, my attention was painfully drawn to a circumstance in this street, observing the utter want of decency in its inmates. I had occasion to attend the *accouchement* of an Irish female of the poorest class, in a room inhabited by three families. On my arrival, although the pains of labour had commenced, two men were sitting unconcernedly smoking their pipes, and it was only on my stating that I should withdraw if they did not, that they left the room.

In the external position of houses, one important consideration is, that of the means of proper ventilation. In the larger streets inhabited by the poor, the houses have the advantage (if limited as it is, it may be called so) of a small back-yard; but thanks to the wisdom of the legislature, means will in future be provided for the more effectual preservation of health. Dr. Duncan, in his report of the sanitary state of the residences of the labouring classes in the town of Liverpool, divides the dwellings of the working population into three great classes, 1. Those inhabiting courts. 2. Residents in cellars; and 3. Those inhabiting houses or rooms in front of the street. Of the 175,000 individuals of the working classes, he estimates that nearly one-half inhabit courts, which consist of two opposite rows of houses each containing from two to six or eight, separated from the opposite row by an intervening space of from six to fifteen feet in width. The Manchester report, in allusion to courts, laments that the same crowding and ill planning of houses which is seen in the older parts of the town, which were erected long before the advantages of a copious supply of fresh air to the human constitution was known, should still continue to be imitated in the cottages of the poor. It remarks, that the practice of building houses at the backs of those fronting the street, with only an extremely narrow passage intervening, and the doors of the former opening directly opposite the privies and uncovered cesspools of the latter, is still shamefully common. Dr. Baker, in his report on Derby, states the principal faults of the courts are want of space, a narrow entrance, often no wider than an ordinary house door, want of pavement, and numerous filthy privies. Moreover, the courts and alleys which contain the worst description of houses, or which are most objectionable as to situation, are sure to be tenanted by persons who are dirty, reckless, and improvident. The inmates of courts, by herding together, countenance and encourage each other in their faults; for being alike withdrawn from observation and the influence of good example, they are neither shamed out of what is reprehensible nor stimulated to improve. The advantages of ventilation are so well known that I consider any further observations will be unnecessary. In what way this can be best effected, what will be its influence upon the general health of the inmates, and in what manner it has eradicated and will prevent many diseases, I shall explain in my next letter.

I shall conclude this, I fear, prolix communication with an interesting extract from the "Report on the condition of the residences of the labouring classes in the town of Leeds, by Robert Baker, Esq." He says:—"One cannot but notice the moral and social, as well as physical effect, which an attention to the architecture and order of cottage houses, and the good arrangement of the streets, has upon the health and habits of the people. In the Bank in Leeds, a part of the East Ward, in which there is every variation of size and order of cottage dwellings, there is a large population, located under a good landlord, who has erected his houses upon a good plan, with a due regard to the wants and requirements of his tenantry, with a due share of out-houses and other accommodation, and with streets well paved and sewered; he has very rarely any houses to let. The whole estate bears upon the face of it comfort and enjoyment. Every house is clean and neat, and tenanted by a respectable occupier. This landlord can have a selection of tenants, who account it a favour to obtain one of his houses, and his rents are regularly paid, almost to a farthing. There are no violations of decency to be seen here, and no disturbances or assemblies of Sabbath-breakers, whilst on the other hand, in the lower parts of the same ward, with effective means of drainage and pavement, are to be found houses occupied by tenants shadowed down through every grade. Here, with the walls whitewashed for years, black with the smoke of foul chimneys, without water, with corded bedstuffs for beds, and sacking for bedclothing, with floors unwashed for year to year, without out-offices, and with incomes of a few shillings a week, derived from the labour of half-starved children, or the more precarious earnings of casual employment, are to be found within what seem the dross of society, but are human beings withal, existing from hour to hour, under every form of privation and distress." These observations will, I think, confirm the truth of my opinion, that whilst superior tenements for the accommodation of the poorer classes would be remunerative to the philanthropist or the builder, who might undertake the same as a speculation, they would be materially beneficial to the social and moral condition and habits of the poor.

In connection with the subject of their houses, I will next week make some observations regarding the want of water, as a necessary to cleanliness; privies, drainage, paving, &c.; and beg to remain, dear Sir, your obedient servant,

ABRAHAM BOOTH, Chemical Engineer, &c.
2, Upper St. Martin's-lane, June 28, 1843.

MR. BERNHARDT'S VENTILATING
"GEM."

TO THE EDITOR OF THE BUILDER.

SIR,—I refrained from making any remark last week upon the subject of Mr. Bernhardt's letter (inserted in your twentieth Number, p. 347), because I wished to see whether the paper Mr. B. refers me to appeared in your last; the paper not being inserted, I beg to offer a few remarks on the subject of Mr. B.'s pretensions, on which subject I do not entertain a doubt that I shall be able to convince your readers, including even Mr. B. himself, that he is at the best a very mistaken man in his notions, "that he can warm and ventilate a building better than any man existing, either here or on the Continent" (see his letter, No. 14, p. 167); on the contrary, I will show that the "forty years'" study of that gentleman "in every branch of natural philosophy" (No. 20, p. 247), aided by his ardent desire to distinguish himself in this branch of science, has been completely thrown away, as I am able, notwithstanding my alleged incompetency to judge such questions (see Mr. B., No. 20, p. 248), to produce much greater effects in warming and ventilation, with the same amount of fuel, than Mr. B., by his own shewing, can; I will not presume so far as to say that nothing can go beyond the system which I advocate, but this I will say, that it throws the "GEM" completely in the shade, as we shall presently see.

In his last, Mr. Bernhardt furnishes something like data to compare and reason upon, by giving us a case (No. 20, p. 247), where his system was applied, with a calculation of the effect produced, and asks me whether I consider it economical, where 1,500,000 cubic feet of air passed in twenty-four hours through a space equal to 55,000 cubic feet, at an expense of fuel of 3½ bushels of coke or coal, the said air being raised from (I assume) 30°, and that in the space being maintained at 65°, would I consider that economical? I answer no, for I will undertake to produce, with the same amount of fuel, eight times that effect; and I will undertake to shew any the humblest mechanic, how he may do the same thing after a study of less than "forty" hours, and without any previous knowledge of "natural philosophy" whatever; and I do hope, for the benefit of their employers, that practical men will give this much-neglected subject more of their attention.

We can therefore spare Mr. Bernhardt the trouble of explaining his system, if the above is all the effect he is able to produce with the above amount of fuel. With regard to the cost of erecting the apparatus in the first instance, an important item to be considered, I can state that in a large building where Mr. Bernhardt was employed to put up his patent machinery to warm and ventilate, he charged 400l.; on the system I advocate, 250l. would have sufficed, and would have been worked in this instance even more economically than the rate before stated.

There is a statement of Mr. B.'s that appears to me, too, to require some explanation; he states, that his plan of warming and ventilation has been made the subject of a patent, and yet states, that his plan is a secret (No. 20, p. 248, and No. 16, p. 200), and, moreover, that that was the reason why he refused to give full information of his system, to the committee of inquiry, &c. in 1836. Now, Sir, that which has become the subject of a patent, cannot be a secret; for the main condition on which a patent is granted is, "that he (the patentee) shall disclose his secret fully and without any reservation" (see Judge Buller, in *Rex v. Arkwright*) in his specification; if Mr. B. has done this, there is no secret; if he has not, he has defrauded the public, and the patent is void in law.

I have before stated my opinion, that in cases like the present, the evidence even of distinguished men of science ought not to be accepted as a proof of such pretensions without principles and facts, because we are furnished with no means of judging whether they may not have been deceived, as we know very many have been; for example, there is Mr. Perkins's plan of warming and ventilating by the circulation of hot water in pipes; many large buildings have been *disfigured* on this plan, and its advocates tell us nothing can be more perfect, and the scientific gents, give their testimony as to the effects produced; Mr. Richardson's book which describes the application of it to many important buildings, among which are the British Museum, the Register Office at Edinburgh, the new Judiciary court at the same place, Mr. Caddell's also at Edinburgh, the Some Museum, London, and some others. All are said to give the greatest satisfaction, but among these testimonials there is one from a gentleman, whose opinion upon points he understands all will defer to, I mean Dr. Andrew Combe, of Edinburgh. I will place his opinion on the hot-water plan in juxtaposition with that of Dr. Grant, or Mr. Bernhardt's (BUILDER, No. 16, p. 200). Dr. Combe says, "I was not less struck with the

total absence of the empyreumatic odour and parched dryness, so generally characteristic of heated air" (Richardson on Ventilation, p. 40, Wells 1837, and in Dr. Combe's work on preservation of health, Chapter on Ventilation). Now for Dr. Grant, "the feeling of warmth and dryness is particularly agreeable, and from your (Mr. Bernhardt's) simple, but excellent plan, &c. &c." But as Mr. Bernhardt appears to have a great veneration for the testimony of philosophical professors, I will just add the testimony of one who I am inclined to think all will admit to be deserving of attention, from his great attainments in, and knowledge of, practical subjects of this nature, I mean Dr. Ure. About the year 1836, Mr. Bernhardt was employed to warm and ventilate the New Custom-house; in a short time the clerks and others employed there, began to complain of a general loss of health, and Dr. Ure was employed to report on the subject to a committee; which report will be found in vol. xviii. *Mechanics Magazine*; he touched on the subject again in a paper read before the Royal Society, June 16th, 1836 (see *Mechanics Magazine*, vol. xviii. p. 12); well, let us see what Dr. Ure says of the "agreeable dryness" which seems to characterize Mr. Bernhardt's system. He says, "The leading characteristics of the air in these two rooms is its dryness and disagreeable smell," * * *

similar conditions, though on a smaller scale, exist in what is called the bell or cockle apparatus for heating the long-room and examiner's apartment in the Custom-house; the effects of the dryness are thus described: "A sense of tension, of fulness in the head, with occasional flushings of the countenance, throbbing of the temples, vertigo, &c. &c. the sensations in the head occasionally rise to such a height, notwithstanding the most temperate regimen of life, as to require cupping, and at other times deplorable remedies;" and, adds he, "the sameness of the above ailments, in upwards of one hundred gentlemen, at very various periods of life, and of various temperaments, indicates clearly a sameness of cause." I can produce more cases similar to this if required, but I think this pretty conclusive; and I think, Sir, your readers, will readily see why Mr. Bernhardt had so little to do with the committee appointed to inquire into the best mode of warming and ventilating the New Houses of Parliament in 1836, and will congratulate the members of the legislature, that the experiment was tried on a more subordinate part of the public service. I have now done with Mr. Bernhardt and his "Gem," and trust that he, as well as your other readers, will give me credit for being influenced by no personal motive, having never seen or spoken to, or had any communication whatever with him on any occasion; but being desirous that this subject should be better understood than it now is, I throw in my mite to the treasury.

I will, as my time allows, send you a description of the principles and practice of warming and ventilating large buildings efficiently and economically, inviting discussion from the "natural philosophers."

I remain, Sir, respectfully,

GEORGE SPENCER, Engineer Draftsman.
5, Hungerford-street, Charing Cross.
4th July, 1843.

Miscellaneous.

BUILDING MEMORABILIA.—We recollect to have heard it noted after the destruction of the Brunswick theatre by the falling in of the iron roof, and when Captain Smith (famously known by the *soubriquet* of "Boatswain Smith"), thought to purge the site of its abomination by building a chapel upon it, instituting prayers to be said morning and evening by the workmen before and at the conclusion of their labours. Some one passing by discovered an Irish labourer of his acquaintance kneeling down at prayers, with whom he chose to remonstrate, observing that he was surprised to find him joining in prayers with heretics. Pat, it is said, scratched his head for a moment, which elicited this reply, "Arrah, honey, be quiet with you now; it's asier work than clanking bricks."

Near to Harrow-on-the-Hill stands a house memorable for its association with an event tending to shew in the most forcible manner the folly of all that provision for our own security which fatalism and its doctrines would lead us into. A gentleman had lost his life by falling down a flight of stairs, upon which his surviving friend, about to build, remarked that he would take pretty good precautions against a similar accident, and accordingly planned and erected his dwelling of one story only, without step or stair about it. The house-warming came, and a merry-making, when lo! in the height of his mirth, and, as one may conceive, in the flush of his fancied security, leaping over a hedge or fence (the boundary of his garden), one stumble brought him to the ground, and, like the friend he had resolved not to follow, there he lay with a broken neck!

Through the munificence of his Grace the Duke of Newcastle, a neat and elegant church will, in all probability, be erected during the summer in the rural and pleasant village of Bothamsall, situate in the centre of what is called the "Dukeries," on the outskirts of both Clumber and Thoresby Parks.—*Hull Packet*.

The Marchioness of Bath is about to rebuild the parish church of Horningsham, near Warminster, which is now, with the exception of the tower, a heap of ruins, on the same site, but upon a much larger scale, at an outlay of about 3,000l.

A stout Irish labourer undertook one day for a wager to carry a brother hodman and Milesian to the top of a long splicing of ladders, and land him safely on the uppermost scaffold, as he would a load of bricks. This he accomplished, though not without considerable difficulty. A colloquy ensued at the top of the scaffold, Patrick, the bearer, rejoicing in the performance of his feat, when he who was the loser of the wager, with the most unconscious simplicity replied, "Fakes, now, it's true you've won, my jewel, but I was in grate hopes of the contrary at the seventh story; I thought to have given you one shog of the hod and to have settled it, but I couldn't find in my heart to chate you of a bargain."

Poor Whitnell, the architect of the Brunswick theatre, never recovered, or enjoyed confidence in himself, after the catastrophe of the falling in of the roof. He had great natural talent and genius; he was an architect born, but wanted the "tact" to throw blame or responsibility on others, as it was in this case all fell upon himself. A friend of ours conversing with him a little while before his death, and observing his depression of spirits, tried to rally him out of it—"You should not suffer this calamity," said our friend, "to bear you down, it has no right, it is not just, it is not reasonable that it should do so." The broken-hearted man's significant reply was "Aye—but it does." In a few months after he was laid in his grave.

The numerous workmen employed in the erection of the College have not been forgotten in the rejoicings consequent on its auspicious opening. Last Friday evening they were regaled by the Directors with an excellent dinner of roast beef, plum pudding, &c., in the large School Room, as a reward for their uniform good conduct during the period of its execution. Just before dinner commenced, they were addressed in an excellent speech by Fenton Hort, Esq. Mr. H. said he and his brother Directors were much gratified with the opportunity of demonstrating their high opinion of Mr. Davis, the contractor, as a scientific, conscientious builder. The Directors having left the room amidst the acclamations of the workmen, Mr. Davis was called upon to preside; he was assisted by the masters of the different branches, and after appropriate grace had been sung, they proceeded to enjoy themselves on the good provision laid before them. After all had been well regaled, and the cloth was removed, Mr. Davis rose and made a very appropriate speech, in which he alluded to the generous and handsome manner in which the Directors had shewn their good opinion of the prudence with which the workmen had conducted themselves during the progress of the building; he then feelingly alluded to the good cause the Directors had in view in erecting the noble edifice; after some other seasonable remarks, he heartily wished them success in their new undertaking. The health of the Directors was then drank with three times three and the *Kenish* fee. In the course of the evening, Mr. Parsonage and Mr. Greenland also made appropriate speeches, and joined in expressing their thanks to the workmen as a body of steady, sober, industrious, well behaved men; adding that they had never during their experience met with any more deserving of their praise. It was also proposed and agreed upon by the different masters, that a dinner should be given at their expense the following evening, which was accordingly done. On each occasion, great satisfaction was manifested by the men, who numbered about one hundred and twenty.—*Cheltenham Journal*.

On Saturday last a small iron steam-boated arrived in Stirling, on its passage from Glasgow to Loch Katrine, on which it is intended to ply during the summer months. It is only about six tons in weight, engines and all, has no deck, nor any part of it covered in except the engine, which is of six-horse power.

The Queen Dowager has contributed 20l. to the fund for the building of a parsonage-house and schools in connection with St. Peter's, Coventry, and has also given 10l. for the erection of an infant school at Erdington, Warwickshire.

Above fifty thousand labourers are now employed in constructing a railway from St. Petersburg to Moscow, nearly 500 miles, which is expected to be completed in two years.

THE BUILDER.

NO. XXIII.

SATURDAY, JULY 15, 1843.

A most important movement is about being made in building matters, which it would be well for our readers and a large class of our low-countrymen to look on with a scrutinizing and a calculating eye. We do not pretend to the gift of prophecy, but we could most venture to predict that a mania is about to set in for building societies; and, though it may be urged that "it is an ill wind that blows nobody good," and that the good may possibly go direct into the hands of the builders, yet we are sure that the patriotism of our class is at so low an ebb as to wish to reap profit at the loss or the delusions of any section of their fellow-countrymen. We have no fear of building societies rightly constituted; but we look with suspicion upon all those where flicking in shares is so much encouraged, and where a sort of "Derby raffle" is set on foot, with its one or two grand prizes and a hundred blanks; or where the cunning and the scheming make up "their book," and satiate upon premiums for preference, which the gullible aspirant is induced to give, to secure early possession of his freehold. It is ways thus with every thing good—it is liable to abuse, and will be abused. Against this we turn our countrymen. Prudence is one of the cardinal virtues; but, while we say prudence, we would not, on the other hand, run into timidity—timidity and temerity are the wide extremes. Numerous building societies are now on foot, proceeding upon a principle far advanced from the simple usage of the building clubs of our acquaintance of late years,—proceeding, in fact, upon a great, and, we say it proudly, a grand principle,—a grand principle, in our estimation, for the good of the commonwealth.

We have before us the prospectus of a FREEHOLD ASSURANCE COMPANY which we will not trespass upon our readers to reprint here, but we cannot refrain from transferring from it to our pages the GOLDEN MAXIM, which we may so call it, which is embraced in the second paragraph:—

One extension of the Life Assurance principle—most obvious one—is the securing to the tenant the ultimate freehold of the property for which for period of years, or from year to year, he has ended to pay an annual consideration; and thus obliging him to look forward to the absolute position of an unburthened property, which he may bequeath to his children.

This is it!—give us the thoroughly equitable principle of a well-calculated Life Assurance, and we will hazard our *lives* for it that the capitalist who presides over such an Institution, as well as the assurers who seek its promotion, will each reap their rich and well-merited reward.

Let us state a case. The industrious thrivestenant of a small holding, say a house of value of 300*l.*, for which he pays a rent 20*l.* to 25*l.*, is desirous of retaining the plot and tenement in which he is sowing the seeds of a permanent connexion—his landlord sees the freehold at less to his mind than 300*l.* in possession—and is willing to part with it to his tenant for the sum stated. The Mutual Assurance Society will for the annual payment of 23*l.* 10*s.* per annum, on a life of

thirty, become the mortgagees of the property, so that the freehold rests at once in the insurer, and reverts to his family clear of all incumbrance at his death. We can imagine nothing more attractive to the man of thrift and foresight, or any thing calculated to enlist the sympathies and interest of his family, or to stimulate to greater exertion.

It has been well said by a friend to this plan—that the best interests of "OLD ENGLAND" are enlisted in it. Small freeholds are the mainstay of England's greatness—and by a plan like this you encourage to such a state of things—you once more make it the pride and the privilege of an Englishman to possess and be prepared to defend his hearth and his home.

Be it understood, that the plan is applicable alike to freehold plots, small farms, and to houses and tenements. We have a captivating plan in our view, but we must not, while we comment on *bonâ fide* propositions, intimate any schemes of our own. There is, however, and in due time we have to propound it, something, based on the principle of the matter we have pointed out, forcibly attractive to every aspirant to the possession of the beau-ideal of an Englishman's home, be his station never so humble or lowly.

MODEL OF ST. PETER'S, ROME.

In our sixteenth number we gave, in conjunction with an exterior and interior view of that almost immortal church of St. Peter's, a cursory description of the model which was then and is still exhibiting in Pall Mall. In returning to the matter, as we may in justice do, for the sake of enlargement on our former notice, as well as for the benefit of our readers who may not have seen that notice, we are desirous of offering some observations on the subject of models generally, and on the spirit with which they should be examined and inspected.

Before we enter upon this part of our task, however, we may let our readers into the secret, that this model, whatever it may be in priority of beautiful and minute description, accuracy of finish, and careful detail, it is not first in the date of execution perhaps by many, many times. There is a model now preserved in the church itself, and this model is in itself a building; it was made by one Labacco, under the celebrated architect, San Gallo, and is stated to have cost upwards of 4,000 crowns, a large sum for Rome, and in those days—that is early in the sixteenth century. Considerable time, we dare say, was spent upon this model; not so however with a subsequent one, made under the direction of that glorious and disinterested sovereign in his art, Michael Angelo, who undertook his work in the direction of that great structure without pay, and received none, it being sufficient for his ambition that he should work, as he said, for the "glory of God" alone; this model, however, was made, we are told, in fifteen days, at an expense of twenty-five crowns, but we apprehend it could only have been roughly executed, and for the mere purpose of shewing the alterations which Michael Angelo proposed to make in the original design, now that he had succeeded to the direction of the structure. Talking of succession, and quoting the names of San Gallo and Michael Angelo, leads one involuntarily to the consideration of the vastness of that edifice of which they, with several other men of great fame, were the architects, and who, with several other popes before and in succession, were the patrons and projectors, of that edifice which cost Rome's treasury, from first to last, without the alterations, nearly two million pounds sterling.

And it is necessary to take all these things into consideration before or while we look at models such as this. Considerations of this class are the lights through which, and the points of view from whence, observation should be made of models of great structures. To be sure we may marvel at the extent of labour

which this elaborate work of art reveals. We may walk round and feast the eye with inquisitive familiarity into each feature; bring the little organ of vision into immediate contact with each column, and that superb row of columns of which there are some two hundred and sixty! forming the mere colonnade of this colossal temple!—Yes, two hundred and sixty columns, each of five feet diameter and forty feet high, forming the *cortile* or mere boundary of an entrance court to the cathedral; these we may scan over with as much of facility as we would bring to the examination of the veriest toy or plaything; but if we so scan and so consider this extraordinary work as to take no more into account than that which reveals itself in the ingenuity and handicraft skill of the artist—if we extend our consideration no farther than to think of the fifteen years patient labour of poor Gambassine—of the mass of maple-tree wood which he has consumed, and the aggregations of ivory statues that surmount this model in faithful resemblance of the colossal originals in marble—if these and considerations such as these alone influence us, if a feeling does not possess us of active reverence for the thing portrayed, and of active reference to it, if we cannot abstract ourselves from the wonders of the model to dwell upon those indefinable wonders of the MODIFIED, then it were but ill-bestowed labour and a waste of good time and money (though but a shilling) that led a mind of this calibre to disparage a great conception by its empty and petty inappreciability.

It is hard, however, to look upon a thing and get it into your head that it looks upon and frowns upon you. Although this model occupies a large space and absorbs for itself the fair central area of an exhibition-room, yet so immense is the thing represented, that the representation, large as it is in the gross and multitudinous as in the details, still it is in detail minute to almost microscopic littleness—and this was unavoidable. We pictured to ourselves before we went to visit this exhibition what that mountain of masonry might be in a model of any such capacity that man might transport from the eternal city to this, and we were prepared for much of disappointment; but having also aided ourselves by reference, as we have said, to the vast original, we were prepared to turn off in sudden indignancy if such caricature as we thought a peep-show model would make of it were here in anywise perpetrated; the fidelity, the accuracy, the beauty, the chasteness of the modelling, the ingenuity of contrivance, and all were such, however, as, conjoined, with our impressions and upraised ideas, suffered in us no repulse—the constituents of the admirable were here in such good measure and propriety, as to satiate our best desires, and fully to quell our most zealous misgivings. Our admiration of the artist was the *scena*, or the *media* which aided to the transposition of his work into the full breadth of the great original; there was no violence done to the mind—nothing to hinder its making its own diorama, and investing the model with a dignity and efficiency which the fitting contemplation of the design of St. Peter's requires.

The architect, the artist, and the artificer, all having a taste for, or engaged in, fine building, should see this model if possible; but let them go warmed up, as we say, with right feeling as to the original, or at least when they get there, let them sit in quiet contemplation until a scale has been set up in the mind suited to the admeasurement of the structure. The model is one hundredth of the life size. Let the best powers of the cypher be applied to it; and when he looks at this diminutive and that diminutive, this relatively large, and that carrying his eye upwards to the great dome, great even in the model, let him consider what this hundredfold expansion would bring him to—an hundredfold larger, loftier, nobler, richer, so much the more superb and commanding—nay, in some of its attributes following the law of physics—in lines lineal one hundred times longer, in superficies and in facial breadth as the square, or ten thousand to one; but in the solid, ponderous majesty of the great original to the still wonderful model, as the cube or one million to one! Let the builder so view it, and he will have gained something of an adequate conception of the great St. Peter's. And, by way of further assistance to his mind, let him

read attentively the lines with which we conclude from the hand of our noble poet, Byron—

CLIII.

But lo! the dome—the vast and wondrous dome,
To which Diana's marvel was a cell—
Christ's mighty shrine above his martyr's tomb!
I have beheld the Ephesian's miracle—
Its columns strew the wilderness, and dwell
The hyena and the jackal in their shade;
I have beheld Sophia's bright roofs swell
Their glittering mass i' the sun, and have sur-
vey'd
Its sanctuary the while the usurping Moslem
pray'd;

CLIV.

But thou, of temples old, or altars new,
Standest alone—with nothing like to thee—
Worthiest of God, the holy and the true.
Since Zion's desolation, when that He
Forsook his former city, what could be,
Of earthly structures, in his honour piled,
Of a sublimer aspect? Majesty,
Power, Glory, Strength, and Beauty, all are
aisled

In this eternal ark of worship undefiled.

CLV.

Enter: its grandeur overwhelms thee not;
And why? it is not lessen'd; but thy mind,
Expanded by the genius of the spot,
Has grown colossal, and can only find
A fit abode wherein appear enshrined
Thy hopes of immortality; and thou
Shalt one day, if found worthy, so refined,
See Thy God face to face, as thou dost now,
His Holy of Holies, nor be blasted by his brow.

CLVI.

Thou movest—but increasing with the advance,
Like climbing some great Alp, which still doth
rise,
Deceived by its gigantic elegance;
Vastness which grows—but grows to harmonize—
All musical in its immensities;
Rich marbles—richer painting—shrines where
flame
The lamps of gold—and haughty dome which
vies
In air with Earth's chief structures, though their
frame
Sits on the firm-set ground—and this the clouds
must claim.

CLVII.

Thou seest not all; but piecemeal thou must
break,
To separate contemplation, the great whole;
And as the ocean many bays will make,
That ask the eye—so here condense thy soul
To more immediate objects, and control
Thy thoughts until thy mind hath got by heart
Its eloquent proportions, and unroll
In mighty gradations, part by part,
The glory which at once upon thee did not dart,

CLVIII.

Not by its fault—but thine: Our outward sense
Is but of gradual grasp—and as it is
That what we have of feeling most intense
Outstrips our faint expression; even so this
Outshining and o'erwhelming edifice
Fools our fond gaze, and, greatest of the great,
Defies at first our Nature's littleness,
Till, growing with its growth, we thus dilate
Our spirits to the size that they contemplate.

CLIX.

Then pause, and be enlightened; there is more
In such a survey than the sating gaze
Of wonder pleased, or awe which would adore
The worship of the place, or the mere praise
Of art and its great masters, who could raise
What former time, nor skill, nor thought could
plan;
The fountain of sublimity displays
Its depth, and thence may draw the mind of man
Its golden sands, and learn what great conceptions
can.

An excellent opportunity for opening the area around St. Paul's is now revealed by that created by taking down the premises in Paternoster-row belonging to the Religious Tract Society. One hundred and twenty feet of frontage is laid open, but, we are sorry to say, being rebuilt upon with all that expedition for which the London builder is so remarkable.

The architects and builders of the metropolis, and the country generally, may expect an increase of employment from the long deferred ripening of the labours of the charity commission. Several of the almshouses now building about the country are the fruit of the inquiry of this commission; and we understand that in London, or rather in the environs, it will devolve upon the commission to enforce the erection of very extensive and complete piles of buildings of this class on the part of our metropolitan charity trusts.

ARCHITECTURAL DECORATORS.

J. Thornhill

OPPORTUNELY enough we have obtained a tracing of the signature of SIR JAMES THORNHILL, one of the principal operators in a style of external decoration cultivated in England between the Restoration and the reign of George the First.

Of this transitory school VERRIO was chief; La Fosse, La Guerre, and Thornhill either his contemporaries or successors; Vandaeist, Vogelsang, Cooper, and Craddock, less distinguished practitioners. The long reign of Louis XIV., prodigal in palatial buildings, lavish of ornament and lax in morals, originated this mode of decoration; harmonizing with the tone and manners of his court, the boudoirs and saloons of those minor retreats where the Mars of France delighted to woo the Venus of the hour, were adorned with scenery from the stores of allegorical device with which mythology abounds, and subsequently the same source furnished subjects for the principal apartments of the palaces in and near the French capital: in these efforts the artist failed not to invest the monarch and his *preux chevaliers* with the attributes of Olympian deities, and many a favorite belle of the court might be recognized in the semblance of an attendant Hebe on the pictured Jove. Our second Charles, untaught by probation, and presuming upon the affections of a people remarkable, in the main, for attachment to royalty, adopted all the more sensual vices of Louis, but with coarser appetite, and less of refinement in their gratification; interior fittings, furniture, and decoration after the French manner were among the accompaniments of his tastes, and Verrio was chosen to administer to the latter in the department of painting. Windsor Castle and Hampton Court afford the principal evidences of his ability, and for the exercise of which he was munificently paid, nearly seven thousand pounds, being the remuneration for Windsor alone; during the popularity of Verrio, however, La Fosse appeared, introduced by his countryman, Monsieur Pouget, or Puget, who built Montague-house, now the British Museum, in 1678, and obtained a share of noble if not of royal patronage; the paintings on the walls of the old building (there now in process of removal) are by this artist. It were needless to speak of less eminent or less appreciated talent of this particular description, and we proceed at once to a mention of the immediate successor of Verrio, and his rival in whatever of merit attaches to the branch of art in which they wrought.

James Thornhill, a native of Weymouth, Dorsetshire, descendant of an old and respectable family, was born about the year 1677; we are not acquainted with any details of his earlier years or course of study; but it is clear that in the meridian of life he ranked high in the profession as it then was. His principal works are the interior of the dome of St. Paul's, one of the apartments of Hampton Court, the altar-piece of All-Souls, Oxford, the Painted Hall, Greenwich-hospital, the hall at Blenheim, and the saloon at Moor-park, Hertfordshire. The lavish prices obtained by his predecessor were, however, no longer to be had, and it is recorded by Lord Orford, with somewhat of regret, that Thornhill got no more than forty shillings per square yard for the paintings at St. Paul's, and probably not more for the hall at Greenwich; and the very small sum of twenty-five shillings per yard for the hall at Blenheim. He also painted the staircase at the South Sea Company's house, and a small hall there, for which he charged 1,500*l.*; but the company demurred and succeeded in compelling him to accept the same price paid for Blenheim. With Mr. Styles, for whom he executed the decorations at Moor-park, he was more fortunate; his charge of 3,500*l.* for the work done there being also disputed, he, at the trial that ensued, brought forward the most competent persons of the day to prove the quality and value of the paintings, and the matter being referred to arbitration, a favourable award placed the sum claimed in the hands of the artist, with an additional 500*l.*

for decorations and services omitted in the original charge.

Though Thornhill adapted his talent with a view to success in the mercetitious department vacated by Verrio, he had nobler views of his art than were current at the time; but he was a worldly-minded man, and chose what he deemed the shortest cut to wealth, by winning regard and employment from those who possessed in the largest degree the idols of his desire. This never abandoned pursuit did not, however, prevent his feeling and lamenting the general inferiority of British artists, and he was perhaps the first who proposed, which he did to the minister of the day, Lord Halifax, the institution of a school of painting; but, failing in this, he established an academy for the purpose at his own house under the piazza, Covent-garden; this was in 1724, and so far successful as to have led to the formation of another in Greyhound-court, Arundel-street, conducted by Mr. G. M. Moser, who was subsequently appointed keeper of the Royal Academy, into which, in 1738, merged all private attempts of a similar kind. Thornhill gave another proof of love of his profession in the permission he solicited and obtained to copy the cartoons of Raphael at Hampton Court. To this work, which he accomplished in duplicate, three years were devoted. It was his intention, we are told, to have published a minute account of them, with studies of the heads, &c., but he relinquished this part of his intention. Though not greatly past the prime of a life most actively and perseveringly employed, he was now to experience a period of suffering and disablement from gout. Thornhill enjoyed not that serene evening of existence which moderate health and ample means confer; the latter he had always commanded, the greater blessing was denied. He died at his seat of Thornhill, near Weymouth, in 1734, at the age of fifty-seven, leaving a son for whom he had obtained the appointment of serjeant painter, and painter to the navy, and a daughter married to the celebrated painter, William Hogarth.

Thornhill left a valuable collection of pictures, which were sold after his death; amongst these, the large set of his copies of the cartoons realized but 200*l.* (they are believed to be in the possession of the Bedford family), and the smaller set seventy-five guineas, prices certainly very inadequate to the time bestowed in producing them.

“BRITISH ASSOCIATION OF ARCHITECTURAL DRAUGHTSMEN,” AND PROPOSED “BUILDERS’ INSTITUTE OR DRAWING SCHOOL.”

THE occasion of receiving the following letter and the truly beautiful and as beautifully delineated window which accompanied and is inserted with it in our columns, is one which we take advantage of to resume a subject that to many would have the appearance of being forgotten, but which we shall be able to give good reason in this place for having postponed, or rather treated quietly, until this or a similar opportunity should arise for giving the matter an effective impulse.

We cannot conceal from ourselves, and there is no good in concealing it, that there is in the minds of the bulk of our young artificers, a great indisposition to study and apply themselves to the investigation of the principles of their art. The empty superficialities of politics in which many are prone to indulge, to the almost total abandonment of the cultivation of the sterling virtues of domestic, social, and business life—the giving of their time and mind to idle and vicious recreation, have well-nigh deranged the sound constitutional temperament of the once happy industrial class of this kingdom. Sensual enjoyment and indulgence threaten to overcome the intellectual taste, and men who have ceased to entertain a right feeling of self-respect cannot wonder that they have lost the respect of others. Not that we would disparage the consideration of politics, but we would disparage that consideration of it which teaches every “whipper-snapper” to consider that it is less than a science, and that science a most profound one. There are men who are incompetent to the acquirement of a trade or profession, let that trade or profession be nevertheless of the simplest kind, who think themselves fully qualified to dispute and discuss, aye, and to settle abstruse and difficult

political problems; men who would laugh to scorn the pretender to the knowledge of their own art or business—who think that seven years' apprenticeship may be required for the acquisition of it, and yet without seven days' study of the science of politics think themselves competent to solve its difficulties; and possessed with this inflated notion of their own wisdom, or that ignorant estimate of the nature of the subject they presume to handle, are seen perpetually spouting with the usual accompaniments of a pipe or cigar and the swillpot, with the confidence of oracles and the assumption of sages. This state of things we have seen and deplored, but consoled ourselves in the notion that it was more confined to the less intellectual crafts into which our industrial sections are divided, and we still think that the building class is less bitten with this mania than many others; but, nevertheless, we are constrained to confess that there is something too much of it amongst us. We do not speak in the spirit of disappointment, for we were aware of all this, and have been long aware of it; but we now speak in the spirit of generous reproof. We would awaken our class from the torpor which influences them, and call them in the warning language of a friend to be aroused immediately from it.

When we offered, a short time ago, if backed by a sufficient number of students, to secure to them a school of art instruction, for drawing, mensuration, modelling, &c., we expected a much larger number would have signified their readiness to avail themselves of such an institution than did so—the number did not exceed some twelve or fourteen, or at any rate it never reached twenty, the number we prescribed to encourage us to go on; notwithstanding which, however, we did not sleep upon our plan, and commenced a series of inquiries to enable us to proceed in the matter when called upon, as satisfactorily for all parties as we could. We have a mortal aversion to disturbing or trenching upon the interests of any man or set of men, and accordingly our first inquiry was as to the parties and the number of parties engaged already in teaching drawing upon the system, or any thing like the system we had defined—these we found, as we expected, to be very few: there was Mr. Grayson and Mr. Cadé, and Mr. Smith, the author of the tract which we have noticed this day in our columns. Our object was then to unite these gentlemen in one system of working, if possible, so as not to damage, but rather to improve their respective positions, and to found, if necessary, in conjunction with these schools as branches, one parent or central superior school. We were not without hopes, either, that the professions of the Council of the School of Design would have been evidenced in an active and practical manner, by falling in with our suggestions to promote this important object; but in this we did not and have not yet succeeded. We thought that of all the legitimate aims of a real school of design, none could be more self-evidently useful than that for building-artificers; but some think differently—and we may be wrong; at any rate, with the discouragement we met with, if discouragements they are to be called, and considering the season, we resolved to defer the active prosecution of the plan till nearer the winter and long nights, when the artisans are more likely to attend to classes and courses of study and instruction; but now we see light breaking in upon our view, and so it is with those who persevere in any good purpose, and yield nothing to despondency or despair.

This "Association of Architectural Draughtsmen" we hail with great pleasure, not only for their own sakes, and for the good which their organization is calculated to produce; not only for the little service we may be able to do, and are disposed and anxious to do them, but for that good which they may do to their class in the branch of the working artificer, and from which they may themselves reap corresponding benefit.

Let them then prepare themselves for their legitimate position, as the leaders and instructors of such a parent or central school. Their benevolent fund might be greatly augmented by the proceeds from their course of teaching and great benefits in practical knowledge and influence of position accrue to them individually and collectively. We can only conclude for the present by saying that we are their

humble servants in the promotion of this or any other end of their honest ambition:—

TO THE EDITOR OF THE BUILDER.

SIR,—It may not be known to you that a society exists, called the "British Association of Architectural Draughtsmen," having for its object, by union and co-operation, the providing with employment those of its members who may require it. For this purpose a register is kept of those unemployed, and which is available to architects who may require assistants. Also, each member of the society furnishes quarterly a drawing of some executed architectural subject, which drawings are kept in the portfolios of the society, and not only form a means of collecting vast professional information, but a sure guide for architects, by which to judge of the abilities of the assistants they may select. Connected with the society we have also established a benevolent fund for assisting those of our body who, through misfortune or ill-health, may require it.

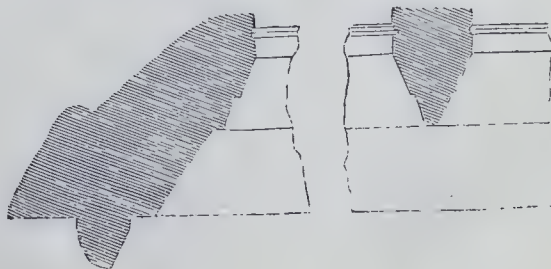
We are induced to communicate this from seeing an article in No. 21 of your valuable journal on "Seeking Employment." We should be most happy to communicate from time to time drawings connected with architecture, and now submit one, shewing one of the chancel windows in the round church at Little Maplestead, Essex, by Mr. J. K. Colling, which, should you think it worthy of insertion, we beg to place at your service.

We respectfully invite yourself, or any member of the profession, to honour us with a visit, to inspect our drawings, at any of our meetings, which are held at the Café Royal, No. 42, Castle Street, Holborn (nearly opposite Furnival's Inn), on the first and third Wednesdays in every month, at 8 o'clock in the evening.

I am, Sir,

Your obedient Servant,

JAMES WYLLSON, Hon. Sec., B.A.A.D.
28, Southampton Street, Strand.



Literature.

Projection and Artistic Drawing, containing the Principles of these useful and elegant Arts; expressly arranged to lead amateurs, artists, surveyors, architects, and civil and military engineers to acquire the practice of all the known Systems of executing the Representation of Objects. Illustrated by Thirty-nine Woodcuts. Price 1s.—BELL & Wood, Fleet-street.

In glancing through this little pamphlet, we were pleased to find so much useful information comprised within so small a compass. In the dedication the author states, "The writer of this pamphlet sends it forth to the public, in hopes that it may induce individuals who have the power, to take such measures as may be the means of leading those around them to acquire a knowledge of the principles and practice of an art which is so generally employed by scientific and practical men in executing representations of the numerous objects that are required by the various classes of every civilized nation."

We need scarce remind the readers of our periodical, that the greater number of the members of the building craft, above all others, ought ever to aim at unravelling the principles, and to acquire the practice of that peculiar art, by which the numerous and invaluable representations of the objects which they have to erect, decorate, and furnish, are executed. The greater number said we! Ought they not all to do so? Undoubtedly, for when the artisans of every craft can furnish working drawings of those things which they are fully competent to design, what rapid progress may we not expect in every branch of trade, and eventually how much of improvement in the public taste.

Some of our readers may be apt to inquire, What! would you really desire artisans to acquire the principles as well as the practice of the art of drawing? We reply—When we speak of the principles of any practical art, the reader generally expects to derive positive information as to the substance or substances whose qualities or relations it is proposed to investigate or operate on. As an example, let any writer desire to explain the principles of optics; here it will become requisite first to define what the term optics signifies; let us assume that it is merely the scientific name of a peculiar branch of study, in which the properties of light are investigated; from this definition we at once perceive that before we can become practical opticians, we must commence or attempt to determine experimentally some of the properties of that subtle and peculiar element which we term light.

From this simple illustration our young readers will learn, that before any scientific term can ever be properly employed, it is requisite that a number of individuals direct their attention to the effects produced amongst or upon objects, by natural or artificial causes; and it is only after a great number of peculiar facts relating to some substances or to some branch of trade or commerce have been recorded, that we ought to think of applying any distinctive term, in order to distinguish it from all other arts.

We say then to all, endeavour to unravel the principles of that peculiar art to which you are directing your attention; by so acting, you will prepare yourselves to enter on and to follow out the practice of it with greater ease and pleasure than you could otherwise do.

With these few preliminary remarks, we beg to direct the reader's attention to the manner in which the author of the pamphlet under consideration has proceeded, in order to lead amateurs, artists, surveyors, &c., to acquire the practice of all the known systems of representing objects. "The Surveyor, by whose skill and ingenuity our lands are measured and their area computed; our roads designed and constructed; those useful channels, which serve as a communication to the various classes of the several districts and counties of our own regal establishment, as well as to the inhabitants of the countries which are parted from us by the deep waters of the ocean." Before these sentiments, however, ought to have been expressed, it becomes requisite that the second class of useful professors, the engineers, be called to exert their inventive powers; but we will not interrupt the author, who asks by

what means it is conceived surveyors, engineers, architects, and artists, are enabled to direct or superintend the construction and execution of their peculiar works? By this simple question he elicits the well-known fact, that it is by acquiring a knowledge of the principles and practice of drawing.

The author then proceeds in an ingenious manner to describe those circumstances which have most probably operated in leading others in bygone days to devise five methods of drawing the representations of every inanimate object, only one of which is applicable in executing drawings of inanimate beings; and after explaining the utility of each of these systems, he proceeds to give suitable scientific terms to distinguish the various methods. Under the first term he classes the four systems of drawing, in which the representations of inanimate objects are executed upon a flat surface according to a given rule; and under the second, that method which artists employ in drawing the representations of inanimate beings, as much as of inanimate things. The first four systems are the orthographic, isometric, military, and perspective methods. The principles of these systems are clearly and explicitly defined in this pamphlet; for although each of these peculiar modes of drawing has from time to time been employed by various practical men, yet the principles of isometric and military projections have never before been defined; but besides defining the principles of four systems of drawing, they are each with much simplicity illustrated by a series of wood-cuts, which will afford pleasure and satisfaction to the minds of the learner.

The author next proceeds to point out the manner by which the practice of those four systems may be acquired, and recommends the study of some of the definitions and theories of Euclid's Elements of Geometry.

Further, the author defines, and afterwards illustrates, the principles of artistic drawing, so that the artist may obtain correct representations of animate and inanimate objects upon a flat surface, which, when viewed from a given position, may present such an appearance as would be derived by viewing the real objects. At this part there seems to want some explicit information in answer to a question on page 6, which is as follows: "By what means are practical artists enabled to execute such representations of objects, as almost present the appearance that is derived by viewing original objects?" We answer, By studying the principles of artistic drawing, they will be led to perceive that they have actually to perform that by habit or skill which may also be accomplished by the rules of art; they will therefore at once commence to practise former sketches, and also in executing others from the real objects; in fact, the student's future progress will in a great measure depend on his own taste and exertions.

To return again to our author, he sketches a very faithful picture of the present mode of educating the rising generation; showing that we spend "the greater part of our childhood and youth in the attempt to acquire information by letters, words, and figures; by such signs as are incompetent to illustrate many of the arts and sciences which are cultivated by some amongst us. And he infers, that "unless individuals acquire the use of that key (a knowledge of the various systems of projections), by which alone the door can be opened, which will lead them into such channels as will enable them to acquire a knowledge of many arts and sciences, that neither men of science or scientific pursuits, will ever be appreciated by the public."

As the greater number of objects in existence are contained under plain, cylindrical, conical, spherical, or irregular surfaces, students will very soon determine that the representations of all objects must consist of a combination of straight, circular, elliptical, or other curved lines; this fact should be sufficient to induce them to acquire the method of forming such with great freedom of hand, without any assistance from mathematical instruments; they will then be fully prepared to direct their efforts in sketching views of those objects which attract their attention; and after having acquired considerable facility in sketching the outlines of objects from recollection, they should learn the

use of colours, with the mode of handling the necessary tools; when they may further try their powers in finishing them.

We cannot close our remarks on this pamphlet without recording our opinion as to its merits, and we freely own that we feel persuaded that it will continue from this time forward to hold a place in the estimation of those who care for the principles of the art of drawing with the simple and ingenious pamphlet written by the celebrated Dr. Brook Taylor, there are few who are aware in what a confused and irregular manner the principles of perspective were made known previously to the light which he brought to bear on the subject. We therefore trust that the young artisans of every craft will avail themselves of such a useful pamphlet as that under consideration.

Suggestions for the Improvement of our Towns and Houses. By Lieut. MASLEN. London. Smith, Elder, and Co.

This is the work of an enthusiastic, right-minded Englishman, anxious for the improvement of the condition of his countrymen in every sense, but more particularly, as the title of the work denotes, in respect of the arrangement and character of their dwellings. It is from this sort of appeal to public attention, and from the evidence which it furnishes of deep reflection in the minds of many, that we confidently rely for the obtaining the good that is sought, more than from all the enactments and laws under the head of building acts, be they ever so carefully and comprehensively devised. The public mind must have its training, and the legislature must follow that training in active progress; and it is not a little strange that, like all other systems of training, the schoolmaster must come from abroad. It may be, however, that architects and builders have been too little consulted on any subject but the mere technicalities of their calling. Employers too generally chalk out their own plans, and merely refer to the Architect to put them into "shape," as it is termed,—which is much the same as for them to send to a doctor to make up a prescription to their order, and not to give one. This obscure state of matters is coming to an end: the architect and the builder, roused by the taunts and objections of non-professional men, will learn to understand their true province in time,—they must take the initiation, and not only say how houses should be built, but where they should be built, and what should be the accessories to them.

One would think that Mr. Maslen had had to do with Lord Lincoln's Building Act, so pointed is the coincidence between certain provisions of that bill and the oburgations of the book. Let any one read this extract of the Preface, and compare it with the clause of the proposed act, and he will see what we mean:

"It used to be very generally remarked, a few years ago, that most new houses were run up in an incredibly short time, with walls, joists, and rafters most dangerously thin and slight; the consequence was, as might have been expected, many accidents occurred from the falling in of walls and floors. I remember about twenty years ago, one or two whole rows of new houses were blown down by a gust of wind, as completely as an edifice raised by a child with a pack of cards. I am not sure that a building law has not been enacted since then, which put a stop to such gingerbread houses; but I still consider the style of building much too slight, both in walling and in timber; moreover, the builders are most unnecessarily stingy in space, half the rooms in the kingdom not being large enough to swing a cat in."

There is another extract which we will make, on account of its force and justice, and conclude for the present:

"Numerous small plots of open ground around every town are already marked out for building upon, and the plans of streets already traced, with the utmost ingenuity, so as to crowd as many little streets, and build as many little houses, without an inch of garden, as it is possible to huddle together; the streets so narrow and devoid of plan, as to render impracticable any system of sewerage or drainage. The legislature would do well to pass a temporary enactment to prevent all these narrow lines of intended houses from being proceeded with, rather than, by suffering them to be thus built, inevitably incur increased trouble and expense in their after-cleansing and draining; at the same time to cause all the plans to be traced anew, with a little more judgment, and also enact some control over the covetousness of private parties."

PUBLIC IMPROVEMENTS IN ST. JAMES'S.

On Saturday an inquisition was held in Fenton's Hotel, before the Under-Sheriff of the county of Middlesex and a jury of fifteen gentlemen, to decide whether the crown, the public, or others, would suffer any detriment from certain improvements which it is meant to make in the parish of St. James.

Mr. Adolphus, jun., appeared for the trustees of the Duke of Bridgewater, and Mr. Pemberton for the Commissioners of Woods and Forests.

Mr. Adolphus stated the facts of the case upon which the jury would have to decide, whether or not the crown, or any person, would suffer damage or prejudice in any way by the Duke of Bridgewater's trustees (the Archbishop of Canterbury, Earl of Devon, Mr. James Loch, and Lord Francis Egerton) stopping up and enclosing a high street or thoroughfare, known by the name of Catherine Wheel-yard, which leads from Cleveland-row into Little St. James's-street. It was proposed by the trustees of the Duke of Bridgewater, that in compensation for what was thus meant to be taken away, they should give greater benefits to the public, which, he was happy to say, it was in their power to give. They proposed to make a road from Little St. James's-street into the park, which would be a much greater boon to the public than that of which they meant to deprive it. The road they meant to make would be wider, more uniform, and much nearer; while he begged to remind the jury that the present road was constantly frequented by disreputable characters. No person in the neighbourhood, he was happy to say, objected to the proposed improvement; on the contrary, all felt it to be desirable. He had heard, however, that a gentleman was present to watch their proceedings on behalf of the crown. He (Mr. Adolphus) was sorry he did not hear of any intended opposition on the part of the crown until last night. He would now call some gentlemen before the jury who would give their opinion as to the desirableness of the proposed improvement.

Evidence having been adduced in support of the plan,

Mr. Pemberton argued that the proposed alterations would injure the property of the Crown by shutting up the present access to the gardens rented by Earl Spencer and Lord Francis Egerton, which were the property of the Crown. He had no doubt, however, that an arrangement satisfactory and advantageous to both parties would be come to by the Crown with the trustees of the Bridgewater estates.

Mr. Adolphus contended that the Crown would suffer no injury whatever from the proposed alterations, as it had no property which could be rendered inaccessible where access could be desirable.

The Under-Sheriff summed up, telling the jury that they were not met to fix the amount of compensation which ought to be given to the Crown for any supposed damages, but simply whether any damage or prejudice would be sustained by the Crown or others, and if so, in what way.

The room was then cleared, and after deliberating for a short time, the jury returned the following verdict:—"The jury find that he benefit to the public would be considerable, and that no detriment would be sustained by the Crown; but in the opinion of the jury, if here were any, the advantages to the public would be outweighed by the alterations.

Mr. Pemberton objected to the verdict, observing that the jury ought to return it in accordance with the terms of the inquisition.

The Under-Sheriff also remarked to a similar effect, and said, that unless the finding of the verdict was in the terms of the writ, it was no finding. The verdict must be either that there would or would not be a damage or prejudice sustained by the Crown or any other persons, and no more.

The jury again had the room cleared, when, about a quarter of an hour, the Under-Sheriff was informed that they had agreed.

The following verdict was returned:—"That there would be no damage or prejudice sustained by the Crown or any other person."

A GEM OF THE NORMAN ERA.

THE Church of Kilpeck, in Herefordshire, so remarkable for its antiquity and the profusion of sculptured enrichments with which it is adorned, is situate within about seven miles of the city of Hereford; mention of it occurs in Dugdale, in a transcript of one of the ancient dedicatory grants. "In 1134 Hugh, the son of William the Norman, gave Deo et Sancto Petro et monachis Glocestriae Ecclesiam S. David de Kylpec, cum capella Beate Marie de Castella, &c. This edifice is doubtless of the Norman era, of which it is a singularly fine relic. The chancel, which terminates with a semi-circular apsis, and has a stone roof in the form of steps, is a rare example of approach in manner to the temples of the lower Roman empire. As a whole, this church may be called a cabinet of ancient sculpture, but which, alas! has undergone the barbarian process of *whitewashing*; the mop and pail, though not that of the Puritans, betrays, nevertheless, the vilest want of feeling, for so valuable and appealing a memorial of the very olden time. The architect has divided it into a nave, choir, and the chancel before mentioned, by two arches: the first most fantastically decorated with pillars on the sides, covered by reliefs. These on the north have three caryatid figures placed on each other's heads; the upper, in a mantle and cap, bears a four-leaved flower; the next a book and a cap; the third a book and a branch of palm. These are repeated on the south pillar, which has an interlaced capital. The first arch, with a double moulding, is sculptured into lozenges and zigzags. The second arch is plain. The chancel, three sides of a hexagon, has double slender pillars on the angles, from which ribs of lozenges and semi-lozenges ascend to a group of hideous masks in the vault. The three arches, from the masks to the wall above the windows, are pointed; but those of the windows themselves are semi-circular, of double zigzag springing from small pillars. The windows are similar to loop-holes, contracting in the depth of the wall, which is of very great thickness. The window in the west end of the church is bounded by two pillars, with capitals of masks holding embroidered sashes in their mouths; the shafts are covered with wreathed mouldings, and the torus of the arch with the reticulated pattern. There are three windows on the north side, one of which is lancet-shaped, with a circular arch; the others have trefoil arches. The brackets or dentils under the roof are repetitions of the following curious representations—laced work, a head in chain armour, a stag, a hawk, a lion's head, two fishes, a satyr's head, a true lover's knot, and a head with another in the mouth. The corbel over the east window is the *Agnus Dei*.

The principal entrance to this church is on the south side of the nave through a wooden porch, and a semi-circular headed door-way, having coupled shafts at their sides, which, with their capitals, impost, and transoms, are richly and elaborately sculptured into a variety of figures; amongst these may be discerned, through the *whitewash*, a man bearing a sword, another with palm leaves in his hand, serpents, heads, foliage, &c.; the whole is further adorned with the zigzag, starry, triple-indented, head and cable mouldings.

THE WOLSEY ARCHITECTURE.

MUCH has been said about taste in domestic architecture, and many attempts have been made to establish a character for it, from the time Lord Burlington built Chiswick House, after a design of Palladio's Villa Capra, to the period of the erection of Fonthill Abbey, on the model of Ely Cathedral, and fifty old churches. I forbear to mention either the complete failures, or the partial accomplishments; but it will not be denied that no one has been entirely successful since the time of Cardinal Wolsey. He indeed produced many splendid examples of original taste, not Greek, not Roman, and certainly not Gothic. His knowledge of what was requisite in the habitation of a person of high degree was doubtless one of the reasons of the king's partiality to him. His edifices, which still remain, are eminently superior, notwithstanding their antiquity, to all others of their kind, in design and magni-

ficence, and his name is familiarly used to denote the highly enriched manner of building then, and afterwards used, during the reigns of the Tudors by the appellation of "The Wolsey Architecture." As an instance I shall mention Hampton Court, one of the superb edifices erected by the cardinal, which may be truly said to offer an unobjectionable model for a palace, one that if erected, would not only establish the fame of the architect, or clerk of the works, but would confer celebrity on the reign in which such a noble design was carried into execution. The peculiar style or order of architecture, adopted in every one of the mansions and colleges, erected by the munificence of the cardinal, is uniform and original, perfectly suited to the purpose of display. It is completely distinct from the ecclesiastical style, and includes a variety of elegant combinations admirably calculated for the use of the painter in historical composition, as marking the precise period of the subject throughout the Tudor reigns, as well as harmonizing with the extremely gorgeous costume then prevalent, and otherwise employing the fancy of the artist. In Wolsey's buildings the imposing simplicity of the graceful pointed architecture that had for ages retained its sway, was united with arabesque ornaments skillfully introduced, together with a redundancy of quaint device, and heraldic enrichment of every kind. On the inner walls, gilding and colour were profusely lavished, so as to give a mosaic appearance to the spacious rooms which on state occasions were decorated with tapestry, as described by Wolsey's biographer in the preparation for a banquet. "The yeomen and grooms of the wardrobes were busied in hanging of the chambers with costly hangings, and furnishing the same with beds of silk and other furniture, apt for the same, in every degree." This practice was carried to greater excess in the reign of Elizabeth. In the "Fairie Queene" Spenser describes the hangings used:

"For round about, the walls y'clothed were
With goodly arras of great majesty,
Woven with gold and silke so close and nere,
That the rich metall lurked privily,
As faining to be hid, from envious eye.
Yet here and there, and every where unware,
It showed itself, and shone unwillingly,
Like to a discoloured snake, whose hidden snares,
Thro' the greene grass, his long, bright burnish'd
back declares."

—The Graphic Illustrator.

FIRES AT LIVERPOOL.

THE recent extensive fires which have occurred in this town have induced the insurance offices to raise the premium of insurance to 11. 1s. per cent. upon old policies, whilst no new ones are to be taken. To assuage if possible this feeling of alarm, Mr. Abraham Booth has addressed a letter to the editor of the *Liverpool Advertiser*, pointing out that however mysterious the circumstances may appear, that they may be accounted for on natural causes. We quote his words, to which we beg our readers' particular attention. "In the autumn of 1841, I delivered lectures at most of the metropolitan scientific institutions, on the 'Causes and Prevention of Fires in the Metropolis.' At the time of my lectures at the Cadogan Institution, fires in haystacks were very rare in the agricultural districts, all of which were the suspected work of incendiarism. I however explained that the peculiar circumstances of the condition in which the crops were gathered, and the electrical state of the atmosphere, had a great deal to do as the causes of these fires, and that the condition in which the hay was gathered was such as to render it liable to spontaneous ignition. I also stated that disaffected spirits might be stimulated by these accidental occurrences, and extend the mischief by becoming actual incendiaries. I may apply the same remark of the chemical and electrical state of the atmosphere and the condition of the crops to the cotton supply from America. The Committee of Investigation should in my opinion first direct their attention to this, as it would not be impossible by investigation to determine the exact condition of those crops, from the examination of the samples. It is well known that cotton, with moisture alone, is liable to spontaneous combustion. According to the reports in the newspapers, there has been actual detection in one case, of an attempt at incendiarism; but may not this, as with the haystacks, have been only an imitation of the operation of natural causes?" There seems to be much force in these remarks, and for the alleviation of the public anxiety, which is intense on the subject, the suggestions ought to be attended to.



ST. MARY'S CHURCH, STAFFORD.

ST. MARY'S is a spacious cruciform structure, consisting of a nave, two side aisles, a transept, and a chancel of three aisles, with an octagonal tower in the centre. This church is of very remote origin; it has, however, been almost entirely rebuilt, but some remains of the ancient structure are still visible. The general style of architecture is the early pointed. The font is a singular remnant of antiquity, very large, and of heavy workmanship; its height is three feet three inches; the lower part is two feet square, and is ornamented on three sides with human figures lying flat on their faces; on the south side is the figure of a ram. Among a variety of monuments, ancient and modern, in this church, those most worthy of notice are an altar-tomb in honour of Edward, Lord Aston, of Tixal, and his wife, Lady Ann; a monument to the memory of Sir Edward Aston, who erected the ancient mansion of Tixal (temp. Henry VIII.), and his lady, Joan; and one to Lady Barbara Compton, who, as the inscription informs us, "lyeth interred in the parish church of St. Gregory, by St. Paul's, London." The church of St. Mary, anterior to the Reformation, was collegiate; King Stephen, at the commencement of his reign, bestowed it on the Bishop and Chapter of Lichfield and Coventry. At the dissolution, a dean and thirteen prebendaries were attached to it.

ON SEEKING EMPLOYMENT.

It is highly gratifying to us to find our plans in this respect working so well, even in the infancy of our undertaking. There is nothing to hinder this journal and this office from being of immense service to the building trade—masters and men—but their own supineness or neglect to seize its advantages. The thing, however, is so novel, and as yet so little known, that it has not advanced the pettiest stride towards its full development. Our register book is, nevertheless, crowding with claims, and the office being beset by applications, and we have in several instances, to our great happiness, rendered signal service to the applicants. This is not all, however, that we have to do. It may be thought by many to be a great thing, to be in fact every thing that is required, to bring the employer and the workman in contact with each other, so that such contact end in an engagement; but it is not so. It is not sufficient to be instrumental in launching the bark of a man's success; we must see that the vessel is well appointed, and that the helmsman has his cue—what that cue consists in is not skill alone in the handling of the tiller, but high moral purpose, modest confidence; that he be faithful and unswerving for the ends of good; that, in fact, he may be able to read

the compass by which he has to steer, and know well the chart of his navigation, so as to avoid the rocks and quicksands upon which the unwise and the unwary are constantly foundering.

One short admonition, reiterating the counsel of "Brickbat" in our twentieth number, will serve for our present purpose. Let the man who has a good master stick to him; let him who has not, seek one, pay any price to get him, and when he has got one, keep him; and above all, good master or bad master, let every one resolve to be a faithful servant; none but a fool will part with such a servant.

To masters we say, make your men of as much importance to you, nay, they are, and ought to be of infinitely greater importance, than any thing else in your business. More than your contracts, your shops, your stock in trade; know your men, and cherish the good ones; but, above all things, be truly good and paternal masters to them; none but fools of men will leave you or abuse your confidence.

We will close with enumerating that we have now on our lists an application for a London foreman, for several good joiners, for a pupil to a business connected with modelling, and where the chances would be invaluable to any respectable youth deserving of confidence. We have also, on the other hand, three clerks of works' addresses, men of first-rate character,

and a young gentleman's application for a superintendent of works place, whose recommendations are particularly good; we have also a young man wishing for improvement, who would be turned over to a good master, with advantage to both; and many minor applications.

COMBINATION MURDER AT ASHTON-UNDER-LINE.

Manchester, Saturday.

It will be remembered that in the autumn of the year 1840, a general turn-out of the operative sawyers of Ashton-under-Line took place in consequence of the determination of the timber-merchants there to reduce the wages of the men in their employ to the standard rate of wages adopted in other towns. This led to the masters procuring men from a distance—a proceeding which gave much dissatisfaction to the turn-outs, who caused two of the "knobsticks," as the new men were termed, to be murdered. One of these atrocious acts was committed about six o'clock on the evening of the 11th of December in that year, when a large steam-pipe, which had been converted into a cannon, was discharged into the sawpit of Mr. Richard Whitfield, where two men, named James Cooper and Benjamin

Cooper, were at work, the contents of the canon passing through the body of the latter, who died the same evening.

A great number of sawyers and others who were suspected of being privy to the murder were apprehended, and ultimately two men named John Williams, a sawyer, and John Hulme, better known by the name of "Cast Metal Jack," were committed to Liverpool, and tried there for the murder, but both of the prisoners were acquitted. Williams was detained in custody and imprisoned on another charge, but Cast Metal Jack in a short time afterwards quitted the country, and sailed to the United States, whence he only returned a few days ago, when he was apprehended in Salford by Mr. Beswick, principal superintendent of the Manchester police, and Inspector Green, of the detective force, upon the charge of having been concerned in the murder of Thomas Garland, on the road between Ashton-under-Line and Manchester, on the evening of the 31st of October.

The circumstances attending this murder are as follows:—Garland, who was a sawyer in the employ of Mr. Goldthorpe, timber merchant, Ashton-under-Line, but whose family resided at Manchester, went in company with several other sawyers on Saturday evening, the 31st of October, on his way home. When his party, who were about five or six in number, had got little more than a quarter of a mile on the road between Manchester and Ashton, they were met by a large gang of turn-outs, who were armed with sticks, clubs, and bars of iron, and were set upon and assaulted in the most brutal manner. A man named Joseph Holland drew a piece of iron from under his clothes and struck Garland to the ground. He was severely beaten and much cut whilst he lay on the ground; his face was cut in a most frightful manner, one of his fingers was severed from the hand, and he sustained a compound fracture of the nose. He was taken to the Manchester Infirmary, and on the 16th of November died of lock-jaw, occasioned by the injuries he had received.

Patrick Keogh, James Keogh, Peter Keogh, and John Harvey, were also beaten in a savage manner. Upon an inquest being held on the body of Garland, the coroner's jury returned a verdict of "Wilful murder," and a man named Joseph Holland, who was apprehended by Inspector Green, at Dublin, was tried on the 7th of April, 1841, before Mr. Baron Maule, at Liverpool, and being found guilty, was sentenced to be hanged for having taken a part in the assault on Garland. His sentence was, however, commuted to transportation for life. Since the trial of Holland, the Manchester

police have received information to the effect that Hulme, alias Cast Metal Jack, had been a participator in the assault on Garland. While he was known to be in America, of course no steps were taken for his apprehension, but it having come to the knowledge of the Manchester police that he had returned, he was apprehended in Salford by Mr. Beswick and Mr. Green, as before described.

The prisoner was brought up yesterday before Mr. Maule, at the Borough Court, when Mr. Beswick stated the above facts, and applied to have the prisoner remanded, in order that he might be sent to Ashton-under-Line. He (Mr. Beswick) had written to Mr. Hall, the clerk to the magistrates at Ashton, and he had also to communicate with the police at Stalybridge, and Mr. Irwin, the special high constable of the Bucklow Hundred, in Cheshire.

Mr. John Taylor, solicitor, who appeared on behalf of the prisoner, said he must object to the prisoner being sent over to Ashton. He was a poor man, and could not possibly raise the means to pay a professional man to go over to Ashton. He (Mr. Taylor) defended the prisoner when he was in custody upon the charge of firing the cannon at Benjamin Cooper, and on that occasion he was put to very great inconvenience in having to go over to Ashton several times. After being acquitted at Liverpool on the former occasion, the prisoner did not leave the country, as had been represented, but, as was well known, had remained at home for six months, after which he went to America, but had returned some time ago, and had been down at the New Bailey several times during the last week.

Mr. Beswick said, that there were a great many witnesses in the case, and they resided principally in the neighbourhood of Ashton.

Mr. Taylor expressed a wish that the case might be taken at the New Bailey.

After a lengthened discussion, Mr. Maule said he thought the best way would be to send the case for hearing before the Ashton magistrates, and he accordingly ordered the prisoner to be remanded for that purpose.

GRAND FLIGHT OF STEPS DOWN TO THE THAMES.

THE first time I went up to London, after the old London Bridge had been cleared away, I directed my steps towards Fish-street-hill, to feast my eyes on the grand flight of stone steps which I expected to see on the spot where the old bridge joined the shore; for although the Thames is not quite so fine a river as the Ganges, yet I na-

turally thought so fine an opportunity of forming a grand ghaut down to the water, like one of those at Benares, would not be lost, now that the first and only opening from the street to the river was effected by the total removal of a bridge. When I got to Fish-street-hill I could scarcely tell where I was, for there was neither bridge, nor river, nor ghaut to be seen; but after attentively considering the shops and the church, I became assured that I was really at the bottom of Fish-street-hill, and that the sight of the water was blocked up by the erection of a high wall or a building of some kind! (the steam-packet office, I believe.) The reader may guess my blank looks, my astonishment, disappointment, pain, and incredulity, for I could not for some time believe my own eyes. After moralizing for some time on the different ways which men pursue to spoil their towns, I was fain to believe that it must be a sort of hydrophobia with which the Londoners are afflicted; for on recurring to other streets that abut on the Thames, I recollected that the sight of the water had been most rigidly and carefully shut out, either by the erection of a house or a wall at the bottom of every street along the Strand; and that instead of a substantial iron-railing being placed across those streets near the water, and grand flights of steps leading down from thence to the river, people are obliged to ferret out the steep and break-neck stairs hidden up by the sides of the bridges, or down some narrow dirty lane or alley whenever they want a gondola. Perhaps the citizens are afraid that old Father Thames might take it into his head to pay them a visit, and walk into the City, and steal off with some of their fine women during the dark nights; and so it is better to blind his eyes and prevent him from looking up the streets, the very sight of which might set his mouth a-watering; and if there is the least danger of the old fellow running off with the chief treasures of the City, the citizens cannot be too much applauded for the care they have taken of these jewels, by erecting walls at the ends of all the streets. But I would balk old Father Thames in a different manner: I would form a grand flight of steps down to the water the whole width of the street, fenced at the top with a noble iron-railing, so stout, that even a troop of war-chariots should not be able to burst through it; and I would plant a powerful gigantic Egyptian sphinx on each side the flight of steps, with their faces to the water, so that the old Father might be afraid of venturing up the steps, while he might employ all his time in endeavouring to solve their enigmas: or, as we are at peace with the Emperor of the Celestials, perhaps his Majesty would be so good as to send us a pair of live dragons (of the green species, as they are the fiercest), which would more effectually frighten old Father Thames, and keep him within bounds. Thus the citizens would get to their gondolas hung with crimson, sky-blue, and gold, without having to descend some narrow filthy alley.—*Maslen on the Improvement of Towns and Houses.*

BOYS' SCHOOL AT PLAISTOW, ESSEX.

G. R. French, Esq., Architect.



OUR CORRESPONDENCE.

LECTURES ON ARCHITECTURE AND ANTIQUITIES.

TO THE EDITOR OF THE BUILDER.

SIR,—The following course of lectures was delivered some years since at an institution wherein the audience was composed of ladies and gentlemen; the language, therefore, was adapted for general comprehension, for which reason, it is hoped that due allowance will be made when the matter appears hardly of sufficient importance for admission into a periodical like *THE BUILDER*; but some of your readers will probably be able to appreciate the labour of the task implied in having to re-write a long composition. Such as they are, with additional notes, the lectures are submitted, in the hope that in some of your general readers they may arouse a spirit of inquiry on the subject of antiquities, or refresh their pleasing recollections of the glories of by-gone days. G. R. F.

INTRODUCTION.

The object of the present course of lectures upon architecture will be an endeavour to render that science more familiar, and therefore, it is hoped, more instructive, than is generally attempted in works which are too often intelligible only to the professional student, to whom the technical details are indeed useful and necessary and of the greatest value, but from which the general reader derives little information or amusement. The consequence is that an acquaintance with this science has been closed against nearly all but its professors, for the little knowledge that the public have of it is to be attributed, not to an indifference on their part to learn, but to the uninviting form in which the subject has been presented to their notice. If this science was abstruse, if its operations were confined within a very limited range, and if its results were only partially seen, we might then consider it a work of supererogation to descend upon its importance, or enlarge upon its merits. But when we know that monuments of architecture are found in almost every country on the face of the globe; that these remains are connected with the history of the world from its earliest periods, often serving as the landmarks of chronology; when we find that our comforts (to say nothing of our luxuries) depend in a very great degree upon the application of architecture to the construction of our dwellings, it is not assuming too much to believe that an examination of the principles of the science, of its rise and progress, of its intimate connection with the welfare of different countries, may be considered a profitable inquiry.

The first objects which engage the observation of the traveller (after the unrivalled works of nature) are the antiquities of the various countries through which he passes; and these have been found to arrest the notice not only of the virtuous, the scholar, and the artist, but (passing as the glance may be) even of the careless votary of pleasure, who, hurrying on from place to place with heedless rapidity, would yet be ashamed to confess on his return that he had not seen the celebrated memorials of antiquity which were scattered in his route.

If, then, these relics of by-gone days have always excited so much attention in succeeding ages, if Time, instead of lessening, has increased the charm with which they are invested, it will not be deemed a fruitless task to attain some knowledge of the general relations which they bear to each other, more particularly as the inquiry may be the means of enabling us to look upon such objects not merely as masses of stone and marble, without meaning or design, but as memorials of departed greatness, as models of art, as specimens of man's industry, of his genius, of his skill; thus shall we see beauty developed, and taste displayed, where before, to the unenlightened eye, all appeared a shapeless mass of deformity, or an assemblage of confused and unmeaning features.

Architecture as a science is undeniably more useful than its sister arts, Painting and Sculpture; for whereas the two latter may be termed the arts of luxury, the first must be admitted to have its origin from necessity; and without wishing to assign to it an undue superiority, one point in its favour over the other arts is this, that it appeals entirely to the judgment, whilst the others appeal to the senses; to value one, taste is required; passion is wanted for the others; and this is the reason that painting and sculpture are more appreciated than architecture.

The day-dreams of the poet are not more delightful than the waking thoughts of the antiquary; the splendid fictions of the former are to the latter not less splendid realities, and when he conjures up before his mind the unrivalled monuments of former ages, he thinks too of the mighty men who reared them; the contemplation of the sculptures and paintings which adorned their temples is associated with that dazzling but erring system of mythology whose heroes, real or fabulous, have been

familiar to us from our very childhood, whose deeds have been immortalized by the poet's pen, and who live again before us in the almost-cathartic marbles sculptured by the master-hand of Phidias, in the possession of which this country may be justly proud. As the poet's fancy is as free as the air he breathes, heeding neither time nor space, so does the imagination of the antiquary range on never-tiring wing over the whole habitable surface of the globe—wherever man has his dwelling-place, there are to him objects of interest; he speculates on the gradual progress of architecture, from the hut to the palace, from the cave to the temple; every structure he sees opens to him a subject for investigation, no country is unvisited by him, no research neglected, toil and labour are unheeded, difficulty and danger unregarded. He stands upon the summit of the lofty pyramid, where forty centuries ago the last stone of that artificial mountain was laid, and as he surveys the wide-spread prospect at his feet, he reflects on the pride of the monarch who erected the colossal structure, on the slavery of the people whose labour was devoted to his haughty will. He stands on the hearth of his native country, and as he gazes on the altar once stained with the innocent blood of human victims, and sighs when he thinks of the darkness in which his ancestors lived, he is thankful for the superior light in which he dwells. These remarks, dictated it may be by enthusiasm, will serve to shew what an inexhaustible field of delight is open to him who makes antiquities his study; that it is not a dry, unprofitable pursuit as stigmatized by some, whose opinion we must regard more in sorrow than in anger, but he will see even in this country alone, in every spot where he plants his foot, something to interest, something to awaken his attention, whether it be the beautiful village church with its ivy-covered walls, its rustic porch, its low square tower, or ascending spire, or the more gorgeous cathedral, or the more stately castle, or the rude cromlech or colossal pillar of Druidical times.

The course pursued in the following lectures will be an endeavour to trace this science from its earliest stage, taking us back nearly to the Creation, and as the field of inquiry is extensive, carrying us in its progress from

—“the far Nile's enormous model,”

to the

“Temples where pilasters round

Were set, and Doric pillars overlaid

With golden architrave,”

until we come

“To the long-drawn aisle and fretted vault.”

We will divide the subject into the following sections:

1. An account of the antediluvian and post-diluvian monuments recorded in Scripture, with a digression to the existing remains in various countries of a similar nature.
2. On the architecture of Egypt and of the once powerful monarchies of Asia, the Babylonian, the Assyrian, the Persian, the Median and Syrian, and also the architecture of India.
3. On Grecian architecture.
4. On Roman architecture and that which was founded on it, the Italian style.
5. On Gothic architecture.

LECTURE I.

The earliest authentic history of the world is, of course, to be found in the Bible, and as the part of the world in which the scenes were laid connected with the remotest period was Asia, to that quarter we will direct our attention first, and in the only books whose records are to be depended upon, we shall find an account of the germ of those cities which afterwards arose into such amazing splendour, but whose ruins at the present day afford only a melancholy picture of desolation, and a striking fulfilment of the terrible denunciations of God's wrath, uttered against them when their power was at its height, and when their duration was to be apparently eternal. Of some of the cities mentioned in Scripture no traces whatever are left behind; they are buried (excepting their names) as completely in oblivion as are those guilty cities of the plain which lie bound in their eternal sleep beneath the sulken and bitter waters of that lake (Asphaltites) which is at once their tomb and the awful testimony to their punishment. The erecting of altars is nearly the first circumstance recorded in Scripture which is connected with our subject, and although Noah is the earliest who is mentioned as having raised one (Genesis viii. 20), yet as sacrifices were offered before the flood, witness those of Cain and Abel (Gen. iv. 3, 4), it is the opinion of Bishop Kidder and other divines, that they also had altars whereon to lay their offerings, and that wherever sacrifices are spoken of, altars are necessarily implied. In the 4th chapter of Genesis, verse 17, Cain is said to have built a city which he called “after the name of his son Enoch;” this, which is the first recorded dwelling of man, we may look upon as nothing more than a residence for his own family. The account in Josephus is (Antiqui-

ties, Book I. chap. 2, s. 2) that Cain “first of all set boundaries about lands, he built a city and fortified it with walls, and he compelled his family to come together to it.”

Though the race of man must have multiplied in a very rapid manner before the Deluge, we find no further record of cities or human habitations, with the exception of a reference to dwelling in tents (Gen. iv. 20). It has been imagined that the construction of the Ark, that mysterious and solemn link between two worlds, evinced a considerable advance in the arts before the Flood, but whatever may have been the state of science or of art in the antediluvian world, all traces have been swept away in the common destruction which involved alike the contriver and the work of his hands. Josephus states (Antiq. B. I. ch. 11, s. 3) that the sons of Seth erected two pillars, one of stone, and another of brick, on which they inscribed their discoveries in astronomy, in the hope that one at least would be spared in the Deluge.

It is natural to suppose that man's first care in the early periods of the world was directed, if he did not find, to contrive some shelter against the inclemencies of the weather, and these habitations have been divided, with a fair show of reason, into three classes, according with the habits of the first dwellers on the earth, who may be also considered as forming only three great divisions, viz. 1. hunters; 2. shepherds; and 3. tillers of the ground. The first would not require a fixed residence, but would seek shelter in caverns, “clefts of the rocks,” (Jeremiah xlix. 16), or else in natural and artificial hollows, wherever their game abounded; and it seems not unreasonable to suppose that Egyptian architecture owes its origin to an imitation of these primitive grotto-like structures, to which, in their colossal and massive construction, they bear so much resemblance.

The dwellings of the second class, that of shepherds, would be obviously the tent; thus it is mentioned of Jabel, that “he is the father of such as dwell in tents, and of such as have cattle.” (Gen. iv. 20.) The architecture of the Chinese was, no doubt, derived from this source. The third class, the tiller of the ground, would require some shelter for his stores and provisions, as well as a fixed abode for his family, and therefore would be led to construct habitations from the readiest materials, which, in most countries, would be timber; thence arose the cabin formed from trees, the prototype, it has been considered, of Grecian architecture. Man's first efforts were doubtless of a rude and temporary nature, merely sufficing for the most insignificant wants. Some of the splendid trees of Asiatic countries would furnish the materials for building entirely and rapidly habitations of this kind, as at the present day in India, cottages are constructed from the palm, whose ample leaves serve for doors, roofs, and walls, as its branches are used for rafters and other timbers. Thus the mere art of building would arise from man's necessity, but his first attempts at any thing like architecture were decidedly the results of piety, manifested in erecting structures for religious purposes, or as memorials of affection for the departed dead. And herein is apparent the triumph of piety over selfishness, for whilst there are remains of temples and tombs whose origin is lost in the remotest times, there are none whatever to be traced of domestic architecture coeval with them. Everywhere are the last resting-places of the dead to be found, and everywhere does an invisible sacredness attach to them. The Red Indian will even now track his unerring way through the pathless woods, and across the wide and rapid rivers of America, to the distant sepulchre of his tribe, and the pilgrimages which formerly more frequently occurred in Europe, and are at this day still undertaken in Asia, attest the strong veneration with which the burial-places of the illustrious dead are regarded. In Palestine, at the present time, places are pointed out to the traveller which tradition has assigned as the tombs of some of the prophets or holy men recorded in Scripture, and which are regarded with reverence alike by the Christian, the Jew, and the Mussulman. One instance in particular may be cited, viz. the sepulchre of Abraham, where a church was built by Helena, mother of the Emperor Constantine, over the cave of Machpelah. This was turned into a mosque by the Turks, and it is now (with Mecca, Jerusalem, and Medina,) one of the four chief places of pilgrimage to which the Moslems resort, and it is hardly necessary to add that the descendants of the patriarch have always beheld his tomb with profound respect.

A celebrated name in Scripture is that of “the mighty hunter before the Lord,” Nimrod, the first recorded monarch, and in Genesis x. 10, it is stated that “the beginning of his kingdom was Babel and Erech, and Accad and Calneh, in the land of Shinar.” The most noted of these cities was Babel which, under the name of Babylon, became so powerful, and whose fall was so extraordinary. We shall in the next lecture compare the

accounts which have been given of its wonders by ancient writers with its present state of ruin as furnished by modern tourists. The name of Nineveh occurs in the next verse to the one cited, and of that great city we shall then likewise have occasion to speak more largely. The eleventh chapter of Genesis records the building of the tower of Babel and the dispersion of the people in consequence. The consideration of these events will be connected with our inquiry into the former and present state of Babylon, "the parent city of the world." At present we will but pause to remark that the art of building must have made considerable progress at this time (about 150 years after the Deluge), and that the description of the materials, well-burnt bricks and slime, or bitumen, corresponds exactly with the remains which are presumed to be those of the Tower of Babel.

There is no account of altars being erected from the time of Noah until Abraham was called out from a land of idolaters, when we find that he "built an altar unto the Lord" in the plain* of Morch near Sicheim (Gen. xii. 6, 7), and another at Beth-el (v. 8), to which last place he returned (Gen. xiii. 3) when he came up out of Egypt with his nephew Lot. We may be allowed with some reason to consider this altar in the light of a temple, before which the patriarch assembled the numerous household of which he was the head (for we are told in Gen. xiv. 14, that he armed 318 trained servants born in his own house), forming a church, if we may so term it, to which Abraham officiated as priest when he "called upon the name of the Lord." After Abraham separated from Lot, he "removed his tent and came and dwelt in the plain† of Mamre which is in Hebron, and built there an altar unto the Lord." (Gen. xiii. 18.) This is the spot in which was displayed that astonishing instance of divine condescension when a mortal was permitted to plead with his Creator face to face (Gen. xviii.) in behalf of his guilty neighbours. The oak of Mamre, beneath whose shade Abraham was wont to sit "in the heat of the day," was known and venerated in the time of Constantine, and we find Jerome and Eusebius speaking of it as still remaining in their time and held in regard.

G. R. F.

TO THE EDITOR OF THE BUILDER.

SIR,—I have for some time past been struck with the frequent serious damage to buildings occasioned by lightning. Among many other instances that of St. Martin's-in-the-Fields must be fresh in the recollection of every one; and when it is considered that all danger might be obviated at a very small expense by the use of a conductor, it is strange such a safeguard should not have been more generally adopted. Nothing can be more sudden and appalling than the visitations of this merciless destroyer, and there is scarcely a church of any antiquity which has not at one period sustained injury by its means; and yet I would venture to make the assertion that nine-tenths of our village churches are left without any safeguard from its fury. To produce a conviction of the great utility of the lightning rod it is necessary to explain the principle on which it acts, and this I will in a few words endeavour to do.

The electric fluid is attracted by many substances called conductors in the more general sense of the term, among which the metals occupy a prominent place; but it depends entirely upon the form of the conductor in what way it yields to the attraction; if it terminate in a ball or mass of any irregular shape, not presenting any sharp points, the fluid strikes it in a body, and in the case of lightning presents the phenomena of forked, or more rarely, ball lightning. If, on the contrary, it terminate in one or more points, the fluid, instead of flying in a mass, pours on to the conductor in one continuous stream, and either reaches the ground or is dissipated in the air. From this it is evident that the popular idea, that buildings having conductors attached to them are the more likely to be struck by lightning, is a complete fallacy. The fact is, that it very seldom happens that a building having a conductor is ever struck at all. The fluid pours down invisibly in a dense, silent current, the only effects produced being to heat intensely the point of the rod, and sometimes almost to fuse it. To guard against this, which (by taking off the extreme sharpness of the point) destroys the effect, it is a good plan to have at the end of the rod, which should be about five-eighths of an inch in diameter, five or six branches, each brought to a fine point and tipped with platinum, the most infusible metal known; by this arrangement, the stream of fluid is divided, and the risk of fusion avoided. Hoping these remarks may meet the eyes of some who may attend to their suggestions,

I am, Sir,

Φιλετηρος.

TO THE EDITOR OF THE BUILDER.

SIR,—If you think the inclosed simple method of working in stone the head of a semi-circular niche worthy insertion in THE BUILDER, it is at your service. The mason will at once see that this method, compared with the antiquated one, saves in each stone of the head the angular piece F, so that it has not the advantage only of saving material and labour, but may also be cut out of blocks of much less dimensions than by the old method of working with a square instead of this plan by a bevel.

Having a conviction that your valuable publication, if supported as its merits deserve, will eventually be the means of dragging many young tradesmen from the gin-shop and other unprofitable haunts, and that such trifles as these frequently set

young men a thinking for themselves, I trust you will not think me presumptuous in making so trifling an offering. I believe the invention is my own, as I have never seen it practised by any one but myself. I have tested its correctness both by modelling on a small scale, and also in work. If it meets your approbation, I will occasionally contribute other things of what I conceive a useful character.

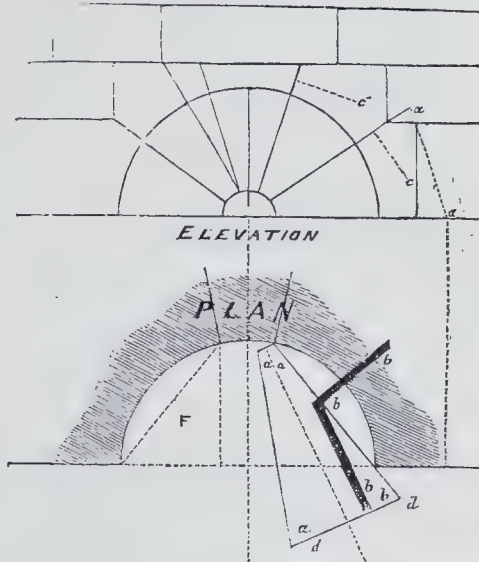
I am, Sir,

Yours respectfully,

Leicester, July 9, 1843.

W. LINDLEY.

[We shall be happy to hear from Mr. Lindley again. This exertion of his good-will and skill is creditable to him, and will, no doubt, be the means of conveying the profit of knowledge to many, which, to a right mind, is a rich reward.—Ed.]



a a a, face-mould of soffit to each stone, from which the beds are wrought by bevel *b b b*. The bevel for working the beds is got by a line drawn at right angles across the bed, and a line drawn parallel to centre line of face mould; the beds wrought at right angles each way from the axis of

soffit and bed, will be at right angles from the face of wall, on a line square from the radiating joint or bed, as at *c c* on the elevation.

d d on face-mould corresponds with *d d* on elevation.

A FEW WORDS ON EXCAVATIONS FOR SEWERS, &c. &c.

TO THE EDITOR OF THE BUILDER.

SIR,—A few remarks on the mode and cost of breaking up and excavating ground for sewers and other similar works, may not perhaps be uninteresting to some of your readers, especially those just commencing their career in this branch of the profession.

If the contractors for works were in the habit of forwarding notes of their proceedings and mode of operations under various circumstances to the professional journals of the day, I am persuaded much real benefit would be conferred on the "rising members" of the engineering and architectural professions; as it is, however, contractors, either for lack of time, or from unwillingness to divulge the *rationale* of their proceedings, seldom, or indeed ever, do so; the consequence is that they are looked upon by the public to be mere machines, as it were, entirely governed by the directing mind of the architect or engineer of the works upon which they may happen to be engaged; so that their status as professional men is of very humble rank, and but little estimated, with those not versed in technical or nomenclature. Let us ask, however, is it really so? Unquestionably not; for if proofs were wanting to the contrary, a decent array of facts affirming the reverse could be easily gathered together, and put in a light so clear and strong as to convince the most sceptical, both in and out of the "trade," that a contractor ought, and must, be a man of talent, possessing a thorough knowledge of the practical part of the profession; he must not only be capable of getting up an estimate profitable to himself, but he must have a mind capable of grasping with the unforeseen difficulties which so frequently break in upon his operations; he should be skilful in devising remedies, and prompt in carrying them into effect, not only in

the most economical, but in the best manner possible, for he it is who has "to pay the piper" in case of accident; in fact, if any untoward even happens, he is let in for the loss, both of money and reputation, the blame in six cases out of seven falling on the contractor, when really it ought to have fallen on the architect or engineer who framed the plan.

There is scarcely any thing in the whole range of plain earth work that varies so much and so frequently as sewer excavations, city water-courses, or gas mains; though from the latter being but superficial they are not so subject to extensive fluctuations as either of the former. One great cause of the expense of sewer excavations arises from the uncertainty of such work, when compared with other work of the same extent; from the very nature of the thing, it is almost impossible to avoid some kind of interruption and annoyance. We may, for instance, take a contract in one neighbourhood at a certain rate per yard, and gain a good remunerating profit by it; on the other hand, all things being apparently similar, a second contract may be taken at the same rate, and yet the result shall leave a heavy loss, notwithstanding all the judgment and caution of the parties most interested. How is this to be accounted for? Is a very natural question to ask, and one worthy of full investigation by those practical men who have the necessary time on hand to compare notes of their proceedings and results.

A sudden unexpected change in the nature of the soil is frequently a cause of much perplexity, mischief, and expense to the contractor, the man of limited means, or the young beginner especially, for it unfortunately happens too frequently that they are without sufficient plant and material to meet the new emergency thus suddenly called for: the consequence is to them a heavy loss, either through the work tumbling in, or from the expense of getting additional plant, which they have to purchase in a hurry for the occasion; let it be

* Or by the oak of Sicheim.—Dislop Wilson.
† Or by the oak of Mamre.

which way it will, the expense will sadly reduce the anticipated profit.

The necessity of contractors getting a thorough knowledge of the ground on which they are to operate cannot be too often or too strongly impressed upon them; another grand rule of action is undoubtedly not to be niggardly in furnishing the necessary *struts and planks*; nothing can be more foolishly wise than to begrudge a few planks; it is true they are costly at first, but as they will keep and serve for many contracts, it will in the end be found more profitable to use a good plank than to use an indifferent one; for, like good horses, when once got together, they cost no more to keep than indifferent ones.

It will follow, of course, from the nature of sewer excavations, that *depth* is a most important item in the cost, as well as the run of cartage, for as both increase so also will the expenses, and generally the latter in a much greater ratio than the former, especially if the depth at all exceeds what may be considered a fair moderate working depth, for both will require not only more time, which is money, but more plant and material.

The average depth of a *lift* or *throw* ought not to exceed six feet, and all depths exceeding that, must be charged higher in proportion, varying, of course, with the circumstances attending the case; but generally in loose soils of ordinary workable quality, the price will be found to range between 6s. to 8s. per yard for the opening or first throw, but not often so much as the latter; and in stiff soils, say heavy indurated clay and hard gravel, the range will run from 6d. to 10d. or 11d., supposing, of course, that no pumping in either case is required, and that the wheeling does not exceed about 25 to 30 yards. I have, in some instances, known the price for carting about half a mile, to be so low as 3d. per 1½ cubic yard, which, however, is no criterion for work near London or large towns. As I have not much space left to enter into the matter of costs just now, I will avail myself of a further opportunity if agreeable.

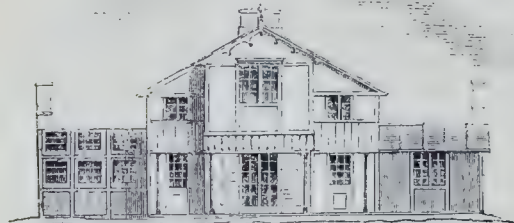
The cost of works of the character now under notice will always be attended by some uncertainty

or other, especially in narrow places which cannot be too minutely surveyed and examined before the contract is entered upon; for as it often happens the sewer has to be carried through some old-fashioned narrow street, the houses of which are all in a feeble dilapidated condition, barely holding each other up, so that when the work commences a fearful outlay is incurred in propping up the houses to ease the pressure on the excavation, the *percentage* of which outlay must be got out of the additional charge in the rate of earth work.

Some time since I had to deal with a curious case of sewer running, which had been let out to labourers of little judgment, and less capital; they were of course exceedingly anxious, like all other contractors, to make the most of their bargain, to effect which, they used but little planking; and as the work was partially in very heavy blue clay, it ultimately fell in upon them; the result of course was a very heavy loss, so much so, that they had to give up the contract to a second party, who took it off their hands at the same rate they had originally stipulated for. The new contractor went to work in the most economical way he could devise, and got together a heap of common hurdles, and lined the work with them, lapping one end of each hurdle over the other far enough to allow of upright planks being put over the joints on each side by the work, and then kept in their proper places at struts driven in the usual way between the planks of top and bottom; thus lining, as it were, the whole length of the excavation with hurdles; with this simple and novel lining he went through the work without meeting with a single accident, and succeeded in completing it, with a satisfactory profit for the reward of ingenuity.

In conclusion, let me venture to suggest to your practical readers, that statements of their professional practice, with the costs attending them, would be a feature new to the busy world of periodic literature as sterlingly useful as it would be strikingly novel.

JOSEPH LOCKWOOD, Surveyor, &c.
52, Lime Street, London.



Plan of Ground Floor.



Plan of Chamber Floor.

TO THE EDITOR OF THE BUILDER.

SIR,—Should you deem the annexed worthy a place in your valuable paper, as an economically constructed cottage, suitable for a small rectory or curate's house, or half-pay officer's, possessing in its arrangements the necessary domestic and elegant comforts that persons of the above class require, and forming in its arranged plan the nucleus of houses of greater pretensions, its insertion will oblige.

A cottage of this description might be built in any part of England at a cost of from 250l. to 300l. I remain, Sir, your admirer,

A CARPENTER.

Description of a stud-framed house, filled in with brick hog, and stuccoed with stone lime between the studs.

A. Hall and stairs	13×7
B. Drawing-room	14×12
C. Dining-room	12×12
D. Library	13×7
E. Green-house	12×10
F. Kitchen	12×10
G. Vespasian.	
H. Verandah.	
I. Larder.	
J. Potting shed and stove.	
K. Landing	10×7
L. Sleeping-room	12×12
M. Ditto	14×12
N. Ditto	18×7
O. Ditto	7×7

TRIANGULAR DRAWING INSTRUMENTS.

ACCORDING to our promise given in No. 20, we feel great pleasure in being able to direct our readers' attention to the following communication forwarded to us relative to a set of triangular instruments, especially adapted to the wants of amateurs, mechanical, engineering, and architectural draughtsmen.

They consist of a series of 10, arranged in four sets, and are numbered as follows:—

No.	Form.	Denomination.	Angle at the Vertex.
1	Isosceles	Acute Angled	22½°
2	Scalene	Right	67½°
3	Isosceles	do.	45°
5	Scalene	do.	60°
6	Isosceles	Acute	30°
7	Scalene	Right	54°
8	do.	do.	72°
9	Isosceles	Acute	18°
11	Scalene	Right	54° 44'
1	do.	do.	76° 33'

By Nos. 1, 2, and 3, may circles be divided into 2, 4, 8, 16, and 32 equal parts; and squares and polygons of 8, 16, and 32 equal sides be described within or about circles.

By Nos. 5, 6, 2, and 3, may circles be divided into 3, 6, 12, 24, and 48 equal parts; and equilateral triangles and polygons of 6, 12, 24, and 48 equal sides, be described within or about circles.

By Nos. 7, 8, and 9 may circles be divided into 5, 10, 20, and 40 equal parts; and polygons of 5, 10, 20, and 40 equal sides, be described within or about circles.

The triangles from 1 to 9 may also be employed in describing triangles, squares, and polygons; by having a radial line, or the length of a side given.

Further, by any of the right-angled triangles may a line be divided into 2, 4, 8, 16, 32, &c. equal parts. No. 3 will be found most convenient for this purpose; and to such a nicety may this be performed, that by using these instruments, a skilful draughtsman may almost divide a line as accurately as can be accomplished by a dividing machine; for we have now before us a line of 1½ inch in length, divided into 64 equal parts; and from what we see of the system, there would be no difficulty in subdividing it into 256 parts.

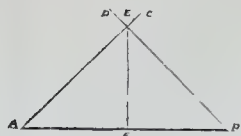
By No. 5, may lines be most readily divided into:—

3, 9, 27, 81, &c.	} equal parts
6, 12, 24, 48, &c.	
18, 36, 72, 144, &c.	

Nos. 3, 5, 8, 1, and 11, will be found of great utility in the practice of isometrical drawing.

We proceed to furnish a few simple illustrations, from which all who take any pleasure in the practice of drawing will be able to de-

termine, whether they may not introduce them with effect and advantage in their daily avocations.



Let it be required to bisect the right line A B.

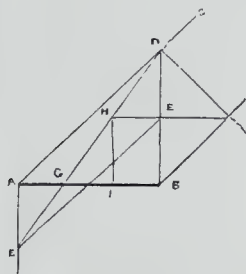
By the edge of No. 3, draw the lines A C and B D, which will intersect in E; lastly, draw the line E F, and the line A B will be bisected in F.

In this operation, as A C and B D are equally inclined to A B, A E B is an isosceles triangle; and as E F is drawn from the vertex, at right angles to A B, it divides the triangle A E B into two equal right-angled triangles; consequently A F = F B.

From this illustration it will at once appear, that we might further proceed and bisect the parts A F and F B; and by following out the process, A B may be divided into 2, 4, 8, 16, &c., equal parts. This operation may be performed by any of the right-angled triangles.

We shall give another example as executed by No. 3.

Let it be required to trisect the right line A B.



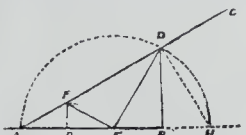
By one edge of No. 3 draw the line A C, and from A and B draw parallel lines at right angles to A B on contrary sides of it, the line from B to meet A C in D; then bisect B D in E by the former rule, and from E draw the line E F parallel to A C, join D F intersecting A B in G, and the line from E parallel to B A in H; lastly, from H draw the line H I parallel to D B, then will A G = G I = I B.

In this operation, as B D and A F are parallel, the line D F intersecting A B in G, forms two similar triangles F G A and D G B; and D B being bisected in E, and A F being parallel to D E, it is also equal to D E; and F A : A G :: D B : B G, but F A = $\frac{1}{2}$ of D B, so that A G = $\frac{1}{2}$ of B G. Again, as the line G D is bisected in H, and H I being parallel to D B; D G : G B :: H G : G I, but D G = $\frac{1}{2}$ of G B, so that G I = $\frac{1}{2}$ of G B, or G I = I B; and as A G = $\frac{1}{2}$ of B G, it is also = G I = I B.

This method will be found extremely useful for dividing lines into 5, 7, 11, 13, &c. equal parts; for by dividing the line B D into a number of equal parts, one less than it is required to divide the line A B into; then by following the same process already explained, the result will be correctly determined.

Having stated that No. 5 may be conveniently applied in trisecting lines, we shall give one illustration.

Let it be required to trisect the line A B.



By one edge of No. 5 draw the line A C, and from B the line B D, again from D draw the line D E; E B = $\frac{1}{2}$ of E A; bisect A E by the first rule in G, then will the line A B be trisected in G and E.

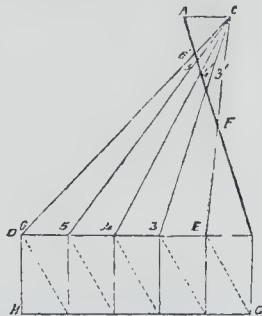
In this operation, as the angle C A B = 30° , and A B D a right angle; the line D E being

placed so that the angle D E B = $60^\circ = 2 \angle$ C A B, E may be conceived to be the centre of a circle, and E D, E A radii; by producing A B, and describing a semicircle from E with the radius E A or E D, meeting A B produced in H, then by joining D H, D H E becomes an equilateral triangle, and it is divided into two equal right-angled triangles by the line D B; consequently E B = B H, and as E H = E A, E B = $\frac{1}{2}$ of E A; and E A being bisected in G by a former rule, A G = G E = E B.

By combining this with the first method of bisecting lines, we might proceed to divide any right line into a great number of equal parts.

As it is frequently required to determine a fractional part of a line, the following method cannot fail to satisfy those who have hitherto been accustomed to use their compasses for this purpose.

Let it be required to determine the $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, &c. of the right line A B.



From A and B draw the lines A C and B D parallel to each other, and inclined in any degree to A B, on contrary sides of it; mark off A C any convenient length, and on B D set off B E = A C, join C E intersecting A B in F, then will A F = $\frac{1}{2}$ of A B: from E draw B G at right angles to D B, and from B by the edge of any of the triangular instruments draw E G, and from G draw G H parallel to B D, and from E draw E 2 parallel to B G, and 2, 3, parallel to G E; proceed in this manner to determine any number of points in B D, as at 3, 4, 5, 6; join C 3 intersecting A B in 3', A 3' = $\frac{1}{3}$ of A B; join C 4, intersecting A B in 4', A 4' = $\frac{1}{4}$ of A B; join C 5, intersecting A B in 5', A 5' = $\frac{1}{5}$ of A B; join C 6, intersecting A B in 6', A 6' = $\frac{1}{6}$ of A B; by this simple process, may any fractional part of a line be correctly determined; and it will be much shortened by using one of the improved drawing scales described in number 20 of THE BUILDER; in order to plot off the requisite number of equal parts on the line B D, and that on A C.

In this operation, it will be perceived that as A C and B D are parallel, and A C = B E; the line C E forms two equal triangles, A F C and B F E, and as the angle C A F = E B F, so A F = B F = $\frac{1}{2}$ of A B. Again, as G H is parallel to B D, and 2, 3 parallel to G E; E 3 = G 2 = B E, or 3 B = 2 C A, and joining C 3 the line forms two similar triangles, A 3' C and B 3' 3; and as C A : A 3' :: 3 B : B 3', and as C A = $\frac{1}{2}$ of 3 B, so A 3' = $\frac{1}{2}$ of B 3' = $\frac{1}{3}$ of A B: in the same manner may A 4' &c. be shewn to be equal to the $\frac{1}{4}$ &c. of A B.

We might give numerous examples of the utility of this useful set of instruments, but trust that these will be sufficient to stimulate many of our readers to endeavour to apply to them all the purposes named in the former part of this article: it therefore merely remains to allude to the advantages that will result by using them whilst engaged in any of the various systems of drawing.

In the first place, by employing these instruments there will be no occasion to use the hair-spring compasses, in order to divide right lines into any number of equal parts; and in many cases, their use will be avoided even in dividing circular arcs; in fact, the compasses should seldom be employed, except in describing circles and circular arcs; for it must be distinctly understood, that by operating with the triangular instruments no punctures are ever made in the surface of the drawing, and

when it is requisite to describe circles from one centre, in many instances there will be no occasion to prick the drawing; for by placing a piece of thin transparent horn over the given centre, the compass point may be placed as correct as if it actually was placed in the real centre; by describing circles in this manner, the surface of the drawing will present an appearance which is seldom to be seen, and will in all cases add much to the effect, from whatever position it may be viewed.

Mechanical and engineering draughtsmen will find these instruments extremely useful for drawing parallel lines, and in describing squares, hexagons, and octagons, as small as they ever have occasion to form them. It was for the latter purpose that our correspondent, Mr. J. Smith, was induced to arrange his first set in 1834, so that he might the more readily execute the plans and elevations of several complicated machines.

Architectural draughtsmen will also find them equally useful for the purposes already named, and particularly whilst engaged in drawing the flutes of columns in the Doric, Ionic, Corinthian, and Composite orders.

Building artificers, cabinet makers, house decorators, and all who have occasion to design patterns of plane or ornamental work will be surprised to see the endless variety of outlines which they may speedily devise by these simple instruments.

We should have had great pleasure in explaining the methods of applying a few of the instruments in isometrical drawing; but as so few draughtsmen have had an opportunity of unravelling the principles of the art, we must patiently await a more favourable opportunity, in hopes that our proposed illustrations will be fully understood by the generality of our readers.

[By way of note, for the information of such of our readers as are not acquainted with certain abbreviations or signs used in the foregoing article, we take occasion to observe that the sign = signifies equal to; and in the case of F A : A G :: D B : B C, the dotted signs make the line read thus—F A is to A G as D B is to B C; the third sign made use of is the expression of an angle, thus \angle .

In the definition of the triangles, ° signifies degree, ' minute.

We have ascertained the cost of a set of triangles to be 2s., but as they weigh $1\frac{1}{2}$ oz. it will require 2s. 3d. to be forwarded to secure their transmission by post: we can only add that we shall be happy in being instrumental in so forwarding them to any parties in the country upon such remittance, or in otherwise assisting parties to become possessed of the implements.—En.]

WARMING AND VENTILATION.

TO THE EDITOR OF THE BUILDER.

SIR,—I am sorry to find in THE BUILDER of last week that Mr. Hope misunderstood my statement respecting the imitation of my ventilation plan in Whitecross-street Prison, I therefore feel called upon to disabuse the public mind, and more especially that of Mr. Hope, of any misapprehension of my meaning in protecting my science and the public against ignorant imitators.

Mr. Hope is very much mistaken in supposing that I meant to include him in that class, or that I myself belong to such a grossly ignorant and illiberal class of men as they who regard the working classes as inferior beings to themselves. I am sufficiently versed in both ancient and modern history, as well as in the biography of the wisest, most useful, and best of men, who have done honour to their species in all ages and I have myself had sufficient practical experience in the world, to know that true philosophers have never allowed their self-esteem to be so inordinate as to betray them into a sneer of contempt for any brother less learned, less fortunate, or less wise than themselves, although the "creative power" may have furnished them with comparatively superior facilities. I have been long satisfied that they who scornfully regard those really practical men, the labouring or truly productive classes, contemptuously shunning their society, or heedlessly spurning their opinions, are totally unworthy of that most noble though modest designation, philosopher, wise man, or lover of science; and the public may rest assured that they come not under that most estimable denomination, but are barely men, being distinguishable only as copyists, for good memory, and the imitative faculty.

The principle of ventilation introduced into Whitecross-street Prison was not with warm, but only with atmospheric air, through a chamber below

the floor, and through an upright flue, so that the cool air enters the room from above. This is the principle shown in my patent specification, in my own house, 1835, in the Earl of Lovelace's house, St. James's-square, in Battle Abbey, in Mr. Currie's house at East Horsley, in the Committee and Dining-rooms and Cloisters of the House of Commons in 1837, and in some other buildings here and on the Continent. I can prove through the printed Report of the Buildings Committee of the House of Commons (as mentioned in the last week's *BUILDER*), as well as by witnesses, professors of chemistry, physicians, architects, &c., that cold ventilation, constructed and acting like mine, did not before exist. Had such ever been in existence, surely some one at least of the members of Parliament, chemical professors, physicians, architects, engineers, &c., would have been aware of it. I cannot think that any judge in Great Britain would, at the present day, annul a patent right upon the mere evidence of one or two men, that twenty years ago they perforated a wall or made a flue for some indefinite purpose, through which the air had access to the room, but that it had not been appropriated to any particular use until now. Such disgraceful administration of *injustice* may have been in vogue long ago, but modern legislation has more wisely and justly annihilated such jugglery by substantial improvements in the law of patents. Mr. Hope, no doubt, in common with all other readers of your useful publication, will, after perusing the letter of the "Friend of Science," with Dr. Grant's testimonial, in *THE BUILDER* of last week, acknowledge that my ventilation plan is of some considerable value to the public, and that I should be remiss in my duty were I to neglect appraising them, that when imitators do not succeed in ventilating the rooms so perfectly as I myself have done, the fault does not lie in the principle, for they must of course ignorantly blunder, or craftily and prudently contrive to avoid a direct infringement on my patent right. This will sufficiently account for those variations which cause in them a *partial* failure. One of the leading principles of my patent is, *to warm several rooms with one open fire-grate. To ventilate with atmospheric air through upright flues* is also my exclusive right, being entirely my discovery. I have not the slightest objection to any person erecting a cold ventilation, like that fixed in the House of Commons before Dr. Read commenced his experiments with the coal-mine ventilation, for I confess I have as little right as Mr. Hope to arrogate to myself the honour of introducing the principle of warming with hot air. I saw the book of Professor Meissner, at Vienna, thirty years ago, wherein are introduced several drawings of apparatus for warming rooms and buildings with hot air, nevertheless his plan was no less imperfect than others, subsequently produced, somewhat similar, but varying in the shape of the apparatus. Professor Meissner has only the honour of having been the first to introduce the system of warming with hot air. Afterwards came Sylvester, Perkins, and many others with apparatus that, like Meissner's, produced a most suffocating atmosphere. Among the imitators was a royal Captain Angel, in Russia. Next to my own, I acknowledge his to be undoubtedly the best, on account of his greater use of atmospheric air than any of his predecessors; but, being defective in his knowledge of those laws which control heat and air, his apparatus was still very imperfect, inasmuch as it was productive of an air highly injurious to health. He was ignorant as to the right construction of fire-places to secure good draught for the smoke. As in the German stoves, with Dr. Alban's patent mercurial regulator of the air introduced here by Dr. Arnott, the smoke mixed with the air, and consequently made it as offensive as the others.

Fully to substantiate my statements, and to show that my science has furnished me power to correct the mistakes of others in this department of natural philosophy, I will subjoin a copy of the letter and certificate presented to me from the Lord Mayor and senate of Magdeburg in Prussia.

Mr. Hope states that he has cured a chimney, with "much trouble and expense." Why take the trouble? He says further, "Mr. B. seems to think very lightly of practical men, and that it requires a man to be a philosopher," &c. I trust I have answered this satisfactorily at the commencement of this letter, but I beg here again to repeat that he could not have been more mistaken as to my esteem for practical men, as I understand the term; and I assure him and all other readers of this paper, that a truly honest practical man stands as high in my estimation as any human being, however exalted his rank.

As a proof that a more perfect science was requisite than chemists and natural philosophers have generally possessed for warming and ventilating rooms and buildings perfectly, and constructing fire-places and chimneys without experiment, so as at once to effect the intended purpose, I will mention the following instance:—

During my residence at Berlin, an advertisement

appeared in a newspaper, from a lady, whose house I had entirely freed from smoke, after an annoyance of more than thirty years, despite of numberless experiments made every year, to get rid of it. His late Majesty's Lord Chamberlain having heard of it, sent for me, to his room in the palace. Here the secret counsel of the Lord Chamberlain, in the presence of four royal architects, thus addressed me:—

"We have read, in the newspapers, that you can remedy the mistakes made in the construction of fire-places and chimneys. The palace has been built more than four hundred years, and several of the fire-places have always diffused smoke in the apartments. The most scientific men in the country have exhausted their skill in experiments to remove the evil, but without success. Do you think yourself competent to the task?" When I had examined the different fire-places, I returned to the Lord Chamberlain, and assured his Excellency that I did not perceive any insurmountable obstacle to my success. The architects immediately received their commands, to execute my orders; and without any previous experiments on my part, I fulfilled my engagement with every fire-place, to most perfect satisfaction. See testimonial, No. 14 of *THE BUILDER*.

Such evils having been completely remedied by me in royal palaces, as well as in many private domiciles, I was afterwards invited to the General Post-Office, where I was shown a fire-place which three of the royal architects had vainly experimented upon.

Upon their first failure, a lady present at the time, informed the gentlemen that I understood this science perfectly, and advised them to consult me. This, however, the architects at first refused, saying that they understood the matter as well as I. But several more experiments having failed, the king's postmaster, to whom the kitchen belonged, asked them if they were prepared to make any further experiments, likely to be more successful. To this they replied in the negative, but at the same time advised sending for me. When I had seen the fire-place, I ordered a bricklayer to alter the hearth under my direction, which being done in about a day and a half, the fire-place then performed to the entire satisfaction of the royal postmaster and his lady. These facts show clearly that more perfect science was wanting than the professors were then able to teach; and that no dependence can satisfactorily be placed (in this matter) upon persons unacquainted with the laws discovered by me. Many persons, doubtless, succeed in curing smoky chimneys, in a course of experiments; as, for instance, Count Rumford, as well as others. By the way, however, Count Rumford did excel many others in one thing most indispensable to true science, that is, honesty. For, he has candidly stated in writing, that he had erected fire-places, which answered very well in some places, but that the same constructions when adopted in other buildings, although of similar dimensions, had failed! And he was unable to discover the cause of this anomaly! Mr. Hope informs the public that he has fixed an apparatus for drying hides, but omits saying where.

Hundreds of persons have fixed drying apparatus, and in many cases succeed sufficiently to satisfy their employers. I have the pleasure to inform the readers of this, that apparatus now exists, with which all sorts of material or manufactured goods may be dried as well in the damp of winter, in the shortest possible time, with the smallest supply of fuel, as in the atmosphere of the summer solstice! In 1837, Mr. Cubit constructed the chambers and flues for warming and ventilating the Earl of Lovelace's house, in St. James's-square, on my patent principle. His lordship required some apartments to be dried immediately for use. Mr. Cubit ordered his foreman to erect one of the German stoves called Arnott's, of the largest size, to dry the front drawing-room. The stove was fixed, and a fire kept in day and night for three weeks; but there appeared not the least sign of drying—this I had foretold when the stove was being fixed. My apparatus, with chambers and flues, was then ready for use, and the last room, the servant's hall, was being plastered, when my apparatus was put in operation. In three weeks the whole building, from the basement to the roof, was so perfectly dry, that his lordship's physician advised Lady Lovelace to enter upon it immediately, for her confinement. Some time before this, an apparatus was erected at Battle Abbey, and a room 58 feet long, 21 wide, and 13 high, with 4 feet thick stone walls, and arched, was perfectly dried in four days. Every attempt made during seven centuries to dry this room had failed, and it was generally affirmed, but particularly by the builder under whose direction several attempts had been made, that it was totally impossible to dry this room with a warm apparatus. When Mr. Barry accompanied one of her Majesty's Commissioners of Woods, &c. to the Earl of Lovelace's house, to shew him my warming and ventilation plan, the said commissioner was so well satisfied,

that he ordered Mr. Barry to introduce it in the committee and dining rooms attached to the House of Commons. The baronet, however, asked me if I believed it possible to dry the late speaker's dining-rooms, and to remove the noxious smell. Without having seen the building, I assured him that should I not succeed, I would not charge one farthing; Mr. Barry being present, undertook to risk 1,143*l.*, the amount of the contract, on an engagement which I had never before performed.

My patent principles are adopted in both Houses of Parliament. In the New Model Prison my patent ventilation is well executed, and in excellent action, to the entire satisfaction of the gentlemen and also of the unfortunate prisoners. It is certainly agreeable to me, that my patent principle and specification happen to be so clear, as to be understood by the government officers; for this indeed does credit to my discovery. It has, however, been adopted without my knowledge or consent. Certainly, I have now the satisfaction of stating that I can prove, both scientifically and practically, that no public building or private apartment can be ventilated to the highest degree of perfection and wholesomeness, without somewhat infringing upon my patent principles. I venture to challenge the whole scientific world to produce a man sufficiently skilled in my science, to warm in twenty-four hours, one million and a half cubic feet of air, with the same quantity of fuel, as was done with my apparatus in the committee-rooms of the House of Commons in the cold winter of 1837 to 1838.

In a future article I purpose treating on smoke purification and cold ventilation, the latter of which is effected without fire or machinery.

I now conclude with the Magdeburg Senatorial Testimonial, and a letter from Mr. C. Barry, architect. With warmest thanks for your liberal insertion of my last communication, and apologizing for my still greater length of this, and hoping that your valuable paper may be the means of greatly improving and widely diffusing valuable scientific and architectural knowledge to the world, with advantage and credit to *THE BUILDER*,

I remain, Sir, yours most respectfully,
June 1, 1843. F. A. BERNHARDT.

See also *Mechanics' Magazine*, No 722, June 10, 1837. A letter from Mr. T. Griffin, Cheltenham, on Bernhardt's Warming and Ventilating Process.

P.S.—In answer to Mr. Spencer's remark upon the calculation of the atmosphere in the dining-room of the House of Commons, I have to state, that the mentioned change of air was shewn in one of the dining-rooms containing about 8,000 cubic feet of air. If the calculation had been made from the five rooms and passage, which the said apparatus has to warm, the whole of which amounts to about 50,000 cubic feet of air, then would the amount be 14,000,000 cubic feet.

The rapid change of temperature every five minutes, however, cannot be effected without the use of cool air, therefore the calculation of one million and a half of warm air for one room, is correct; and the mistake made consists in not mentioning that the said change was shewn in one room, and that the said apparatus is sufficient to warm eight or nine millions of cubic feet of air in twenty-four hours.

July 12, 1843.

In answer to Mr. Spencer's letter of last week, I hope he will be satisfied with that now before him; and I have only to remark, that his charge against me about the Custom-House ventilation is a very great mistake; and I assure the readers of this valuable Journal that I had nothing whatever to do with the warming and ventilation in the Custom-House.

I have, however, been told by some of the gentlemen in the Long-room of the said house, that the condemnatory statements respecting the atmosphere of the said room, made by Dr. Ure, are perfectly true. Some of the above-named gentlemen examined my ventilation plan in the Earl of Lovelace's house, and, quite satisfied, begged of me to invite her Majesty's Commissioners of Customs to inspect the said ventilation, believing that they would be as well satisfied as themselves, and would authorize me to introduce my plan in the Long-room. A friend of mine invited the said commissioners, but was unsuccessful, and the German stove, with enclosed fire, has been put up to warm the said room. It is generally known that the said stoves never ventilate the rooms; and, in many instances, produce a poisonous atmosphere.

The former apparatus (which Dr. Ure so condemned) for warming and ventilating the Long-room, was Mr. Sylvester's plan.

As I do not know any building for which I charged £400 for my patent apparatus, I hope Mr. Spencer will name the building.

We have been unable to find space for Mr. Bernhardt's communication before, and even now are obliged to curtail it; but in justice to

THE BUILDER,

NO. XXIV.

SATURDAY, JULY 22, 1843.

STATE OF THE IRON AND GENERAL MINING TRADE IN STAFFORDSHIRE.

THIS is a matter which is forcing itself upon our attention, and yet it is hardly right that we or the general public should require the peculiar force to which we advert to bring us to the consideration of so momentous a subject. Whole counties of people, and, taking them in the aggregate, an extensive province, are dependent on the iron trade, and the iron trade upon building and engineering structure. Can we be indifferent, then, to that severity of pressure under which so important a section of the building interests are suffering? We cannot, and henceforth it devolves upon us to apply our best ability to the question of remedial measures, in which purpose we shall be happy to be seconded by the practical and coincident views of any gentleman connected with the interests or the districts alluded to.

It is not now for us to inquire into the many and complicated causes that have produced the distress. We think at such a time this sort of inquiry is the most cruel and inconsiderate, not to say insulting—it is besides absurd—and sorry are we to find the influential public papers engaged in this sort of criminative abuse. Because, forsooth, a general stupor has overcome all our industrial interests, and that this of the iron trade is suffering perhaps most largely and severely in it, a consultation of "Job's comforters" is to be held, to outbid each other in revilings. The once glorious and much-boasted mercantile and manufacturing prowess of the "iron masters," their indomitable spirit of enterprise, which it was said (and said to nauseating, when we contrast it with present croakings and revilings), was the substance and spirit of our country's greatness; this! this is all forgotten now, or stigmatized as the madness of speculation, as having proceeded from a spirit of lustful ambition, of ill-calculating purpose, and the like, and master and men are bidden to sit on the dunghill of their present reproach to be mocked and spat upon by their own extravagant adulators. Forgive us, good readers, if we wax warm upon this subject; if we, who saw the vulgar eye fascinated by the glitter of seeming prosperity, find it now difficult to restrain ourselves, when that same eye greets the obverse of the bauble of its admiration with scornful and contemptuous glance, scanning even the *surfaces* of the objects of its contemplation, and "kenning" never that which lay in the depths, which still lies there, which is of sterling and undying value. Forgive us! it is not our wont to be ruffled with trifles, but here is an impugning, and a revolt against the sovereign virtue and worth of hundreds of thousands of the choice of British industrial interests; and we are, in truth, shocked at the caprice, to say the least of it, of our "best possible instructors," of whom if we say anything too harsh, we humbly and earnestly entreat their pardon.

Not to dwell, however, upon this ungrateful topic, or branch of our topic; not even to take up the opposite, and, as we would contend, the true side of the argument, and to assert the blamelessness, the utter and absolute blame-

lessness of the sufferers,—not to insult them by a defence, or demean ourselves by whining and childish condolences—we turn our attention, as we would have our mining and manufacturing friends turn theirs, at once and resolutely to the question of sound and practical remedial measures, to be deliberately taken in hand, and when taken in hand, to be perseveringly, steadily, and energetically pursued.

Let us not hope for any great panacea of promise, any marvellous portents of sudden deliverance; the relief, to be of a satisfactory nature, must be administered in small doses, with frequency, and on numerous hands. We are not to prescribe to a ministry, or to foist ourselves into a seat of ambitious counsellings; but we do humbly think that different views of the treatment of this important question may be taken by those at the helm of power, and those for whom power is required to exercise its influences; and for the present we will confine ourselves to two points, not for the first time mooted, though, perhaps, we may present them in a different way.

The first is the question of railways for Ireland. Railways for Ireland would be good for Ireland; but how much more beneficial, in present effect at least, to England; and herein it was that the great mind of England's premier seemed to us to be particularly at fault in a late discussion, when dealing with the suggestions of Lord Howick and others for the promotion of a peace and prosperity engendering policy for Ireland.

We are not yet prepared to become politicians, good readers, however near it may appear that we are touching upon it, but so much was necessary to induct us in an argument for the resuscitation or relief of the Iron trade.

The amount has been variously stated, and, in fact, can only be guessed at; but the sum of eleven millions has been put forth as that which the Irish railways would absorb; and then we have heard it objected to, by what we deem a one-sided consideration of the question—considerations as to how far Ireland was prepared for such extensive improvements, or would repay such an extensive outlay. The question was not put, or did not seem to us to have its proper weight assigned to it, first, how Ireland was to work its own proper and good account without such roads, and next how England—with its great machinery for road manufacturing, for iron roads and their various appliances and appurtenances—was to be sustained without a watchful and methodical continuance of the making of this new staple in trade, if we may so call it, of her people.

We have heard it said of the late Lord Castlereagh, that rather than keep the people in his parish unemployed, or pay them a pauper allowance for idling or walking about, he directed that they should dig holes and fill them up again, and we have always been less tempted to consider this a folly than the common plan of administering parish relief; but siding with neither, we thought it the duty of a great minister of a paternal government to be ever watchful against times of industrial depression, and that his capacity for rule would be best, and in no wise properly evinced, unless, with a skilful hand, he kept the balance of his sovereign's faithful and industrious dependents somewhat steadily poised—throwing in the make-weight of a legitimate influence of encouragement when this or that section or interest threatened to kick the beam. If we were right, and are still so,

then we take leave to contend that this is one of two or three serious calls for the exercise of his functions, and that he would be supported in its exercise by men of all parties; that, in fact, party would cease its functions in a cheerful purpose of unanimity, and that railways for Ireland, to poise her interests, to poise the interests of British labour and capital invested in, and dependent upon, such productions, if we may so call them, would be promptly and cheerfully acquiesced in by all. And this is not digging holes to fill them up again. Let never so little be done, it is to keep the wheel turning—it is, without a metaphor, to keep the furnace blowing—it is to prevent the rust of machinery and the corrosion of men's hearts—it is to distribute bread and bread's worth, while the non-distribution famishes, impoverishes, and bears down with merciless wrath. Of eleven millions, or the half of eleven millions of money spent in this manner, England would reap or retain the lion's share, but England and Ireland would be fed upon better than a dole, and experience better than a dole's fruition. Let us hope that without further of our own weak enforcements, this subject may speedily claim and obtain its due consideration.

Another point that requires attention may be managed by and among the iron-workers themselves. We have lately seen notices of a plan or suggestion by, we think, a Mr. Maclellan, for promoting the study of the arts of design, with a view to the introduction of iron-work more largely into the ordinary class of buildings; but the way in which he advocates it, would, we think, lead to little, if any thing of a remedy; it would, in fact, be something like "robbing Peter to pay Paul." It is to encourage designers and inventors to produce plans for substitution of iron in many cases for wood; that is, to substitute the services of Paul, the iron-worker, for Peter, the carpenter, and that Peter should be thrown upon any shift, no matter what, to serve himself. This is too much of the fashion of our working now-a-days. What is done should be done by the building crafts (among whom we of course enumerate the iron-worker) in concert, as though they acted in concert, not competing or undermining one another, but in the true spirit of brothers and as members of one large family of mutual and dependent interests.

Let the taste be cultivated, and not mere invention set on foot. Invention is the exercise of an ingenious mind; but there is such a thing as inventing mischief,—taste, and here we may assign to it a wide province—takes cognizance of sound judgment, good feeling, propriety. Let invention be guided by taste of this calibre, and we have no fear for the result. Invention will then look out for unoccupied fields of enterprise and usefulness,—it will carry blessings in its train,—it will supply genuine wants, and not thrust in where there is already an over supply.

A great deal is to be done that is not done, and not thought of, and much of it in iron-work. But the public taste must be formed, and not that alone of the artists and artificers. New fields, as we have said,—nay, we may speak more strongly,—new worlds of and for useful and advantageous labour, remain to be created. MAN, in the true direction and cultivation of his faculties, is a prime agent in this work of creation. GOD, directing all, will give to his people new and profitable desires, or wants, as he gives a legitimate and wisely-formed power of supply. He opens not mountains of gold without a purpose in its appropria-

LECTURES ON ARCHITECTURE AND ANTIQUITIES.

TO THE EDITOR OF THE BUILDER.

SIR,—In the xlii. chapter of Genesis we find recorded the great trial of Abraham's faith, who built an altar whereon to offer his son Isaac on Mount Moriah, where was afterwards erected by Solomon the great Temple. After this event the Patriarch went to Beer-sheba, where he had planted a grove (Gen. xxi. 33), and where he must have built an altar, which is implied from its being stated in the same verse that he "called there on the name of the Lord, the everlasting God." The planting of groves near altars appears to have been adopted into the idolatrous worship of the Canaanites, and for this reason doubtless it is that we find a divine command was given, when the Israelites came up out of Egypt against this custom, "Thou shalt not plant thee a grove of any trees near unto the altar of the Lord thy God, which thou shalt make thee." (Deut. xvi. 21). From Strabo we learn that "It was so common among the Pagans to erect altars and temples in groves, and to dedicate them to religious uses, that all sacred places, even those where no trees were to be seen, were called groves." (Geograph. lib. ix.) This practice was thought to have been introduced into Greece from Phœnicia, by Cadmus (Potter, Grec. Antiq.). We find frequent allusion in Holy Writ to groves, as connected with false worship.

In Genesis xxv. (v. 16), after speaking of the sons of Ishmael, and mentioning their names, it is stated, "these are their names, by their towns, and by their castles, twelve princes, according to their nation." After a lapse of thirty-seven centuries, we behold in the Arabian inhabitant of the desert at the present day the same customs, the same dress, and the same manner of living which marked the children of Ishmael; wild, and lawless, and roving, they live by plunder, and as their hand is against every man, so is every man's hand against them (Gen. xvi. 12); yet they have always preserved their independence (thus fulfilling the rest of the prediction, "he shall dwell in the presence of his brethren"). Accordingly, neither the Assyrians, nor the Egyptians under Sesostris, nor the Persians under Cyrus, would subdue them, they alone disdained to acknowledge the power or court the friendship of Alexander the Great; neither were the Roman arms more successful under Pompey, Trojan, or Severus; and in more modern times, neither Christian, Turk, Mameluke, nor Tartar has been able to make any impression upon them; whilst their own conquests, under the guidance of Mahomet and the Caliphs, are the most rapid and astonishing on record. The state of continual warfare in which they were placed would oblige them to have some kind of fortification and inclosure within which they could remove their families and cattle in safety, when threatened by an incursion from a hostile tribe, and this species of building is perhaps meant in the verse quoted above; for their usual habitations formerly, as now, were tents, the most suitable dwellings for wandering tribes, whose chief wealth lay in cattle, and who would hardly erect any very substantial buildings, when the failure of pasture or the want of water for their numerous flocks and herds might oblige them frequently to change their place of abode; their tents, easily constructed, were easily transported, being formed of a few upright poles, covered chiefly with the skins of animals; and the residence of the chief of a tribe was only distinguished from others by the central situation, or, as at this day, by the spear placed in front of the tent. Such simple habitations would suffice also for other nations as long as their possessions consisted chiefly of flocks and herds, and they were simple in their wants; but when they became masters of gold and silver, they would be induced to render their dwellings more secure, by making them more substantial, to preserve their wealth from the rapacity of unfriendly neighbours, and assembling in large numbers for mutual protection, they would confine themselves within certain limits, which they would fence round with walls of such materials as could be most readily procured; this inclosed space would constitute a city. We will now return to the history of Abraham, when we shall find that, in addition to the proofs of piety he displayed in raising various altars for the service of his Creator, he also provided a place of burial for his family. The transaction is altogether one which merits attention. In Genesis xxiii. it is stated that Sarah died, and that Abraham spake unto the sons of Heth, saying, "I am a stranger and a sojourner with you, give me a possession of a burying-place with you that I may bury my dead out of my sight." The generous stranger wished Abraham to bury his dead in "the choice" of their sepulchres, but the patriarch besought them to use their interest with Ephron to sell him for its worth the cave of Machpelah. Ephron wished Abraham to accept the piece of ground at his hands, but he, who had on a former occasion (Gen. xiv. 23) refused "to

take from a thread even to a shoe-latchet," lest any one should say, "I have made Abraham rich," rejected the generous offer, and the friendly contest was closed by his paying to Ephron 400 shekels of silver (equal to about 60*l.* sterling of our money, according to Dr. Prideaux), and this purchase included "the field of Ephron and the cave which was therein, and all the trees that were in the field, that were in all the borders round about," and this property "was made sure unto Abraham for a possession in the presence of the children of Heth before all that went in at the gate of the city" (v. 18). Moses was no doubt very particular in his account of the sepulchre which the founder of the race of Israel purchased, from the natural interest which his descendants would take in any event connected with their illustrious progenitor, and that great importance was attached to the possession of this sepulchre we may gather from the fact, that besides its first occupant Sarah, in it was buried Abraham himself, on which solemn occasion Ishmael, laying aside the remembrance of his wrongs, even assisted his brother Isaac in paying the last duties to their father (Gen. xxv. 9); that the same mournful service was performed in the same place by Esau and Jacob for their parent (Gen. xxv. 29); that the patriarch Jacob, when in a strange land, made it his earnest request to his favourite son Joseph, "If now I have found grace in thy sight, first, I pray thee, thy hand under my thigh, and deal kindly and truly with me; bury me not, I pray thee, in Egypt; but I will lie with my fathers, and thou shalt carry me out of Egypt, and bury me in their burying-place. And he said, I will do as thou hast said. And he said, Swear unto me; and he swore unto him." (Gen. xlviii. 29, 30, 31). And on his death-bed the aged Israel alludes to this promise that he should be laid in the burial-place of his forefathers, "There they buried Abraham and his wife Sarah; there they buried Isaac and Rebekah his wife; and there I buried Leah." (Gen. xlix. 31). Thus we see were the remains of the three great patriarchs and their wives deposited in this tomb, which will sufficiently account for the veneration with which it is regarded by the Jews and by the Saracens, who claim an equal interest in Abraham as their common father.

We find that Isaac only built one altar, viz. at Beer-sheba (where his father planted the grove). (Gen. xxvi. 25). This is mentioned in close connection with the digging of a well in the same place. In a country like ours, where water is so abundant, persons are apt to attach too little value to that element from the circumstance that it is easily procured. But in the dry and sandy regions of Asia the possession of it is of the highest importance, since the privation of it amounts to positive calamity. Quarrels frequently arose between the herdsmen of different flocks who strove to secure for their own charge the precious possession of a well. Thus Abraham and Lot parted in consequence of a strife between their servants. (Gen. xiii. 7). Abimelech's servants also "violently" took away a well from Abraham. (Gen. xxi. 25). We observe in the 26th chapter of Genesis, that the Philistines, out of envy (v. 14) of Isaac's great wealth, had stopped up and filled with earth all the wells which his father had digged (v. 15), and that when Isaac digged them again (at Esau, v. 20, Sitnah, v. 21), the herdsmen of Gerar strove for them with Isaac's servants, which altercation occurring more than once, Isaac removed to Beersheba, where he built an altar, "and called upon the name of the Lord, and pitched his tent there" (v. 25); and there his servants digged a well. In continuance of the narrative two circumstances are mentioned which seem to have resulted from the Divine favour shewn towards him in consequence of his having built the altar as above described (which ceremony he appears to have neglected on former occasions of digging wells). In the same day he received a visit from the King of the Philistines, who came to make peace with him (v. 26) and also the welcome information was imparted to him, that his servants had been successful in finding a supply of water in the well which they had digged (v. 32).

In Jacob's eventful history are several interesting particulars connected with our subject. The first is the setting up of the pillar at Beth-el. He had been sent by his father into Mesopotamia unto Laban his maternal uncle, and in his way thither, "he lighted upon a certain place, and tarried there all night, because the sun was set." (Gen. xxviii. 2.) The meaning of this is, doubtless, that the gates of the city were closed when he arrived there, and admission within the walls being refused to him as a stranger, he was obliged to take up his abode for the night in the city porch, "and he took off the stones of that place, and put them for his pillows, and lay down at that place to sleep." (v. 2.) And it was here, on the very spot, where he was unfriended and houseless, that he was visited by the remarkable dream of the angelic ladder, and that the promise of Almighty protection was vouchsafed to him. It was a memorial, therefore, of his gratitude, that Jacob erected the pillar whereon he

had rested his head during the wonderful vision, and he accompanied the act with a vow, that if he came "again to his father's house in peace," the Lord should be his God (v. 21), and this stone, which I have set up for a pillar, shall be God's house." (v. 22.) At the time it was set up for a pillar it must be considered as nothing more than a memorial, because we shall find that when Jacob did return to Beth-el with his family, he there erected an altar. (Gen. xxxv. 7.) One circumstance remains to be noticed, viz. that Jacob, when he set up the pillar, "poured oil upon the top of it" (Gen. xxviii. 18), a very early mode of consecration, from which fact, and from the name of the stone itself, we will endeavour to trace an analogy between this pillar and various structures, which are to be found at the present day in other countries. There are some large single stones still remaining in Cornwall which were erected by the Phœnician miners, and which still retain the name of *Bolhal*. The cromlechs in Ireland are called *Both-al*, which has the same meaning as Beth-el, viz. "the house of God." The stones placed on the tombs of the dead by the Greeks were called by them *Bairōlas*, or *Bairōliai*; (*bairōliai*) and Potter, alluding to this circumstance (Antiq. vol. i. p. 226), says, "some are of opinion that their true origin is to be deduced from the pillar of stone which the patriarch Jacob erected at Bethel." The general name *Bothal* is given to most of the cromlechs, and single unheaved stones, in these islands. The Hindoos, at this day, pour oil on their Pandoo-Koolies, and the Phœnicians called these stones, *meu-ambres*, or the anointed stones. We may, perhaps, trace the name of a town near the great Temple of Stonehenge, from this circumstance, viz. Amesbury, or Ambres-bury, that is, the city of the anointed stones. It will not be a waste of time at this stage of our inquiry, having seen the coincidence of names, to ascertain by whom the custom of dedicating these stones of memorial was spread abroad and introduced so generally. For they are to be found in India, on the shores of the Mediterranean and Red Sea, in France, in Spain, in Germany, Denmark, Sweden, and Norway, and, as we have seen, in these islands. The striking resemblance which they bear to each other in purpose, though found in places so remote from each other, cannot be accounted for, unless they are presumed to have one common origin. For that origin we must look to the Phœnicians, the most celebrated and adventurous navigators of antiquity. The Syrians had a settlement at Utica, on the southern coast of the Mediterranean, another in Spain at Gades, now Cadiz, the Scripture Tarshish and Greek Tartessus, and one in Cornwall, whence Tyre had its tin. (See Ezekiel xxvii. 12.) Wherever they went, they left indelible traces of their footsteps behind; the very names of countries are now the same as were bestowed by them, and therefore it is that we still find remnants of their superstitious in the piles which were raised to the worship of Baal and the host of heaven, those

— "stones of power

By Druids raised in magic hour," which are seen to this very hour in the Temples of Stonehenge, and Abury in Wiltshire, at Rollrich in Oxfordshire, at Stanton Drew in Somersetshire, at Carnac in Brittany, and in the numerous single stones which are scattered over many of the northern countries of Europe. At Redstone in Yorkshire, is an immense single stone, which is twenty-four feet out of the ground, and it is supposed as much below; it is computed to weigh between forty and fifty tons.*

When Jacob departed with his family, unknown to his father-in-law, he came to Mount Gilead (Gen. xxxi. 21), where he was overtaken by Laban, and here they made a covenant together. "And Jacob took a stone and set it up for a pillar, and Jacob said unto his brethren, Gather stones; and they took stones and made an heap, and did eat there, upon the heap." (Verses 45, 46.) "And Laban said to Jacob, Behold this heap, and behold this pillar which I have cast betwixt me and thee; this heap be witness, and this pillar be witness, that I will not pass over this heap to thee, and that thou shalt not pass over this heap and this pillar unto me, for harm." (Verses 51, 52.) In times when written language was not yet introduced, we can readily imagine that this *Gilead*, or heap of witness (Verse 45), would be an impressive monument for many succeeding ages, of a covenant between two great contracting parties, and that the materials of which it was composed would render it as enduring as any memorial which could be devised.

After his friendly reception from his brother Esau, we find that Jacob journeyed to Succoth (*i. e.* *Booths*), "and built him an house, and made booths for his cattle." (Gen. xxxiii. 17.) In the next verses it is said that he came to Shechem, a city of Shechem, "and pitched his tent before the

* We are sorry by a mischance to be compelled to defer the engravings for this week.

city; and he bought a parcel of a field, where he had spread his tent at the hand of the children of Hamor, Shechem's father, for an hundred pieces of money; and he erected there an altar, and called it El-beth-el." (Verses 18, 19, 20.) Here, as we learn from Joshua xiv. 32, were buried "the bones of Joseph, which the children of Israel brought up out of Egypt," in accordance with his injunction. (Gen. l. 25.) And it was in this spot that our Saviour conversed with the women of Samaria. "Then cometh he to a city of Samaria, which is called Sychar, near to the parcel of ground that Jacob gave to his son Joseph. Now Jacob's well was there." (St. John's Gospel, iv. 5, 6.)

When the rupture took place between the Shechemites and his family, Jacob received the divine command (Gen. xxxvi.) to return to Beth-el, and dwell there, and to make there an altar, which he accordingly did, "and called the place El-beth-el." (Verse 7.) On the occasion when the Almighty renewed his promise to Jacob, and changed his name to the more glorious one of Israel, the patriarch "set up a pillar in the place where he talked with him, even a pillar of stone, and he poured oil thereon." (Verse 14.) This appears to be a different pillar from the one emphatically called Beth-el, though, like that, erected to serve as a memorial. The next act recorded of Jacob is his setting up a tribute of affection over the grave of his favourite wife Rachel, who was buried at Bethlehem: "and Jacob set a pillar upon her grave; that is the pillar of Rachel's grave unto this day." (Verse 20.) To this monument we shall have occasion to allude hereafter. Jacob now journeyed on until he came to Hebron or Mamre, evidently the chief family residence, where Isaac then abode, and here Jacob's wanderings terminated for the present, and he remained to soothe the descent of his aged parent to the tomb, in which he was laid by the united care of Esau and Jacob.

Our subject receives little further illustration from Holy Writ, from the time that the Israelites went down into Egypt until their Exodus; mention is made that they were employed by their taskmasters in making bricks; "and they made their lives bitter with hard bondage, in mortar and in brick." (Exodus i. 14.) Josephus says that the Egyptians enjoined them to build walls for their cities and ramparts; "they set them also to build the Pyramids." (Antiq. b. 1, c. 9.) Moses says, "and they built for Pharaoh treasure cities, Pithom and Raameses." (Verse 11.)

G. R. F.

DESCRIPTION OF THE ROOFS OVER BUCKINGHAM PALACE, COVERED WITH LORD STANHOPE'S COMPOSITION.

By PETER HOGG, Assoc. Inst. C.E.

THE mixture invented by Lord Stanhope, and used by the late Mr. Nash, for covering the nearly flat fire-proof roofs of Buckingham Palace, is described in the paper as being composed of Stockholm tar, dried chalk in powder, and sifted sand, in the proportions of three gallons of tar to two bushels of chalk and one bushel of sand, the whole being well boiled and mixed together in an iron pot. It is laid on in a fluid state, in two separate coats, each about three-eighths of an inch in thickness, squared slates being imbedded in the upper coat, allowing the mixture to flush up between the joints the whole thickness of the two coats, and the slates being about an inch. The object in imbedding the slates in the composition is to prevent its becoming softened by the heat of the sun, and sliding down to the lower part of the roof, an inclination being given of only one inch and a half in ten feet, which is sufficient to carry off the water, when the work is carefully executed. One gutter, or water-course, is made as near to the centre as possible, in order to prevent any tendency to shrink from the walls, and also that the repairs, when required, may be more readily effected. It is stated, that after a fall of snow it is not necessary to throw it from the roof, but merely to open a channel along the water-course, and that no overflowing has ever occurred; whereas with metal roofs it is necessary to throw off the whole of the snow on the first indication of a thaw. These roofs have been found to prevent the spreading of fires, and it is stated that on one occasion, to test their unflammability, Mr. Nash had a bonfire of tar-barrels lighted on the roof of Cowes Castle. Another advantage is stated to be, the facility of repair which the composition offers, as if a leak occurs it can be sealed and rendered perfectly watertight by passing a hot-iron over it; and when taken up, the mixture can be remelted and

used again. The author proposes to obviate the disadvantage of the present weight of these roofs by building single brick walls at given distances, to carry slates, upon which the composition should be laid, instead of filling the spandrels of the arches with solid materials as has been hitherto the custom. The reported failures of this species of covering at Mr. Nash's house in Regent-street, and in other places, are accounted for by the composition having been used in one thin coat, laid upon an improper foundation of laths and tiles. The durability of the roofs which were carefully constructed with good materials, has been, it is contended, fully proved at Lord Palmerston's house, which was covered with the composition in 1807; Lord Berwick's, in 1810; Sir James Langham's, in 1812; the Pavilion, at Brighton, in 1816 and 1823; and nearly the whole of Buckingham-palace, in 1826 and 1829; the latter roofs are stated to be in perfect order at the present time, and have scarcely demanded any repairs since their completion. The paper is illustrated by a drawing shewing the mode of constructing the roofs, and the improved method proposed by the author, with specimens of the composition, with slates imbedded, taken from the roof of the Palace during some recent alterations.

Mr. Poynter presented a drawing of the mode of setting the pots for melting and preparing the composition, the proportions of which he stated somewhat differently from those given in the paper. Three measures of ground chalk, dried and sifted very fine, were mixed and kneaded up with one measure of tar; these ingredients were melted in an iron pot, set in such a manner that the flame should not impinge too violently upon it. The first, or "skimming" coat of the covering, being laid on of a thickness of 3-16ths of an inch, the finishing coat was composed by adding to the former mixture three measures of hot sifted sand, well mixing the whole together; the composition was laid on with a tool similar to a plasterer's trowel, but much stronger. Mr. Nash, when he first tried the composition, found that the surface became disintegrated by exposure to the weather; he, therefore, added the slates imbedded in the second coat, and subsequently never used the mixture without them.

In reply to questions from the President and other members, Mr. Nixon stated, that he was employed under Mr. Nash when the Palace roofs were executed, and he could bear testimony to their durability and soundness. The roofs at East Cowes Castle, which were covered with the composition in the year 1808, and those of the Pavilion, at Brighton, in 1816, were now in as good a state as when they were finished. The failure at Mr. Nash's house, in Regent-street, arose from the roof having been originally composed of mastic, which soon cracked. One coat of the Stanhope composition was spread over it to stop the leaks, but it was insufficiently done, and ultimately Mr. Rainy had a new roof, properly constructed, with two coats of composition, which had remained sound to the present time. The price of these roofs, when well constructed by the person who did those of the Palace, was about five guineas per square.

Mr. Hogg observed, that the chalk was only exposed to such a heat as would evaporate any moisture it contained. The weight of the two coats of Stanhope composition, including the slate imbedded in it, was about twelve pounds per superficial foot.

Mr. Sibley considered the Seyssel asphalt, when carefully laid, preferable to any composition of a similar nature; he had used it extensively, and was well satisfied with it both for roofing and paving.

Mr. Hogg objected to the use of asphalt for roofing, as it was liable to injury, being of a brittle nature; it was not elastic, and it shrunk from the walls, thereby causing leaks. Lord Stanhope's composition did not possess these faults, and he did not consider that it was superseded by asphalt.

Mr. Moreland had covered the roof of the treadmill at the Giltspur-street Compter with asphalt and had found it answer perfectly. It was laid on in a thickness of three-eighths of an inch thick, upon roofing boards three-quarters of an inch thick, with canvass nailed on them; with an entire fall of only nine inches, there was not any appearance of leakage.

Mr. Davison had caused a school-room to be floored with asphalt four years ago, and up to the present time there was no symptom of wearing down, although the stones, which were let into the floor for supporting the desks, &c., were considerably abraded. He believed that the only failures of the asphalt had occurred from the use of inferior ingredients. Gas tar had been used instead of vegetable tar, and in those cases the result had not been successful.

A FEW NOTES UPON A MUCH WORN SUBJECT.

WHILE so many are ready to condemn, few are found to come forward and advocate the cause of Gothic architecture. Though it is openly practised as an art generally by the profession, yet it has not the sanction of the Professor of the Academy.

Most of the reasons urged against it are as foolish as they are erroneous; they say, that Gothic architecture (as they persist in calling it) is not founded upon reason—that it is not governed by principles, that it is devoid of beauty. They say, look at your columns; how uncertain their proportions; varying from five to a hundred and fifty diameters in height—what reason is there in this? You will not find this uncertainty in the Greek or Roman orders; they were designed with reason—the form of a man was the model upon which they founded the proportions of their orders. The Gothic architects were devoid of reason; they formed in stone what they saw in wood, viz. they took their ideas from the vegetable world. Their cathedrals give the idea of an avenue of trees, of budding foliage.

Now, supposing this hypothesis to be correct (but which I do not allow, however much I may be in opposition to many eminent writers on this style), is there not more reason in seeing an avenue of trees solidified—for they own the individual parts are taken from the vegetable world—than the idea of a Greek Temple, the columns being founded on the proportions of a man? If such be the case, why not carry out the idea and make their *tout-ensemble* bear some relation to their parts?

With all due submission to the learning and abilities of the Rev. J. Dallaway, I must beg leave to differ with the following passage taken from the "Discourses." "If in architecture, taste consist in a just relation of parts in forming a whole, which accords with the idea we give to the orders, and the choice and distribution of ornament be imitated from the rich or simple beauties of nature, it is certain the Gothic architects, of whatever country they may have been, have shewn much ingenuity and skill, but no taste. For we may observe in the Gothic how totally the rules of classical architecture are violated or forgotten, notwithstanding there is a character of originality which, in its general and complete effect, surprises till we become enchanted with its influence."

In considering the first part of the doctor's passage, we shall find that having but one idea of beauty, and that derived from the classic orders, he consigns all those architects who presume to depart therefrom, to everlasting perdition, viz. excommunication from the regions of taste. In the second place, it is evident that the doctor has judged of the beauty of the ecclesiastical English by the "rules of classical architecture," forgetting that this style has rules and principles of its own, and being governed by those rules and principles, its beauty is not to be judged by the rules of another style, for classical architecture is proportioned, or rather takes its proportions, from its columns; not so the ecclesiastical English—the column is merely a part of the whole, not a main feature as in the classic.

In the last part of this passage the doctor says, that notwithstanding its violation of the classical rules, yet it possessed a character of originality which, in its general and complete effect, surprised and enchanted by its influence. Now, if any thing can have the power, by its influence, to surprise and enchant, it must be acknowledged to possess beauty in a very great degree, however far that style of beauty may be from another; for we may observe, for instance, that a jewel may be very beautiful, and yet another may be just as beautiful, although not possessing the same form as the other. Carter, in his "Lecture on Taste," says, "Whatever may be the fact with regard to these particulars, it seems certain that the Gothic architecture is a proper object of genuine taste, since that which is almost universally allowed to be attractive and interesting cannot be destitute of beauty."

J. L. C.

The new bank now building in Thromorton-street, behind the Bank of England, promises to be a very appropriate and elegant structure; it is from the design of Mr. Hague, and being erected by Mr. Jay.



VIEW IN PALL MALL OF THE REFORM, TRAVELLERS', ATHENÆUM, AND UNITED SERVICE CLUB HOUSES, THE PORTICO OF THE COLLEGE OF PHYSICIANS, THE NATIONAL GALLERY, AND SPIRE OF ST. MARTIN'S CHURCH.

We have here before us a *tableau* of several important metropolitan edifices, works of our renowned contemporary architects, Barry, Burton, Nash, Smirke, and Wilkins, with Gibbs of the last age bringing up the rear; this aggregation of structures falls singularly and somewhat happily together, and as they are here grouped, the subject of one view, so we propose to treat them at present, and to apply ourselves to details of

illustration and description in subsequent numbers and timely periods of *THE BUILDER'S* progress.

In doing this, it will be our duty to draw a constant middle line between the unmeasured strictures and condemnations of one class of critics, and the extravagant eulogies of another. A vitiated or an artificial public taste has passed judgment first upon one and then upon the other of these structures, and the verdict passes current for a decision; it will be for us to distrust or confirm it, by producing new evidence—as far as in us lies. We must have “the truth, the whole truth, and nothing but the truth,” and until this is produced, all judgments, whether in praise or censure, are valueless.

Who can judge of the merit or demerit of

another's working, without a full knowledge of the circumstances by which the worker was surrounded? He must know how much was imposed upon him, and how much was self-imposed; and not judge past works by present tests or standards, nor forget how much present work, in its merit, may owe to the past, even in its apparent blunderings. By this rule, there are many who now appear great, will be little when placed beside a less-favoured predecessor, and many a previous man of prowess become a pigmy in a state of things and circumstances less favourable than those he lived to enjoy.

It is in this spirit, and applying tests of this character, that we shall attempt to draw the middle, and, consequently, something approaching to the true line.

OPENING OF THE NEW GRAVING DOCK AT WOOLWICH.

THE opening of this stupendous work took place on Tuesday, when this dock was entered for the first time by her Majesty's frigate *Chichester*, for the purpose of being coppered, &c. Viewed only as a work of mere masonry and architecture, the dock would in itself be a most striking object; but when the difficulties required to be surmounted in its construction are considered, it must be acknowledged that the new basin is an object worthy of remark, and a specimen of the perfection to which this particular description of civil engineering is carried in this country.

The basin in question is of solid granite, with steps, or what are technically termed alters, on each side, fifteen inches to one foot deep, affording facilities for descending to the bottom, and also for props or supports being affixed, thus enabling any vessel, whatever may be her size, to be supported on her keel without injury. The length is 300 feet at the top of the water, 245 feet at the bottom; the width of the basin is 80 feet at the top, gradually diminishing as the basin deepens. As it approaches the bottom it presents the appearance of a perfect concave some 26 feet deep. To this basin there are two folding gates, or locks, extending the whole width of the dock, made of iron and timber doubled, and weighing about 60 tons each; and the perfection with which these gates work and are adjusted to each other may be seen in the fact, that though each of them is of the enormous

weight of 60 tons, two men, or rather a boy and a man, can move them easily. These gates open to the general basin communicating with the Thames. The dock itself is filled by the river tide, or by a steam-engine, working with two 20-horse boilers, which can either fill the dock or withdraw the water in about six hours' time. When the engine is required to empty the dock, the water withdrawn from it can either be discharged into the common sewer, or into the basin, which communicates with the Thames. The engine is situated some hundred yards from the basin, is by Boulton and Watts, and is a beautiful piece of mechanism. The time it takes to empty the dock varies according to the size of the vessel received in it, a large vessel displacing more water than a smaller one. In the case of the *Chichester*, which appeared to us to be of the size of a 46-gun ship, the time taken was about six hours. There is also upon the top of the engine-house a tank holding some 200 tons of water, available in cases of accident, and in the yard there are also other wells accessible by pumps supplying fresh water for the use of the dockyard, the latter wells being perfectly unconnected with the dock itself.

The time occupied in these works has extended over something more than seven years, and the difficulties which the engineer has had to meet and surmount may be judged from the fact that the basin itself is cut through a stratum of peat and another of quicksand, through which percolated a spring which afforded some 800 gallons of water per minute. The whole

of these strata were dug through to the depth in some places of 125 feet, and the sub-springing waters were conducted through various channels towards the river. The alters or steps on each side of the dock, which are 24 in number, extend from the top to the bottom of the basin, which, viewed from its upper end, presents the appearance of an inverted parabola, and the whole of which is formed of hewn granite masonry; every stone being joggled to its neighbour by pieces of Bangor slate, so that no part of the work can sink in, or get out of place; or, if it should, then, that all parts of it should sink equally without disturbing their respective bearings and proportions to each other.

The masonry, which is 18 inches in depth, is laid upon concrete seven feet thick. The dock itself is executed from the plans of Mr. Walker, of Parliament-street, by Messrs. Grissell and Peto, and is calculated to have cost already some 80,000*l.*, exclusive of the steam-engine.

Taken as a whole, the basin is really a wonderful work, whether we consider it merely as a plain engineering operation, or whether we look at the difficulties which have been encountered successfully. In either case we conceive that great praise is due to Mr. Walker, the engineer, not merely for the general plan of the undertaking, but for the minor details in carrying it out. Taking it for all in all, the work is worthy of the country, it is creditable to those engaged in it, and is calculated to be eminently useful for the public service.—*Times*.

Literature.

The History of Ancient America anterior to the time of Columbus, proving the Identity of the Aborigines with the Tyrians and Israelites, and the Introduction of Christianity into the Western Hemisphere by the Apostle St. Thomas.—By GEORGE JONES, M.R.S.I., &c. Longman & Co.

THE discovery of the ruins of several extensive and once beautiful cities among the forests of central America, has led to many conjectures as to their origin; and Mr. Jones, who has resided for a considerable portion of his life in that country, and has devoted the last fifteen years to study and research, has at length given to the public the result of his labours. The conclusion to which he has arrived, and which the title briefly sets forth, will no doubt at first sight startle the gentle reader, but we trust that when he has followed our author through his train of reasoning, he will give him credit for not having formed his opinion until he had fully investigated the subject. Mr. Jones is, however, a man of poetic temperament, and we should say rather inclined to be led astray by his imagination; his readers will no doubt perceive in his style more than they may consider consistent in the language of the historian, but they must recollect that Herodotus dedicated his labours to the muses, and that our author has but followed his steps in propitiating their smiles.

He says in his preface—

"Knowing from experience, that works upon antiquities, described in language cold as the marble they illustrate, are not of deep interest to the general reader, the author has, therefore, avoided the usual frigid style, and has consequently placed around them such fervent and glowing words as their novel characters have authorized or demanded."

Our author at the commencement of the volume, enlarging upon the importance of architecture and sculpture, in tracing out the origin and antiquity of the ruined cities, says:—

"Architecture has created his lofty temples, palaces, and mansions; and Sculpture has with her magic wand, charmed and adorned them with historic facts, legends, and romances. The former planned the porticoes, columns, and proportions; but the latter was the power whereby they were fashioned and embellished. Architecture, by his peculiar characteristic, gives intelligence as we wander amid his works, that we are on the land of Egypt, or the plains of Paestum; on the Acropolis of Athens, or the land of Romulus and the Coliseum; and whether we gaze upon the sky-pointed pyramid, the stern or the graceful Doric, the Ionic of the Ilissus, or the acanthus-crowned Corinthian—they one and all have voices of oracular power, proclaiming to the classic scholar the nation from whence they arose to life and beauty.

"Even the horizontal and curved lines of architecture have their especial records, for they state the time in the history of the arts when they were erected, even without a sculptured cypher; for the level lines of the Cyclopean and Egyptian walls, with their attendant apertures, give certain knowledge that they were erected before the principle of the Grecian arch was known or practised."

"Sculpture can speak even of the religious mind of the deceased, bring it to memory, and instruct us as to the means whereby the departed attained his hope of salvation; it presents the transparent medium through which he gazed upon futurity, and believed in his approach to God; for the cross or crescent upon a tombstone needs no other language to inform the passer-by, that the departed was a follower of Christ or Mahomet!

"If, then, the mind of a solitary corpse can, as it were, be again vivified by merely contemplating the sculptured emblem of the dead, and that from a single gravestone, may not entire nations be historically resuscitated, when the human eye and mind are brought to gaze upon and investigate whole cities of ruins, with their sculptured temples, tombs, and palaces? Yes, though they should be found amid the darkened forests of the western continent, where the panther and beasts of prey are thought alone to dwell. Yes! Palenque, Copan, Chisapas, and their ruined sisters, have historic voices for posterity from their 'cities of the dead,' the Pompeii and Herculaneum of the western hemisphere, yet more aged and venerable than even those victims of Vesuvius!"

Our author then gives a detailed account of these magnificent ruins, which, after being entombed for centuries in the forest, have at length been brought to light by the enterprise

of modern travellers. He enters minutely into the character of their architecture, with its sculptured and pictorial decorations, and connects it with that of Tyre. We have not, however, space to follow him through his elaborate and interesting arguments, nor will we deprive our readers of the pleasure of perusing what may justly be called a romance of time, or following the Tyrians in their adventures in the western world. The work will be interesting to all, but more particularly to the architect, to whom we strongly recommend it, and being elegantly got up, will prove an appropriate *cadenu* to the student of the building art. It is embellished with a portrait of the author, and two vignettes, one from a design by Smithe, and is dedicated to the Archbishop of Canterbury.

The Rhine, translated from the French of Victor Hugo.—D. M. Aird, Tavistock-street, Covent-garden.

We have for some two or three hours been engaged in going through Mr. Aird's translation of Victor Hugo's Rhine; when we say "going through," do not let it be supposed that we mean the tedious performance of a duty imposed upon us, but that we were constrained to devote more than usual attention by the captivating descriptions the work abounds in. We had read Hugo's Rhine in his own language, and should say that the

translator has performed his task with ability. It should be remembered that to a translator this is perhaps the most difficult work of the highly imaginative and talented man whose name it bears; a series of peculiarities of expression in which a mind so constituted would indulge; appropriate in the first degree, but scarcely tangible in sober English.

Our *voyageur* departs from Paris through Meaux, where he arrives after a journey full of incident; his description of the *façade* of the cathedral there is singularly characteristic of his style and the mode of expression which runs through the work. "The pediment of the central doorway is the most curious; the inferior compartment represents Jeanne, wife of Philippe le Bel, from the *deniers* of whom the church was built after her death. The Queen of France, her cathedral in her hand, is represented at the gates of Paradise; St. Peter has opened the folding-doors to her; behind the Queen is the handsome King Philippe, with sad and rueful countenance. The queen, who is gorgeously attired, and exceedingly well sculptured, points out to St. Peter the *pauvre diable* of a king, and with a side look and shrug of the shoulders, seems to say—

'Bah! allow him to pass into the bargain.'

The route by Montmerail is resumed, but the arrival there undisturbed by anything beyond a pleasing sketch which, having the opportunity, we offer to the reader.



Speaking of Epernay, that name so frequently and familiarly welcomed among us on this side the channel, Hugo has the single line, "Epernay—yes, it is the town for champagne—nothing else." At Varennes he recollected and repeats the circumstance that led to the arrest of the unfortunate Louis the Sixteenth, and concludes thus: "I put up for the night at a very ancient *auberge*, which had the portrait of Louis-Philippe above the door, with the words inscribed—

'An Grand Monarque.'

During the last hundred years, most probably, Louis the Fifteenth, Buonaparte, and Charles the Tenth had each figured in his turn. Louis the Sixteenth was perhaps arrested at the Grand Monarque, and, looking up, saw the por-

trait of himself—*Pauvre Grand Monarque!* of the territory of Champagne, it is said." "The ancient annals are not less glorious than the modern; the country is full of sweet *souvenirs*: Merovee and the Franks, Actius and the Romans, Theodorig and the Visigoths, Mount Jules and the tomb of Jovinus. Antiquity here lives, speaks, and cries out to the traveller, 'Sta Viator!'"

We are compelled for the moment to close our notice, though scarcely entered upon our journey, and not yet within view of the "beautiful Rhine." There is, however, so much of the really interesting to dwell upon, recount, or transcribe, as our readers may have it, that we shall resume our progress next week.

MR. R. WITTY, CIVIL ENGINEER.

We understand that the case of Mr. Richard Witty, of this town, civil engineer, is in course of being submitted to the consideration of her Majesty's Government, for the purpose of getting his name placed on the pension list, as some slight recompense for the services he has rendered to society as a man of science. Mr. Witty has obtained as many as ten patents, for important improvements in the steam-engine, and inventions for gas burning,

the consumption of smoke, &c.; but though these were all most successful, the wealth they produced him was all expended in furthering their practical utility, and he is now, on the verge of threescore years and ten, in extreme destitution. It is certainly a case which well deserves the attention of the Government; and we would fain hope that the members for the borough will make such a representation of it in the proper quarter, as may have the effect of securing him a small pension for the remainder of his life.—*Hull Packet.*

ON THE IMPORTANCE OF A DUE CULTIVATION OF THE FACULTIES FOR THE ARTS.

REV. SIR,—That the faculties for the arts have not received their due share of exercise compared with the other faculties, as language, order, calculation, causation, &c., will, on a moment's reflection, be admitted by all; and that they ought to receive their due and legitimate exercise, and have a right direction given to them, no one will now deny. There is nothing more easy to comprehend than that there should be a sound training given to all the faculties of the human mind; and though this is a truism so very evident, nevertheless it has been but very partially regarded. Even in the Universities there are no professors of the arts; and in those seats of learning there must have been in olden time a great desire for the cultivation of the faculties for the arts of design, if we regard the works of Christian art which they have handed down to us from those early times, and which reflect so much credit on the ecclesiastical designers of those far bygone days. The faculties of form, colour, and constructiveness, have, in general education, had little or no attention paid to them, and which great neglect is the cause we are, as a nation, so far behind our foreign neighbours in all matters connected with design.

We have all along been satisfied with being copyists instead of being inventors, which, as intellectual beings, we ought continually to be endeavouring to become. Our continental neighbours have had schools of design for many centuries, and Italy in particular, for upwards of two thousand years; and though wars and civil broils have often impeded the progress of the arts of design, yet they have, amidst the greatest of difficulties, as often arisen and shone in considerable splendour. We must really educate the faculties for the arts, or we must be content to remain slavish imitators, following in their wake to our own shame and degradation. But amidst the great skill in design in Italy, Germany, and France, there is a vast quantity of absurdity mixed up in their productions of whims, fancies, caprices, and endless incongruities, and which has done, and is still doing, great mischief, both as regards a right training of the mind of the student and that of the public. Falsehoods in art should never be produced nor errors committed. Consistency should ever be seen in the design, and not such inconsistent patching and sticking together of all sorts of anomalies which the artificial system has established, and which the uneducated eye is still obliged to behold. This state of things entirely arises from a wrong direction and an undue exercise of the faculties of the arts, and the correction of which is the aim of all intellectual beings. The mental powers should have natural training, and not be allowed to indulge and revel in abuses of any kind. The works of creation, in all their truth and beauty, should be unfolded and explained, and true representations of them, enforced in the strictest terms, be made from the most simple blade of grass to the sublime and majestic oak, and from the smallest insect to the highest of all God's works on earth—man.

By thus educating this portion of the human mind, a true foundation would be laid for receiving correct impressions of every natural beauty and interesting feature that the world possesses and is ever producing; and so would the perceptive faculties become most active in observation, continually enriching the mind from Nature's boundless field, and laying up from her storehouse inexhaustible treasures for the purposes of design. Design, in its true sense, is a word in these days scarcely understood. How often do we hear the word design mentioned in connection with the most important matters, and yet it is treated with the greatest indifference. In these days a person calls himself a designer if he can patch together certain forms which he has copied from works which may or may not be correctly designed; and as long as such incongruous designs of patchwork are received and approved of, the patchworking artist believes that his heterogeneous mixture has much meaning in it; and though he has not the slightest notion of what it does mean, he considers it must mean something; and as it has been approved of for what it is

called—a design, by a council of persons of profound learning and other high attainments, it must therefore be a design for the object required. Now the so-called designer and the council may not have considered that the design should have been designed to illustrate the subject for which a design was required, and that the work when executed should shew in its forms, divisions, and arrangements that it was in harmony in all its parts, becoming part and parcel, and made to illustrate the foundation and leading features of the subject given. This is the all-important point that has remained a dead letter for many centuries, and only because a due cultivation of the faculties for the arts has not been considered by the heads of education to be of sufficient importance to be embraced in general education, as though God created those faculties to remain inactive, and so like the candle when lighted and placed under the bushel. What God has given should in nowise be rejected, but nurtured in his fear, and properly cultivated, that in due season it may bring forth its fruit abundantly. But the great difficulty to get over is the indifference shewn towards a legitimate exercise of these faculties, and which arises from the ignorance that pervades mankind on this branch of education. So far it is unfortunate; nevertheless, it must be met with and conquered, that the mind of man may be made what our heavenly Father intended it should be; and though as there always was and ever will be grades of intellect, and hewers of wood and drawers of water, we must still bear in mind that the least in intellect is of equal importance in the light of Christianity, as well as being made a profitable servant, according to the mental capacity that God had given him. The bower may be made less useful or improved, just in proportion as his faculties have had or had not a due cultivation; he may be made to hew the wood to advantage; the carpenter to saw his wood according to the size and shape he is ordered, and the carver to cut out the forms as they are drawn in the design; every one to his calling may either be perfected by a sound training and proper cultivation, or, by a neglect of them, be seriously injured—lowered in the scale of intelligence, and made less useful as labourers and mechanics than they were intended to be.

I trust ere long that the public mind will be opened to this important part of education, and be up and stirring in it, and become convinced that the faculties for the arts are of equal value with the rest. It is above a year since I completed my work on Kilpeck church, the subject of which had occupied my mind for these last thirty years; and as it is on the subject of ecclesiastical design and Christian art, stating the means that should be taken as regards the proper cultivation of the faculties for the arts, in order to arrive at this mental power, I should have thought that such a work would have been considerably more sought after than it has hitherto been. Out of so great a number of persons in this kingdom who have the means to encourage such a work, it is most discouraging to witness so much apathy manifested towards the promotion of my labours in so useful and important a field; nevertheless, I rejoice in having done thus much, and still hope to do much more; but to the attainment of this end encouragement is absolutely necessary.

I am, Rev. Sir, your obedient servant,

GEO. R. LEWIS.

61, Upper Norton-street.

—British Magazine.

ST. JAMES'S NATIONAL SCHOOL.—It is in contemplation to erect a new and commodious national school room, in lieu of the one now occupied in Discount-court, for the benefit of the immediate neighbourhood of St. James's Church. Towards this desirable object, the following contributions have already been promised:—Her Majesty's Council of Education, 500*l.*; the National Society, 170*l.*; the Queen Dowager, 20*l.*; Sir Walter C. James, 50*l.*; Rev. W. Knight, 50*l.*; Richard Bethell, 25*l.* The plans are furnished by the Council of Education, and involve an outlay which will require great assiduity and exertion on the part of the promoters of the object to enable them to carry it through. Judging, however, from the past, we have little doubt but the undertaking will be accomplished, and without much loss of time either. We heartily wish it success.—*Hull Packet.*

WARMING AND VENTILATION.

TO THE EDITOR OF THE BUILDER.

SIR,—I have to perform a duty in apologizing to Mr. Bernhardt for having carelessly, but unintentionally, misrepresented him in (No. 22, page 272), respecting his having been employed in the Custom-house ventilation. I am sure Mr. B. will acquit me of the intention, such a course being, of all others, the least likely to answer the purpose I have in view—TRUTH.

The quotations I made from Dr. Ure were taken from a paper read by that gentleman (Dr. Ure) before the Royal Society, in 1836; and the method of warming and ventilation, so severely and so justly condemned, was not placed there under Mr. Bernhardt's directions, as it would appear from the following reasons:—In the *Mechanic's Mag.* vol. xxviii. No. 755, is "A Report made to Charles Boyd, Esq., Collector of her Majesty's Customs, for the information of the Honourable Board of Commissioners, upon Bernhardt's Stone-Furnaces, by And. Ure, M.D., F.R.S., &c."

This report is well worth reading by persons interested in these inquiries, as it contains a description of the application of Mr. Bernhardt's stoves in Lord King's (now the Earl of Lovelace's) mansion in St. James's-square, and shews (as I think) the error of the principle on which they are constructed. Here are a few extracts from the report:—

"My Dear Sir,—Soon after the receipt of your note enclosing Mr. Bernhardt's letter to the Honourable Commissioners of Customs relative to warming and ventilating your Long-room, I paid a visit to Lord King's house in St. James's-square, agreeable to Mr. Bernhardt's invitation, to inspect his plan as erected in it. I was accompanied by an intelligent scientific friend. What was my astonishment at finding no less than four large elaborate furnaces, built up in that moderate-sized mansion, all of them in full activity, and consuming four times as much fuel as would, with judicious economy, heat a house four times the size." After describing the furnaces, the Doctor continues: "Did you adopt Mr. Bernhardt's furnace, you might justly inscribe over it, 'Incidit in scyllam cupiens vitare charybdis,' or, in plain English, you would get out of the frying-pan into the fire. There is, moreover, not the slightest novelty in Mr. Bernhardt's arrangement." * * * The Doctor then proceeds to condemn it as unwholesome: "My own sensations were exactly similar to those I experienced when standing near the outlet valve of hot air in your examiner's rooms; for the air arising from Mr. Bernhardt's flue orifices indicated a temperature of 150°."

The Doctor further on states, that the whole heating surface amounted to 1,888 feet super.!! "I sufficient, were it judiciously employed, to warm the vast area of St. Paul's." "When I last visited these constructions of 'the Architect from Saxony,' as Mr. Bernhardt styles himself, * * * his noble employer very politely shewed me the whole arrangement of the stoves, but told me he meant to employ them chiefly in warming the house during his absence in the country; and I found, in fact, that none of the stoves were heated on that occasion." After describing and condemning "the decomposing smoke before it leaves the chimney system," the Doctor then delivers his opinions of Mr. Bernhardt's philosophical qualifications: "having had an opportunity during a long interview, which he (Mr. B.) lately bestowed upon me, of assuring myself that he is very slenderly acquainted with either the chemical or physical principles of heating or ventilating apartments, I have not deemed it worth while to inspect his recent operations." * * * And then, speaking of Mr. B.'s operations at the House of Commons, he says, "for certainly, if subterranean furnaces, like those at Lord King's mansion, be set in action under the Houses of Parliament, a blow may be inflicted upon the heads of the nation, which shall throw the machinations of Guy Fawkes into shade." After attributing the employment of Mr. Bernhardt then to jobbing influences!! the Doctor concludes thus: "the prime functionary of this German Stove Society had the hardihood to tell me in my own house, that if I made an unfavourable report concerning it to the Board of Customs, he would employ Mr. Faraday!! to refute me, and write a certificate in its favour; in the same modest strain, he asserted that Bernhardt's plan of philosophy was founded upon principles which no philosopher in this country did (or could) understand! As one of the humblest, but not least zealous, disciples of science, I acknowledge myself incapable of discovering either the novelty or worth of the scheme. I am, my dear Sir, yours faithfully,

"ANDREW URE."

"November 23rd, 1837."

It was in consequence of having mislaid this report, that made me fall in the error I am now endeavouring to correct; but I much fear that in endeavouring to save himself from Scylla he will fall into Charybides, or, in plain English, that he has

jumped from the frying-pan into the fire, to use Dr. Ure's figure.

As I was going to the *Mechanics' Magazine* Office, for Mr. Griffin's letter, I thought I would turn over the index, and see whether the editor of that journal had passed any opinion upon Mr. B.'s merits, as I expected; I found in No. 989, July 23, 1842, the opinion sought; the said number contained a description of a plan for the restoration of the city of Hamburg, by Mr. Bernhardt. After the plan, the author says, "that the public are so often deceived by men of science, as well as by empirics in philosophy;" he then lugs in the poor testimonials on "my science." The editor did not give these in full; but gives the names of M.M. Shuckmann, Maltzahn, Schonburg, Baron Bulow, &c. &c. Then follow the opinions of C. Barry, Esq., James Hanson, Esq., Dr. N. Grant, and Dr. A. Toulman (all favourable). The editor justly remarks, "these are strong testimonials; but," adds he with his usual sagacity, "our readers cannot be expected to have forgotten that it contained some three or four years ago, others of a different description; we must refer in particular to an elaborate paper, by Dr. Ure, in vol. 26, p. 273, and to which we have never seen any satisfactory answer." * * * "Mr. Bernhardt must enable the public, by a full and unserved disclosure of particulars, to form their own judgment upon it, or make up his mind for the general neglect which will be the inevitable, and then not unmerited consequence.—Ed. *Mechanics' Mag.*"

I shewed in my last, that there can be no necessity for secrecy if Mr. B. has, as he asserts, a patent for the "Gem," and I quote high authority in support of the opinion on the point of Patent Law, Mr. B. refers to—Baron Alderson—"If you have invented a principle and a mode of carrying that principle into effect, then you are entitled to protect yourself from all other modes of carrying the same principle into effect, that being treated by a jury as piracy." (See *Jupe v. Pratt*, Pat. Rep. 146). On this subject Mr. B. does appear to me to be inconsistent in his statements; he says at one time, 1st. "I wont publish, because one can understand and apply my system;" and then, 2ndly. "I wont publish, because, if I do, there would be an end of discussion." 3rd. "My science shrinks not from scrutiny, for" (for why, think you?) "the laws of nature are invincible!" Although I must concede the truth of the last proposition, I confess I cannot perceive the sequence. Then, with regard to proposition 2; does he mean that he wont publish because he likes to keep up discussion for the sake of itself, or (which seems most likely), that he wont publish because, if he did, its simplicity would render discussion unnecessary; which horn of this dilemma will Mr. B. choose? if the latter, then the 1st and 2nd propositions destroy each other.

Respecting the change of air in the House of Commons, I confess I am puzzled to get at Mr. B.'s exact meaning (No. 23, p. 284); the total internal contents of these five rooms and passage I understand to be about "55,000 feet, and the amount of air passed through that space 14,400,000 cubic feet." Now, the apparatus is stated to be calculated to warm only "eight or nine millions of cubic feet of air in 24 hours;" this postscript should be carefully read and compared with the former statement (No. 20, p. 246), and it will be seen that it is impossible to get at Mr. B.'s real meaning. If Mr. B. will permit me one "incompetent" as me to put the matter in a tangible shape, I will propose a few questions with that view.

1. What was the total area warmed?
2. How often was the air totally changed?
3. What was the external temperature of air in degrees?
4. What the constant temperature in the whole space warmed?
5. The amount of loss of heat from windows?
6. The kind and amount of fuel consumed?

All having reference to a period of twenty-four hours. If Mr. B. will furnish some data of this kind, well authenticated, some way might be made in the subject; but while he only furnishes testimonials, it would be a waste of time to occupy your space and the time of "the readers of this valuable journal" upon the subject.

With respect to the 400l., of course I shall not withhold any names, but I wish first to see the gentleman who gave me the information, after which one mention will suffice.

I remain, Sir, yours very respectfully,
GEORGE SPENCER, Engineers' Draftsman.
5, Hungerford-street, Strand,
July 17th, 1843.

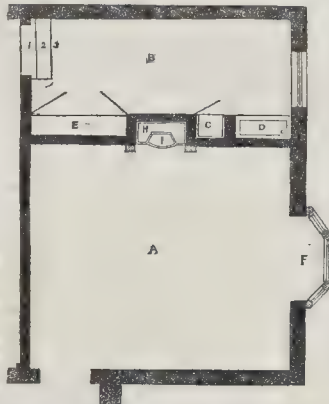
P.S. I forgot to say that Mr. Griffin's letter has not at all changed my opinion of the merits of the "gem;" he says simply that he looks upon the mode of warming and ventilation, invented by Mr. F. A. Bernhardt, architect from Saxony (now resident in this country), as one of the most valuable discoveries in modern times; then he says the French are a

spirited people; that silk might be produced in England; that in Italy the silk-worms feed on white mulberries; but that they thrive quite as well on the red ones; that consumptive patients might be accommodated here by Mr. B.'s plan;" "that Mr. B.'s system is simple, his theory perfect; though I wonder how he came to the bottom of the mystery that "our philosophers never could understand." Altogether this letter is a fit companion for the testimonials, &c., dealing only in vague generalities and assertion, without either argument or point. G. S.

COTTAGE ECONOMY.

WE shall have a good deal to say under this head, and we trust to say it effectually. If we recollect rightly, this was the title of a work of Mr. Cobbett's, and we are sure whatever we might say, or have to say, nothing could excel in importance that which is within our province as to the construction, character, and fittings of the building itself. The word cottage is not confined to merely rural dwellings, at least we choose not to confine it so, and we prefer it to the inexpressive terms tenement or dwelling-house. By cottage, then, we would be understood as referring to that class of dwellings occupied by people keeping no servant, or, at most, a little "helper," and we shall accordingly proceed to treat on that most important point in its economy—the FIRE-PLACE.

There are many cottages of the class we speak of that boast of but one fire-place, or, at any rate, of one fire-place for use. The living-room of many families is a species of half-kitchen half-parlour, where cooking and eating are carried on as it were together, and where the slops, dirt, and effluvia of the former sadly interfere with that system of neatness and order which the good housewife would have prevail in her dwelling. To have the first and to constitute one room a sort of parlour, while the preparation of food, the cooking, washing up and so on is carried on in another apartment, is beyond the means of many. It involves a variety of expenses and an increase of labour—extra coals—extra grate—an extra fire-making, and keeping up dust and dirt—and extra cleaning, to say nothing of increased rent in such houses. Now, it has been our desire to contrive a plan not only for obviating all these evils, but for securing by the way several advantages and comforts.



Herewith is submitted a plan, drawn to the scale of $\frac{1}{4}$ th of an inch to a foot, wherein A is the dwelling-room or parlour, B a small kitchen or scullery; the relation of the door, fire-place, and window in the parlour is upon a principle generally approved—that is, with the light thrown obliquely on the fire-place, and the door so situated as to break in as little as possible on the fire-side circle, the centre of the room, or the easy disposition of the furniture.

It is from the single fire of this apartment that we propose to accomplish the objects of sufficiently warming it in the old-fashioned way of an Englishman's preference, and of cooking victuals, supplying hot-water to the scullery, and in part warming it, without the objections that we set out with enumerating. I is the grate to contain the fire—H a boiler

surrounding it, with a tap for drawing off the water at the back in the scullery, and a small supply cistern placed out of the way in the cupboard—E C is an oven made of sheet or plate-iron, with a flue circulating round it from the lower corner of the fire at I, and returning again into the chimney flue of the parlour fire-place; the door of the oven opens into the scullery B, and so that the light from the window is thrown properly upon the oven. A small ventilating register should be inserted in the lower part of the oven-door, and a steam or vapour pipe in the top of the oven to admit of a stream of air passing through the oven to ventilate it, by which means meat may be baked so as to resemble roasted meat, and avoid the taint or odour and taste of burnt gravy which meat baked in closed ovens generally acquires. The damper or side door of the oven flue, and the scraper for cleaning it, would both be washed from the scullery side.

D is a sink, which should have a fall-down cover so as to serve for a table, and to give greater neatness to the apartment when not in use; upon this table the preparation for cooking could be carried on, and in taking things in and out of the oven, and being directly adjoining will be found very convenient.

The cupboard E, if thought too large, or if desired, might have a portion divided off, and by a small panelled or concealed door, be accessible from the parlour, besides which many articles from the scullery might be passed through by a double slide-door or turn-box, so as to save passing from one apartment to the other.

It will be observed that at the scullery door are three steps; these descend into it and render more convenient the position of the oven, as well as the tap from the boiler. The former would be just so high as to admit of being looked into without bending or stooping, and the latter to admit of a pail being placed conveniently under it.

The scullery itself would be sufficient as a lean-to or sledge-roof; and we may remark again, that it would derive considerable warmth through the agency of the oven and boiler; besides which it would require very little contrivance to have a warm air box or flues to increase the heat and assist the ventilation.

It will now be obvious that this arrangement would be productive of great comfort in many respects, to say nothing of the tidiness and economy of the small kitchen or scullery. The parlour fire-side is, as one may say, sacred from interruption; needle-work, reading, and the like, may be pursued undisturbed by those sitting round it; and the table for meals may be spread with as much of neatness as in the dining-room of the more pretending mansion. A boarded floor and carpet with the suitable furniture of a cottage-parlour, are all compatible with this arrangement; while a table at most, and a chair or two, but no fender or fire-irons, will be necessary for the kitchen.

While we are in this place, it may be permitted to say one word as to the comfort and pleasantness of a bow-window. This is contrived to be placed in an opening of four feet nine inches wide in the brickwork, with a view to meeting the absurd and vexatious regulations of the window duty Act; but a bow-window of very simple character may be introduced in most cottages, with light ledged shutters folding against the wall, either interior or exterior, and covered with tiles or slates, they add a charm to the cottage, whether we consider the internal comfort or external appearance.

It will be observed that the partition wall between the parlour and the scullery is only a half-brick wall. This is in deference to a strong notion of economy; and since it can be introduced on this plan without impairing the soundness of the structure, there can be no objections taken to it on that score. The cross projections forming the fire-place recess, and that to enclose the oven, serve as abutments or stiffeners, and complete the foundation for the chimney-stack which rises therefrom.

NEW WORKHOUSE AT LIVERPOOL.—The select vestry of the parish of Liverpool, on Tuesday week last, adopted the designs for this extensive erection submitted by Messrs. Lockwood and Allom, architects. Its principal front will be 800 feet in length, its style Elizabethan, and the cost 30,000l.

ON LOOKING-GLASSES.

It has often struck us as evincing a want of good taste in our cabinet-makers, and not less so in the commonality and gentry themselves, that the backs of looking-glasses are not made a little more sightly in their appearance to the passer-by, for it will instantly occur to our readers that in town or country one of the first things presented to the view through the open windows of the ordinary bed-chamber is the back of the looking-glass—a coarse “red raddled” bit of deal-board, with the price of the glass, varying from 5s. 9d. to 15s. 9d., marked upon it.

Now, what an improvement it would be to have a ready means of inserting a picture of permanent or of passing interest, not for the inquisitive gaze of the passer-by; but as being more agreeable to look upon than what we have described; and to the inmates of the house much more so, as in the case of swing-glasses the picture side might be turned to the room, for contemplation during the time of the glass itself not being in requisition.

We shall not be told that the ladies court the sight of one picture only in the looking-glass frame; we are sure they have leisure and disposition to give their admiration to rival though inferior beauties. At any rate, the plan we suggest will save a picture-frame to many, and will suggest frequent grateful thoughts.

A propos of looking-glasses, there is a plan adopted in some instances which deserves to be more generally known. It is that of fixing a pane of silvered glass in one of the squares of the sash, and is found of great use in dressing-rooms, where it serves as a mirror for shaving, &c. Here there is none of the incumbrances of a moveable, the glass is out of the way, and yet most conveniently at a height suited for its use; behind it is the usual pane of glass (blackened) agreeing with those of the whole sash or window, so that the external appearance is of the usual character.

THE STAFFORDSHIRE FARMSTEAD PLAN.

We have a letter from the “Young Architect” who furnished us with the plan, to which exceptions were taken by our correspondent “H.” and “A Farmer;” and although we think his letter not strong without provocation, we are compelled to exercise our privilege in staying a contest of words. It is a pity that objections cannot be pointed out in a kindly spirit, and be kindly attended to. “A Young Architect,” states that the Farmstead Plan has been admired and admitted as good in practice, and that he had contributed it from sources of his own, and entirely without the knowledge of the Architect.

In answer to the objections of “A Farmer,” he says, that “No. 5 on the plan was intended more as a closet than a pantry, and has a deadened light under the stairs, in the small entrance-hall.”

The position of the dairy is not complained of by the tenants of the house, and is not used at the time when “steams and stews” are afloat in the back-kitchen. Moreover, there are several steps down into the dairy, so that the boiler, which is not placed against the dairy wall, as alleged by “A Farmer,” but against the outside gable, is also almost on a level with the eaves of the dairy, which has a lean-to roof.

The pantry, however, he admits to be an imperfection in the plan.

He will excuse us for the liberty we have taken in curtailing his communication, and giving the essential substance in our own words.

PROPOSED NEW DOCK, HULL.—Negotiations are at this time being actively carried on between the Dock Company and the Government respecting the appropriation of the citadel-ground for dock purposes, but it is feared that the large amount required by the Government will preclude the possibility of purchase, which is much to be regretted, and is certainly a bad example from such a quarter. There is other land to be had provided the conflicting claims and views of interested parties can be reconciled; and there is yet time for going before Parliament for the next session. We hear that 134,000*l.* is the price put by Government upon about 25 acres of land and 16 acres of foreshore!

THE CROSS.

(Continued from No. 20.)

TO THE EDITOR OF THE BUILDER.

SIR,—Pursuing our divisions, in the third place, we come to Devotional. Although all crosses, whether Memorial or Distinctive, were erected with the ulterior object of leading to prayer and religious contemplation, and might thus be justly included in the term *Devotional*, yet in the present instance it may be allowable to apply it solely to those that were raised with no other ostensible purpose in view.

The single isolated crosses in churchyards, from their invariable proximity to the porch, or chancel-door, appear to have been placed there, that they who approached, beholding them, might prepare themselves by the recital of a pater noster or other short prayer previous to joining in more solemn acts of worship. It is amongst these that the most ancient crosses are encountered: our progenitors held them in such reverence, that they, acting in an opposite spirit to men of modern days, instead of removing them because old and worn, preserved them, for that very reason, with the greater care and attention. It is the same with regard to fonts: strange to say, there are comparatively more fonts of the Norman period than of late dates; in most cases they have survived the edifices in which they originally stood. The most perfect churchyard crosses existing are of Saxon workmanship. Here it would be well to notice the erroneous opinions that till lately gained ground, in consequence of their having been adopted by some of our first antiquaries.

Gough, Nicholson, Pennant, and others, maintained that these crosses were the work of pagan Danes, or ancient Britons, on account of the frequent recurrence of what they falsely termed “the Runic knot;” in spite of the fact that this ornament occurred on stones, which had at one time borne the shape of “the cross;” a sign at once foreign or hateful to all idolaters; and that on monuments of similar age and workmanship, a sculptured representation of the crucifixion may occasionally be found, as at St. Patrick’s, county Louth, and Llanherne, Cornwall. On one of this character in the market-place of Sandbach, Cheshire, we have distinctly observed it between, what seemed to us, the symbols of the Evangelists. In most country churchyards may be seen a block of stone raised on three steps, often converted into the pedestal of a sun-dial; this was the old churchyard cross that was decapitated at the Reformation, or during the Rebellion. There are some fine examples of this sort of cross in Derbyshire, particularly at Eyam and Bakewell. Opposite the porch of Masham church, Yorkshire, stands a circular stump, 3 or 4 feet high, ornamented with two rows of niches and rude figures: this is the base of a Saxon cross, the circular form is very uncommon.

It was at the foot of these crosses that the man, whose crimes had separated him from the communion of his church, prostrated himself with bared feet and streaming eyes, imploring pardon for his offences, and avowing his sincere repentance in the presence of assembled multitudes. At Ripley, York, is a rude base with inverted niches, in the side in which the penitents might kneel around; hence it goes by the name of the “weeping cross.” At Han llyd, Glamorganshire, one is called Achwyran, or stone of lamentation: there was another of the kind near Stafford.

Prior to that era of destruction, the dominion of the Commonwealth, there existed in old St. Paul’s-yard, and at Spitalfields, two interesting structures, used both before and subsequent to the Reformation for preaching from, whence their name *Pulpit*, or *Preaching Crosses*; from these it was the custom for a learned divine to deliver sermons at Easter, in the presence of the Lord Mayor and other city dignitaries, attended by their ladies, for whose accommodation temporary awnings were fixed around. The Spitalfields’ discourses have been continued since the Restoration at some adjoining place of worship. The cross at St. Paul’s was rebuilt by Thomas Kempe, Bishop of London, temp. Henry 6th and 7th; nor was it disregarded and suffered to fall into a ruinous state by the worthy citizens, even after the change of religion; for it appears from Stow, that in Queen Elizabeth’s time, “the pulpit cross in Pawle’s yard was new repayed, painted, and partly enclosed with a wall of brick.” Not long after a sermon was preached from it before James 1st, who came in great state from Whitehall, accompanied by his queen, Charles, Prince of Wales, the Archbishop of Canterbury, and his whole court; and still more recently, May 30, 1630, Charles 1st, after having attended divine service in the cathedral, “went into a room and heard the sermon at Paul’s cross.” This cross was demolished by an order from Parliament, 1643; that at Spital fell somewhere about the same time. There are the remains of an elegant pulpit cross at Hereford, built for the use of the mendicant friars; an order who, by their active exertions and austere habits, in some degree,

reformed the abuses and laxity of discipline that had broken into monastic institutions. This cross consisted of an hexagonal canopy, moulded on five or six steps; from the centre rose a pillar, diverging into ribs for the roof. Altogether, it is a strikingly picturesque object; this—one at Iron Acton, Gloucester, and another at Shrewsbury, are all that are left to us of a somewhat uncommon sort of cross.

Another description of cross, equally if not more rare than the preceding, will conclude our examples of such as are erected or fixed in the earth: of that which accompanied a well or spring of water, a single specimen exists at a village near Ludlow, Shropshire; it is low, plain, and square, adjoining a stone trough; on it was an inscription, of which the sacred monogram, I.H.S., is all that can be deciphered; the well was probably formed for the convenience of the traveller by the monks of a neighbouring convent now in ruins.

An extended view of the subject would embrace all rods, crucifixes, and ornamental crosses; but as these diverge too much from architectural limits, we shall be content to allude to the former only. “The rod, Mary and John” was an universal appendage to the parish church; it usually stood between the nave and chancel, as a rich screen or gallery—the roofloft; in small and early edifices sometimes on a single beam; along the gallery or beam were ranged candles to be lighted on feasts and holidays. In the accounts of St. Helen’s, Abingdon, is an item, “received for the rooflight at Christmas, 23s. 2d.” Besides the figures of the rod, there was often an image of the saint to whom the church was dedicated; in the document just mentioned, there was paid, “for peynting the rod, Mary and John, with the patron of the church, 18s.”

In the work by Aringhius, from which we borrowed our first vignette, we noticed what appeared to us the germ of the rod, copied from the sculptured side of a coffin discovered in the Catacombs of Rome. It is the representation of a cross without the figure, but surmounted by the emblem of our Saviour, the Greek X and P, the first two letters of *Xpistos*, this is encircled by a laurel wreath, and supported by two doves; on one side of the cross stands St. John, on the other kneels the mother of Christ, as if fainting, upheld by a female figure. The rod was frequently placed behind altars and shrines. In the abbey of Durham “the black rod of Scotland, with Mary and John made of silver, as it were smoked all over, was set up on the pillar next St. Cuthbert’s shrine, in the south alley.” These images were commanded to be taken down throughout England in 1548, 1st of Edward VI.; that of old St. Paul’s was the first that came down, and the example was speedily followed in the churches of the metropolis and throughout the country. There are a few examples of the rod carved on the exterior walls of churches, near the entrance; a crucifix is engraved in Carter’s “Ancient Sculpture,” from Romsey church, Hants, its total height is about six feet, its date of the twelfth century; another with Mary and John, at Sherborne, Dorsetshire, is of smaller dimensions and neater workmanship. In most cases, it is to be remarked that the figure of our Saviour is of larger proportions than the other two.

Before concluding, it seems to us not obtrusive to offer a few remarks on the various applications to which the cross might be put in the present day. There are numberless authorities from the writings of the fathers, Chrysostom, Eusebius, and others, to prove that its employment was of the greatest antiquity. Nor is antiquity alone the strongest plea for its introduction; it was respected by the Iconoclasts, of the eighth century, who preserved it from the destruction with which they visited all carved images. In later days, not even Luther himself disapproved of crosses, if we may state so from the circumstance that in his works, by Melancthon, a irony piece represents him kneeling before a crucifix; and Queen Elizabeth, who did much to restrain the violent Puritans of her reign, persisted in retaining a crucifix in her private chapel, until, according to Heylin, the ultra reformers at court one day prevailed on Patch, the domestic fool, to break it, no wiser man daring to undertake such a service.

It is when carried to extremes that a practice becomes productive of evil results: that the use of crosses was at one period greatly perverted is undeniable, and for that reason the prudence of our reformers withheld them from the people; but we should bear in mind that they were then so interwoven with the Romish ceremonies, which the mass of the people had but just relinquished, that there was some danger of their producing a relapse. But now, since there has been such a change in religious sentiments, we think there would be little chance of even the least enlightened amongst us paying undue honour to the holy emblem, and therefore see no substantial objection to its re-assuming that important position which its sacred character formerly imparted to it. What more appropriate monument

could be reared to those who had devoted themselves to the service of the church, than the tapering "cross," which was so lavishly employed on similar occasions during the middle ages? A noble example has been set by the Oxford men, in the erection of that splendid work of art, the Martyrs' Memorial, which we trust are long will be followed wherever any thing of like nature be required.

Another modern example of the monumental or mortuary cross stands on an eminence near Sheffield, over the bodies of 400 victims of the cholera in 1832. The foundation stone was laid two years afterwards by the poet Montgomery, a man very unlikely to countenance or in any way advance superstition. If, then, a cross be raised, and by such a man, on the grave of many, what may hinder it being placed on that of one? The doctrine of prayer for the soul, with which the sepulchral cross was intimately connected when disused, has now generally exploded, and few if any would be led to adopt it merely through beholding the Christians' grave surmounted by the cross of Christ—the emblem of his salvation. Hearn, the antiquary, was a great advocate for the use of this figure on tombs, as his following words witness:—"It was from the Jews adorning the monuments of their heroes with military instruments, that even the Christians put up penons and other emblems of honour in churches, though the most common (and, indeed, the most honourable) banner on our monuments before the dissolution of religious houses, was a cross, which, however, since that time hath been generally discontinued as popish and superstitious; and why yet more popish and superstitious in this case than to sign infants with the cross at baptism, which is still practised (and that very laudably) amongst us? Methinks Cranmer's monument, by Balliol College, had been never a whit the less honourable had a cross been put on it, such a one as we see on some old (though otherwise very plain) stones in some churchyards; especially as he is allowed to have been a martyr, and to have died for the true Christian religion." How it would have rejoiced the heart of the honest antiquary to have seen his wish in some sense verified by the erection of the Martyrs' Memorial! To a Christian eye it would be much more pleasing to behold the wooded summit crowned with massive crosses, in the stead of those square obelisks and jubilee columns placed there in commemoration of joyful events, the former would at once record the event, and speak thankfulness for mercies conferred. For sanctuary and boundaries it is no longer required, but we are happy to see that it is again mounting the gables of our religious edifices, and in primitive simplicity crowning our altars, never more, we trust, to be expunged by fanatical violence.

P. P.

Manchester, June 30th, 1843.

HISTORY OF LABOUR IN THE BUILDING CRAFTS.

(Continued from No. 20.)

TO THE EDITOR OF THE BUILDER.

SIR,—Before I proceed further with details incident to my subject, I must be permitted to revert to the very important effects produced by the institution of GUILDS. This most ancient protective feature of trade and commerce is as old as the palmiest days of our Saxon forefathers, their standard of union unfurled a thousand years ago, and which will again, if I err not in my judgment, become the rallying point for vast bodies of artisans now without concert, other than that of the feeble, inert, and disconnected trade unions of the day. The influence of Guilds resulted from the development of a principle effective in resisting pressure from without, by a concentration of similar interests within a circle hallowed by the respect and confidence of all who entered it; a principle sustained by, and sustaining its constituents; watchful through obliquities of eyes and ears, and jealous of that self-respect which it forbore to infringe in others.

The term *Guild*, *Gild*, or *Geld*, signified, literally, in payment. In times of vassalage it denoted a free borough, or enfranchised district; and in this sense I take it to have implied an aggregate sum raised by concert of the inhabitants, and paid over to the nominal lord or feudatory, in lieu and satisfaction of a previous claim to personal service of whatever kind; in the case of societies, or congregations of trades, a contribution of like nature, but for purposes tending to the maintenance of particular privileges enjoyed by grant, acquired by usage, or contended for. The earliest Guilds were undoubtedly those of districts, for co-operation of a general kind, stimulated by free tenure of the soil, was already active ere trade and commerce had acquired strength.

London, the seat of royalty, with its noble river, affording navigable access by an estuary opposite the shores of the Continent, affords, if not the most ancient, yet the best authenticated instances of

trading co-operation under the title and government of Guilds; of these the steel-yard merchants, a great mercantile community, but composed of foreigners, principally Germans, or, as they were then termed, *Easterlings*, was the first in importance, and probably so with the single exception of the woollen weavers in point of date. The steel-yard merchants were recognized by charters and encouraged by successive sovereigns; and so consolidated was their union, that they accomplished a monopoly of nearly all the commerce of the kingdom. Seated upon the city bank of the Thames at Dowgate, they erected massive stacks of building, comprising their warehouses and residences, for in those times of peril and liability to sudden attacks from depredators, they dwelt together, forming a compa of body, whether for trading operations or defence; on the land side they had an outward wall of circumvallation; towards the river their extensive quays and water-gate. Always in communication, by means of their own shipping, with the Continent, they were not only useful but necessary to the ruling power, the most important intelligence being alternately conveyed and obtained through their medium. The whole of this great and exemplary establishment was under the control of a principal or alderman, and an elected council, whose decisions were final upon all points connected with its undertakings and management.

The flourishing state of the *Easterlings* was not unheeded by the native citizens of London; numerous Guilds were formed by the leading trades, which, successful in every instance, became parent establishments of the existing city companies. Similar policy was soon adopted by the less opulent handicraft trades, and there was scarcely any without its Guild. Among all these the Free-Masons certainly had priority of existence, but they were not, at any period of our history, a stationary body; domestic architecture was a little cultivated; towns grew up but slowly, and their talent, tastes, and habits were more suited to great undertakings; the massive and magnificent were realizations of the studies and labours which they prosecuted, and of which we have remaining evidences in every province of the kingdom. The older chroniclers repeatedly mention this associated brotherhood under the term *Gild*. "English and foreigners," says Gervaise, of Canterbury, "travelled in Gilds, being skilful artificers in stone and wood-work, for the purpose of building," and it is remarkable that whatever may have been the state of the particular district in which they wrought, neither dissension nor open feud presumed to intercept their march, or interrupt their progress. Under their hands temples worthy of dedication to sacred purposes and an undivided faith arose throughout the land, for in those days men had at least one object which all concurred to reverence. It is always with regret that I find the notices of these distinguished workmen, which appear in most historical records, limited to mere incident. This may perhaps be, in a great measure, owing to the self-government of their communities and itinerant habits; the building upon which they were employed once completed, they departed, leaving no traces save the work itself.

The Guilds of London grew to importance; they were so not only individually, but the principle of union which pervaded them was favourable to the support of the municipal government of the city; true it is, that jealousies, and even outbreaks occurred, but they were merely ebullitions of the froward and thoughtless, and speedily corrected by willing submission to the rule of their own constituted authorities. An administration of the kingly office alternately favouring particular interests has, however, long since crumbled down the ancient system of Guilds; in lieu of it, and together with great wealth, the principal city Guilds bear the appellation of companies, while minor and less aristocratic associations of the same kind have disappeared; there is nevertheless in the plan of the old institutions much worthy of imitation on the part of the working classes of the present day; union of interests and means for great moral purposes, protection of indefeasible rights, and well-timed expression of the general sentiment. If we scan the political horizon, much is seen, and more heard, of great combinations, having for their object certain changes, to be carried by a *coup de main*. The great game of agitation is relied upon to effect these purposes; it is, however, a feature in which the industrious portion of the community should be cautious of mixing themselves up, to avoid, in fact, being made the tools of party, or of the personal exaltation of individuals. There are direct objects connected with the well-being of handicraft labour, which require anxious deliberation. To these our attention should first be turned, leaving the graver description of political questions to be influenced, as they would be, by the steady attitude and unswerving determination that especially characterized the old Guilds.

The history of labour is one of struggle; first, for emancipation, and subsequently, through all its

stages, for the preservation of acquired rights, together with a fair rate of wages. We have seen that in 1349 stringent laws were passed, fixing a price far below its value, and the injustice of them will appear more, still more odious, when the then state of the country with respect to bread-corn is pointed out. Never, perhaps, were fluctuations in the price of that article so severe, or rather fearful; imperfect cultivation of the soil furnished at best but scanty harvests; there was no storing of corn, excepting in the granaries of the great abbots, and generally the produce was consumed before the natural periods of reproduction came round; thus the old historian Stow informs us that, in 1317, wheat had risen to the enormous price of 4*l.* per quarter! but after harvest fell to 6*s.* 8*d.* Now, as little could have been done towards the improvement of agriculture, or in the storing of corn, between 1317 and 1349, when the Act fixing wages came into force, the workman with his 4*d.* per diem was exposed to a variation in the price of wheat of from 10*s.* to 10*d.* per bushel. But to take the precise period when the wages laws pressed heaviest, or between 1350 and 1400, we find the price of wheat to have been from 4*s.* to 26*s.* per quarter, a variation which, though not so great as in antecedent times, is sufficiently so to brand those laws as in the highest degree oppressive. Neither did the legislature stop at wages; the diet of tradesmen and labourers when supplied with food by their employers was specified, and the price of their clothing marked at per yard; an Act of 1363 ordained "That the servants of lords, artificers, and tradesmen should be served once a day with meat or fish, and the offal of other victuals, as milk, cheese, &c., according to their station; and that they should wear cloth of two marks' price" (about 12*d.* per yard).

At this distance of time the injustice of these laws is manifest, and the prevailing ignorance of the principles of trade extraordinary. Governments, indeed, have always been slow in developing right energies, still interference on the small scale has been gradually ceasing, and is being compensated by the favourite centralization systems closing around us. It is, however, time, Mr. Editor, that I should conclude this portion of my communications, which I will do by quoting a passage from the apostle of modern political economy, Adam Smith, on the interference of governments; he addressed himself to sumptuary laws; but we may consistently extend its applicability:—"It is the highest impertinence in kings and ministers to pretend to watch over the economy of private people, and to restrain their expenses by sumptuary laws, or by prohibiting the importation of foreign luxuries. They are themselves always, and without any exception, the greatest spendthrifts in society; let them look well after their own expenses, and they may safely trust private persons to do the same; if their own extravagance does not ruin the state, that of their subjects never will."

INDEX.

(To be continued.)

MR. WARD'S MODEL FARM-HOUSE.

TO THE EDITOR OF THE BUILDER.

SIR,—My former letter was not written under the expectation of its being made the subject of attack in a leading article of your paper, particularly as you have been over liberal in your comments without the text; and had it not been for our friend ("the Farmer," and probably some others) there is little doubt I should have been brought out as what you are disposed to call "a whipping-boy."

Now, Mr. Editor, I wish to know (as one of your subscribers) if we are to consider you as my servant, or if we are to be tools in your hands by allowing you to publish every "Grub-street" subject brought before you, and that without giving it the least attention as to its merits or otherwise. Had you have done by Mr. Ward's "model farm-house" as you did by Mr. Flitcroft's muddy subject, your readers (no doubt) would have felt some satisfaction in discovering your attention to such matter before giving it insertion; as I cannot but observe that in addition to my former remarks and those of "the Farmer," that the general internal arrangement is as bad as it can possibly be; there is the kitchen fire-place between two doorways, and that of the parlour as close to the door as it is possible to place it, occasioning great inconvenience and want of comfort, for every time the door is opened it must come in contact with the chair of the person sitting on that side of the fire-place; besides which, it would be placing them in a line with two doorways and the parlour window, creating such a current of air that it would be one of the most uncomfortable situations imaginable. There are a few additional objections which strengthen my opinion in differing with you that Mr. Ward should be proud of such a son (admitting it to be the son who was your contributor), i.e. in this capacity, for instead of

strengthening his profession, it is certainly calculated to lower him in the eyes of his professional brethren, and that of the public.

With regard to Mr. Bernhardt's heating mania, I beg to say (I think) it has been very properly handled by Mr. G. Spencer, and therefore needs no further remarks from me, only I trust we may not be annoyed with any more correspondence upon such a threadbare subject.

You tell us you know something of the merits of Mr. B., and many other plans; then with all the ignorance of the builders and others upon the subject, it would be but an act of justice to give your subscribers the benefit of it; you appear to cloak yourself under what you call approving and indulgent correspondents (or rather thoughtless and careless), who have little further regard than for cheapness. I must now tell you that, whether I belong to the petulant, the malignant, or any other of the numerous class to which you refer, I will attempt to follow your advice in one particular, which is, to conduct my few observations in a becoming spirit, and not to assume the character of a "whipping-boy," and must be allowed to remark, that although cheapness is a great recommendation, it is not every thing, for a cheap and useless work is much worse than a dear and useful one; I am therefore for steering between two extremes. Don't make cheapness your sheet anchor, or *THE BUILDER* will fall; let intelligence be combined with economy, and it will flourish. But it must be exclusively a building paper—no advertisements of Macassar Oil, quack pills, and such "stuff;" let us have nothing but what is in some way connected with building and builders. I must now beg you will give this insertion, for the purpose of directing others of your readers to the subject generally, which I trust will be a stepping-stone towards setting *THE BUILDER* right (or at any rate shewing it up in its true colours) with the public. H.

[As we are appealed to so strongly, we cannot well resist giving insertion to the foregoing letter; we will leave our readers to judge between us; we have only one word to add, which we think the best for those who are so ready to carp at and find fault with the work of others. Will "H." favour us with a farmstead plan himself; and if not, with a plan for warming and ventilation? Will he give us his reasons for setting it down as a subject unworthy of a serious discussion in a builder's paper? We are sorry we cannot put him to a better test as regards the conduct of *THE BUILDER*; we wish he could have had one week of it and its difficulties. He has our remarks in the best spirit, and we can readily forgive the imputation of motives.]

BERNHARDT'S PATENT.

TO THE EDITOR OF THE BUILDER.

Ruthin, July 17th, 1843.

SIR,—From the tenor of Mr. Bernhardt's letters in your Journal, his assertions and retractions, it appears as though he had the faculty of discovering error, without the power of avoiding it. I would ask him where in his or any biography of the wisest and best of men he is set the example of distorting other parties' letters to suit his own purpose? That the system of ventilating and heating by upright flues is his invention, I can prove they were in use years before his patent; that his system of heating apartments is injurious to health, and has been publicly condemned by many men well qualified to form a sound opinion, I could mention several instances. Here is one: Chas. F. Hood, F.R.A.S., in a paper read at the Institution of Civil Engineers, June 14th, 1839 (See *Athenaeum*, July 13th, 1839), says, "the system of Mr. Bernhardt is peculiarly open to these objections," &c. It is useless at present noting more instances. That he on a self-elected throne, should prescribe bounds to, and impose intellectual fetters on others, and dictate to them how far they are to be allowed to exercise their common faculties, is not more intolerable than vain, and not worthy of more comment. T. H. C.

[T. H. C. has obligingly furnished us with a plan of the work referred to in a former number, wherein a system of ventilation similar to Mr. Bernhardt's, as he contends, was adopted many years ago. We must defer its insertion this week. And at this point we must be permitted to take our stand, and to remonstrate in the kindest spirit with those of our correspondents who are led away into, or indulge in, personalities. We are glad to see an improvement in the tone of several of our friends, and now there requires little more to make the discussion in *THE BUILDER* worthy of a philosopher's attention but the calm dignity of truth. Whoso would be the advocate of truth, let him wear the livery, and never forget that he is engaged in the cause of truth.—Ed.]

GASLIGHT.

TO THE EDITOR OF THE BUILDER.

SIR,—That gaslight is superior to all other lights in general use, and that it is one of the most valuable inventions of modern times, is now so universally acknowledged, as to leave no room to doubt of its superlative excellence. The inconveniences that too often accompany the use of this light, viz. large consumption of atmospheric air, discolouring ceilings, walls, and furniture; and, above all, the dreadful danger of explosion, form doubtless the chief objection to its general adoption in the mansions of the nobility and gentry. I know that first-rate gas-fitters and men of science have, during the last twenty years, made numerous experiments to remove these obstacles, but without effect. At length, however, I have had the pleasure of witnessing the fixing of a gaslight entirely free from all the said objections; I therefore gladly avail myself of your most excellent vehicle of scientific knowledge, to commend it to your notice and the public generally. A medical gentleman having lately had gaslights fixed in his kitchen, passage, and study, happened to hear of one with superior apparatus for ventilation, in use at No. 13, Providence-row, Finsbury. He accordingly gave it a personal inspection, and being perfectly satisfied of its excellence, immediately ordered one for his parlour. This being done, gave entire satisfaction and much gratification to those who saw it. The light suspended from the centre of the ceiling is about seven and a half feet from the floor. The flame is enclosed in a spherical glass, twelve inches in diameter, and has somewhat the appearance of a bright lunette, or moon in miniature. All apprehensions for the glass were speedily removed on its being discovered that the heat was carried off with sufficient rapidity by the strong draught of air constantly passing through the globe. After the light had burned steadily for an hour, the patentee extinguished the light, but again turned on the gas for a quarter of an hour without lighting it, and without producing the least smell of gas in the parlour. But as the flue to the chimney was placed between the ceiling of the parlour and the floor of the drawing-room, they then proceeded to the latter, and were agreeably astonished on finding that room as free from smell as the parlour. Mr. Editor, do you not think that the gas companies would assist in promoting such a useful invention, so safe, so clean, and so thoroughly wholesome? Your usual liberality makes me hope you will give a place in your useful publication to this communication, and congratulating you and the public on the signal and rapid success of so valuable a vehicle of scientific information, I remain, Sir, yours respectfully,

A CONSTANT READER.

RECENT PATENTS SEALED AND INROLLED.

(From the "Repertory of Arts, Sciences, and Manufactures.")

Joseph Partridge, of Bowbridge, near Stroud, in the county of Gloucester, for certain improvements in cleansing wool.—Sealed July, 1842. Inrolled in the Petty Bag Office, January, 1843.

William Golden, of Huddersfield, Yorkshire, and John Hanson, of the same place, for certain improvements in fire-arms, and in the bullets and other projectiles to be used therewith.—Sealed November, 1841. Inrolled in the Petty Bag Office, May, 1842.

Frederick Gye, of South Lambeth, Surrey, for improvements in binding pamphlets, papers, and other documents.—Sealed June, 1842. Inrolled in the Inrolment Office, December, 1842.

William Ridgway, of Northwood, Staffordshire, for his invention of a new method of conveying and distributing heat in ovens used by manufacturers of china and earthenware, brick, tile, and quarry makers.—Sealed August, 1842. Inrolled in the Inrolment Office, February, 1843.

Antoine Blanc, of Paris, in the kingdom of France, and Theophilus Gavaria Bazille, of Bouen, in France, now residing in Leicester-square, Middlesex, for certain improvements in the manufacturing or producing soda and other articles obtained from or by the decomposition of common salt or chloride of sodium.—Sealed February, 1840. Inrolled in the Petty Bag Office, August, 1840.

Samuel Dotechin, of Hoxton, for improvements in paving or covering and constructing roads, ways, and other surfaces.—Sealed October, 1842. Inrolled in the Inrolment Office, April, 1843.

John Mullins, of Battersea, Surrey, for certain improvements in making oxides of metals, in separating silver and other metals from their compounds with other metals, and in making white lead, sugar of lead, and other salts of lead, and salts of other metals.—Sealed October, 1842. Inrolled in the Petty Bag Office, April, 1843.

William Palmer, of Stratton-street, Clerkenwell, for improvements in the manufacture of candles.—

Sealed November, 1841. Inrolled in the Inrolment Office, May, 1842.

To the same William Palmer, for improvements in the construction of candle lamps.—Sealed March, 1842. Inrolled in the Inrolment Office, September, 1842.

Thomas Banks, of Manchester, county of Lancaster, for certain improvements in the construction of wheels and tyres of wheels, to be employed on railways.—Sealed June, 1842. Inrolled in the Petty Bag Office, December, 1842.

Moses Poole, of Lincoln's Inn, for improvements in treating, refining, and purifying oils, and other similar substances.—Sealed February, 1842. Inrolled in the Inrolment Office, August, 1842.

Frederick Theodore Philippi, of Belfield Hall, Lancaster, for certain improvements in the production of sal-ammoniac, and in the purification of gas for illumination.—Sealed July, 1842. Inrolled in the Petty Bag Office, January, 1842.

Theophilus Anton Wilhelm, Count de Hompesch, of Rurich Castle, near Aix-la-Chapelle, in Prussia, for improvements in obtaining oils and other products from bituminous matters, and in purifying and rectifying oils obtained from such matters.—Sealed September, 1841. Inrolled in the Inrolment Office, March, 1842.

Robert Hazard, of Clifton, Bristol, for improvements in ventilating carriages and cabins of steam boats.—Sealed September, 1842. Inrolled in the Inrolment Office, March, 1843.

John Bervan, of Chelsea, for an improved mode of expelling the air from certain cases or vessels used for the preservation of various articles of food.—Sealed April, 1842. Inrolled in the Petty Bag Office, October, 1842.

Frederick Bowles, of Moorgate-street, London, for a new method, by machinery, of preparing flour from all kinds of grain and potatoes, for making starch, bread, biscuit, and pastry.—Sealed September, 1842. Inrolled in the Inrolment Office, March, 1843.

William Henry Fox Talbot, of Lacock-abbey, Wiltshire, for improvements in coating or covering metals with other metals.—Sealed November, 1842. Inrolled in the Inrolment Office, May, 1843.

Charles Robert Ayers, of John-street, Berkeley-square, for improvements in ornamenting and colouring glass, earthenware, porcelain, and metals.—Sealed July, 1842. Inrolled in the Inrolment Office, January, 1843.

Julius Bordier, of Austinfriars, London, for certain improvements in preparing skins and hides, and in converting them into leather.—Sealed Jan. 1842. Inrolled in the Petty Bag Office, July, 1842.

Tenders.

ESTIMATES for repairs at Christ's Hospital, Hertford, delivered 18th July at Christ's Hospital, London.—John Shaw, Esq., Architect:—

Brown, Hertford.....	£309 10 9
Tase, ditto.....	311 17 3
Graystone, Enfield.....	330 0 0
Clarke and Barnes, London ..	355 2 4
Locke and Neesham, London ..	405 0 0

TENDERS for rebuilding the City Gaol, Lincoln:—

Mr. Marshall, Hull	£4,785 0 0
Thorp and Jackson, Hull ..	4,911 0 0
Kirk, Sleaford	5,243 3 7
Robinson, Hedon	5,530 0 0
Sharp, Long Sutton	5,530 3 0
Briggs	5,900 0 0

TENDERS for building the new Workhouse in the parish of Soulecoates, Hull:—

If Tweedale's Patent Bricks.

Mr. Hutchinson, Hull	£8,260 0 0
Marshall, Hull	9,367 0 0
Hockney and Co., Hull	9,900 0 0
Thorp and Jackson, Hull ..	9,990 0 0
Denton	10,600 0 0
Robinson, Hedon	10,911 0 0

If not Tweedale's Patent Bricks.

Hutchinson, Hull	£8,000 0 0
Appleyard, Hull	8,960 0 0
Marshall, Hull	9,367 0 0
Thorp and Co., Hull	9,990 0 0
Robinson, Hedon	9,383 0 0
Hockney and Co., Hull	9,500 0 0
Denton	10,600 0 0

The building is in the Elizabethan style of architecture, and will cover an area of two acres, one rood. The architects, Messrs. Lockwood and Allom, whose plans for the new Union Workhouse to be erected at Liverpool, and to cost 30,000*l.*, were last week approved of by the select vestry, as noted in our paper.

THE BUILDER,

NO. XXV.

SATURDAY, JULY 29, 1843.

The present is a season which has in it many discouraging features for the building interests, who have now, in common with so many of the staples of the kingdom, been suffering a long depression. We have travelled this last week in an extensive and usually active district, and the general cry is, of great want of employment; and, assuredly, we find no present glimmerings of the hope of improvement. If some prompt determination could be come to by the authorities to set on foot such public works as the demand for is generally admitted, it would, in our estimation, be singularly opportune, and tend more to alleviate distress in the coming winter than any thing that could be devised. We trust that our suggestion may not be classed among the "nothing-like-leather" expedients, for we believe it to be universally acknowledged, that judiciously stimulated action in the building departments is the best distribution of wealth—it is *seen*, and inspires courage in its progress; it interests all circles, it is felt in every quarter; but we have a stronger reason for urging it now; public works should be as far as possible, we hold it, be set on foot in periods of languor and inactivity, and so avoid crowding all toil at one epoch; much better than that excessive bustle, excessive labour, and even high wages should be the concomitants of one period, and half employment and low wages those of another.

It does not call for much sagacity to make out that the required public improvements consist in. If, however, we are mistaken in this respect, let a commission be appointed to suggest and decide as to what shall be undertaken. Public parks, quays, roads, embankments, drainages, bridges, and institutions are the number—let a commission announce facilities for trusts and local authorities in the undertaking of such matters (watching prevent jobbing), and we will hazard our reputation upon it, that great activity, or sufficient activity, would be speedily displayed. Our remarks last week on the Iron trade have elicited forth many encomiums, and among them are suggestions to which we shall give precedence next week. Would that our noble solicitude for our industrial interests could command, or be found to deserve, attention in the higher quarters.

One of our correspondents objected to us, that we were giving too much importance to church building and church illustration—to be a type of the times, however, we hardly avoid it. Churches are the main engrossing feature of building operations—days; churches are the determining influence in the question of taste in design, &c.; gentry and clergy are being awakened, though the means of churches to the patronage of churches are the nurseries of the talent of artificers—the tribunals of criticism—which most advance has been made in the fixity of principle and propriety of. Everywhere that we turn, churches are our vision—old churches being repaired, stored, new ones aspiring to emulate—and churches will go on to the end of chapter, until each city has its narrow boundaries and a church to each, so that,

like York of old with its twenty thousand inhabitants, we may count its cathedral and an abbey-church, with forty parish churches besides.

Nobody cares to dispute as to the question of proprieties in any thing else. No Camden Society cares to take cognizance of work-houses, gaols, or barracks (the other distinguishing features of present building operations)—they leave us alone in our house-building, too; but churches are their prerogative to descant upon, to dictate forms and rules concerning. An inquisition is established which takes cognizance of all infringements and intermeddlings; to that, therefore, which has so much of consequence assigned to it, we must pay corresponding deference, or rather while all the world looks with all eyes to this province of building operations, it will not do for us, the eye, ear, and tongue of the building interests, to pay less than a large share of attention and consideration to church building.

In the present number will be found a decision of the Vice-Chancellor of England on a matter relating to the interpretation of the laws that affect Friendly Societies. We have also thought it right to insert a decision of the judges on an appeal against a determination of the Commissioners of Assessed Taxes. We purpose, for the future, to make the readers of this journal acquainted with all proceedings before the tribunals of the country which may have involved questions peculiarly interesting to the building classes.

LIFE ASSURANCE.

We have, in previous numbers, made a few preliminary remarks on the origin of the system of life assurance in England, and on the establishment of the Equitable Office, as consequent upon the publication of calculations made by the late Dr. Richard Price. In a general sense there has hitherto existed but an imperfect understanding of the peculiarities or practice of the different offices, but which we shall endeavour to extend by reports similar to the annexed, by comparative calculations, and by information reaching us through various channels. The report of the annual meeting of the Norwich Union Society is interesting for two reasons: first, because it is an authentic summary of its transactions during an annual period, and shews the degree of estimation attaching to that particular society; secondly, reference is made therein to the number of new policies opened by the Equitable Office within a coincident term, and a comparison is instituted, proving the decrease of its business. This feature of the older society is one that indicates the approach of a cessation of its usefulness in a public point of view. The Equitable Society either closes its door against new assurances, really, or it does so virtually by adhering to rates of premium, proved by its own experience to be greatly in excess. It does so, however, possessed of an unexampled accumulation of wealth; so vast, indeed, that it is not to be expected new assurers will be permitted to become participators without undergoing a probation of years before they find themselves within the line of demarcation prescribed (and it must be observed very justly so) by the owners of these funds. Thus the Equitable Society has been gradually assuming the features of a *Tontine*, to which it will probably every year advance more nearly, and until the current business of life assurance becomes a distinct and secondary consideration with its proprietary.

The Norwich Union Society was originally formed in the city of Norwich for fire insurance under able management, and, as we recollect, about the year 1808, added a life department. This was the period of the movement, and the Norwich had sufficient *stamina* in its constitution to transplant an offset in the metropolis, where it has ever since flourished. It is one of those associations that has had the

foresight to reduce its premiums somewhat from the old Northampton standard (to use a builder's phraseology) of measure and value. As an example, at age 40, when men usually begin to think seriously of those provisions for surviving relatives, which affection and duty is constantly urging upon their attention, the premium required by the Norwich Union is 3*l.* 2*s.* per annum for each hundred pounds assured; a reduction upon the Equitable of ten per cent, the latter requiring 3*l.* 7*s.* 11*d.*

On Friday, the 7th inst., the annual general meeting of the members of the Norwich Union Society was held at the office in Surrey-street, pursuant to public advertisement, E. T. Booth, Esq., Vice-President in the chair. Amongst the members who had assembled at the appointed hour of meeting, twelve o'clock, we observed Major-General Sir R. J. Harvey, C.B., Dr. Evans, T. Steward, Esq., W. J. Uiten Browne, Esq., the Rev. J. Bailey, James Winter, Esq., George Darrant, Esq., J. O. Taylor, Esq., &c. &c.

The Chairman having briefly referred to the declaration of a bonus in the preceding year, reminded the meeting that they were now assembled in consequence of a resolution passed at a general meeting in January, 1842, that the accounts of the society should be annually laid before the assurers.

The Secretary, Samuel Bignold, Esq., then read the advertisement calling the present meeting; the minutes of the last general meeting of the society; and a subsequent resolution of the Directors in reference to the secretary's salary.

The Rev. J. Bailey said, he well remembered how strongly it was recommended, at the fullest meeting of the assured ever held, that an increase of the secretary's salary should be taken into consideration by the directors; he was sure that all the members of the society would be happy to learn that the directors had taken the matter into consideration; and he had much pleasure in proposing that the resolution of the directors be confirmed and approved.

Mr. Eagle Willett seconded the resolution, which was carried unanimously.

The Secretary then proceeded to read the accounts, which consisted of three tables—

1. The annual cash account of the receipts and payments of the Society, from the 1st July, 1841, to the 30th June, 1842.
2. The account of the capital of the society, as the same stood invested on the 30th of June, 1842.
3. The account of the liabilities of the society, as the same stood on the 30th June, 1842.

These accounts having been submitted to the meeting, the Chairman then rose and said,—I am confident, gentlemen, that I am justified in congratulating you upon the state of the affairs of this society, whether we regard it by itself, or in comparison with other assurance offices. During the past year 344 policies have fallen in: the society has during the same period issued 350 new policies, and its capital has increased 34,000*l.* These are the simple facts, so far as regards the state of the society itself. Then as compared with other offices. The Equitable Office is one of long standing and of great magnitude. It is based upon the same principle as our own. We find by the published accounts of that society, that within the year 315 policies have fallen in, and only 145 have been issued, being a diminution of 170. It is a point most satisfactory to me to find, whilst the Equitable has not issued one-half as many policies as have fallen in, this office has issued a greater number, and this notwithstanding the great competition of new offices; shewing that the Norwich Union Life Office continues to enjoy the esteem and confidence of the public. (Hear, hear.) Within the last few months we have been put in possession of the labours of the committee of actuaries, appointed to ascertain, from the documents of seventeen offices, including the Norwich Union, whether the experience of those offices confirmed the rate of mortality upon which premiums for life assurance were founded. The result of that inquiry goes to shew that on which the premiums are calculated, and I learn moreover from our own actuary, Mr. Morgan, that the mortality according to the total experience of this institution is more favourable than the results of the combined experience of the seventeen offices alluded to. Another point is also cleared up by this inquiry, namely, in reference to male and female lives. It has been the opinion that female lives were longer than those of males. But this inquiry shews the fallacy of that opinion. From the ages of 20 to 50, females appear to be worse lives (considerably) than males, from 50 to 70 somewhat better, but taking all ages, the balance is in favour of the males. I am not aware that there is any other point upon which I need detain you. But taking all circumstances into consideration, I feel fully justified in congratulating you upon the state of prosperity which this office continues to enjoy.

W. J. Utten Browne, Esq., then proposed the following resolution—

"That the position of the Norwich Union Life Insurance Society, as evidenced by the statement of its progress during the year ending June, 1842, is very satisfactory to this meeting, and such as fully entitles the Institution to a continuance of that support which it has hitherto received from the public."

Mr. R. Steward seconded the resolution, which was carried unanimously.

The Chairman said he was not aware of any other business, and therefore declared the meeting closed; and Mr. Utten Browne then said that every Assurer was convinced of the debt of gratitude they were under to the Directors and to their excellent Secretary, the object of his present resolution was, however, to propose a vote of thanks to their Chairman for his conduct in the chair.

The resolution was carried unanimously; and Mr. Booth having briefly acknowledged it, the meeting broke up.

ECCLESIASTICAL COMMISSIONERS.

THERE is, as many of our readers already know, a body of men under the above title, charged with the duty of directing and in a way superintending the erection of parsonage houses, &c., in destitute districts; these, like the Church Building Commission, have a large function and influence beyond the mere circle of their nominal appointment—they, like the former, have control in the choice and employment of the architect, and exercise, or may exercise, no little power in the dominions of taste. We are not disposed to undervalue the services of the former commission, in having saved us from the perpetration of many blunders and disgraces in the constructive section of church fabric, notwithstanding the now and then half-provoking interference of their *safe bind safe find* director, Mr. Good; notwithstanding that he occasionally clips the wings of some new adventurer, and denies to admiring wonder the novelty of the present, or the revival of a questionable practice of former days; all this careful and considerate supervision we can afford to give them credit for, and care little for making abatements, when they have stepped beyond the line of legitimate interference; but there is one thing, above all others, that we owe them much for, which, we are sorry to say, does not seem to be so scrupulously observed by their fellow commissioners of the ecclesiastical function above named; the Church Commissioners are allowed to have exercised their power with a due respect to the nomination of local authority; the Ecclesiastical Commission, stepping over this just and equitable line—if report speak true—and interfering in an arbitrary manner in the practice of architects, discarding one and appointing another, and all this, too, as it appears to us, without the least sanction of a necessity, or any plea but that of a wanton caprice or leaning of favour.

We have seen some plans lately for a parsonage house in the midland districts, from the hand of Mr. Railton; they are nothing extraordinary, and, indeed, are strongly objected to by some we have heard speak, because of their nondescript character as to style, and as to some interior arrangements; in this, however, we are not disposed to join; there is merit in the design enough to make comments upon it impertinent, except for the purpose of dealing with the matter or the manner of its choice. We are informed that some architect from the neighbourhood of Plymouth had been employed, and had gone to considerable trouble in preparing his designs, but was superseded for Mr. Railton; no one appreciates Mr. Railton's talent and worth more than we do, and we are therefore the more readily brought to the consideration of a matter in which his probity is concerned. We hope he has nothing to do with any ungenerous usage of a brother professor; or if he has unwittingly been led into it, that he will wipe his hands of it in the way in which it may best become him.

CLERICAL MUNIFICENCE.—The Rev. W. J. Brodrick, who is rector of Bath, knowing the crowded state of the Abbey and other burial-grounds within his rectory, has most munificently come forward, and at the cost of upwards of three thousand pounds, supplied a cemetery, and presented it to the abbey parish. It is to be consecrated in August.

DR. SPURGIN'S PATENT MACHINE FOR HOISTING BRICKS AND MORTAR.

WE have seen this machine in operation at a lofty building now being set up by Mr. Cubitt, by the Albert Gate, Hyde Park. Considerations of humanity alone would induce us to give it preference over the toilsome, dangerous, and, we will venture to add, heart-wearing practice of running up the many-storied ladder which the bricklayer's labourer is accustomed to. There are certain things that machinery ought always to be employed in, and this is one of them. In Wales it is the practice to this day for men to carry most of the stones up to the walls of buildings, by an inclined pathway of planks; sometimes the stones on the back, the labourer proceeding forward in a stooping posture; and in other cases where the stones are too large, or so small as to be numerous to the burden, on hand-barrows borne by two men. This plan would be laughed at in England, where the ingenuity of the machinist applies to the "winch and fall," and the day is not far distant when bricks and mortar, as by this plan of Dr. Spurgin's, will be invariably hoisted by machinery. Who that has looked upon the monkey-like agility, the daring, and the extreme exertion of the "Paddy," as he is termed, ascending the scaffold with a full hod of bricks or mortar, has not, like ourselves, said it was a task unfit for our species, and not less degrading, custom excepted, than to see them engaged in drawing carts and waggons; equality degrading, we say, and unprofitable as it would be, to put a dozen men in lieu of two or three horses, to drag the harrow or the plough? So we say it will be thought in a short time, when the simple machinery of Dr. Spurgin comes into general use. To carry bricks up lofty ladders on men's backs, will be thought as absurd as to raise large blocks of stone to the tops of buildings by rollers and inclined planes, instead of by the travelling crane now in common use. The present plan is a wanton waste of human energy and courage, and ought not to be tolerated except in extreme cases. There is quite enough for poor humanity to achieve in the way of brute labour, in transferring the cumbersome materials from one point to another on the same level, without being required to this unnatural exercise of mounting from one level to another. We do hope that an abridgement will speedily take place in this respect, convinced as we are that it will be followed by that which cannot be said of the working of that machinery, that it will extend the sphere of useful and suitable employment to the general building artificer.

To facilitate the operation of raising bricks and mortar to buildings of great height, will be to increase the demand for a higher, that is a more intellectual, species of labour; more carpenters, masons, bricklayers, &c. can be employed, and not less labourers, but all gained out of the turning of this machine; it is a turning or winding machine. At present, we observe a couple of men employed turning the handle which supplies the moving power to an ordinary wheel and axle, over which axle a bar-link chain revolves in connection with a second axle—all placed in one frame upon the ground—and this latter axle connected by a large vertical chain to a wheel or axle frame at the top of the building, or rather at a scaffold arranged for the topmost level of the building; this vertical chain is of long links or loops, so formed or connected by cross pins that the hods containing bricks or mortar can be hooked on in the course of its slow and steady ascent, and as easily disengaged on its arrival at the level where it is required; the chain is an endless one, so that the returning empty hods are hooked on the descending side, and find their way to the ground. We shall hope to illustrate our article and make it clear in a succeeding number.

Let us not, however, be misunderstood; we will make no compromise on this or any other occasion between the prerogative of capital and the prerogative of labour—happiness to the many rather than gain to the few, is our motto—and it is because, fortunately for the inventor of this machine, that the former requirement seems to be promised rather than the latter, that we turn our attention to Dr. Spurgin.

THE valuable qualities of the lime obtained from the lias formation, and known in commerce as BLUE LIAS LIME, require to be known throughout the building trade. We have previously, in general terms, mentioned the peculiar uses for which it is adapted, and now transcribe from the article headed "Stucco" in the volume of miscellanies in the *Encyclopædia Metropolitana*, written by Professor T. L. Donaldson, Professor of Architecture, University College, the additional information that seems needful, and which also refers to works where this material has been employed.

"Blue Lias is the most valuable material employed for construction in England, as it combines many of the qualities of the calcareous and of the aluminous cements. Mortar compounded of lias will always be most efficient, if kept for some time after mixture, before it is used up; it will improve every time it is reground, or again mixed up by hand. In the ordinary mode of slaking, it is left, after calcination, when the water has been added, covered by cloths or fine sand, in order to confine the steam or vapour thrown off during the process of slaking. After lying eighteen or twenty-four hours, the lime will have fallen into a fine powder; one gallon of water will be sufficient for one bushel of lime, and it should be sprinkled over it equally, and the heap be well moved before laying it up. If too much water be used, the lime will set instead of falling to pieces and pulverizing. It should then be passed through a fine sieve, and the larger particles again subjected to the same sifting process. When blue lias is to be used by the plasterer, for rendering or stucco, it is ground in a mill and reduced to a fine powder, so as to pass through a very fine sieve, with twenty-four openings to the inch. It should lie in bins or chambers some weeks before it will be fit for use as stucco; for if worked up fresh or hot it will at first set most quickly, but it will soon after swell, crack, and fall off. The lias, when ground, will keep good a year or two, preserved in a dry place; the only difference, using it then, is, that it will not set so quickly but it will eventually become equally hard.

"For brickwork under water, or exposed to the water, one portion of lime will take only one and a half of sand; but if above the water, two of sand to one of lime. Three portions of sand may be added to one of lime for the first coat, and two of sand to one of lime for the finishing coat. For concrete, one-seventh of lime will be ample.

"For stucco, the first coat should be mixed with a coarse grit sand, and left rough; the finish coat having a fine sand; and if intended to have smooth surface, being worked with a covered float the more labour used in the floating the better. In plain work, lias cement is as expeditious as Sheppey cement; but in mouldings and other elaborate work, it requires much longer time. The natural colour of the lias cement, is a fine staint; it therefore does not require, as the aluminous cements, a wash; but if after the lapse of time may be thought necessary, it may be gone over with a wash, formed by a small quantity of the lias cement, mixed in plain water, which will readily here and remain; or the outside may be rubbed cleaned off as Portland stone.

"The principal buildings in London which the exteriors rendered with blue lias cement, Belgrave-square, by Mr. Basevi; Hyde Park Gardens, by Mr. Crake; and the Club Chambers in Regent-street, by Mr. D. Burton. In the rooms in the British Museum, and the interior of the Post Office, St. Martin's-le-grand; it has been used extensively by Sir Robert Smirke.

"The basin to the St. Katherine's Docks, on the side next the Tower of London, is faced with viors set in blue lias mortar. As its introduction into works in the metropolis had been so rare the men were at first not prepared for the peculiar care required by the blue lias lime in slaking, and subsequent application, which are so different from the chalk, or Medway, or Dorking; but after some practice they were able to put it to use properly, and it has been found to be the purpose admirably."

We are sorry to record another instance of Vandal mischief, which, to the honour of the lightened capitals of the Continent, has been amongst them till of late, that precautions against its practices have not been thought of. During the night of Sunday, the 2nd inst., the frescoes, decorated the arcades in the garden of the residence at Munich, were so injured with pointed instrument, as to be wholly undistinct. The strictest investigations have failed to discover the author of this disgraceful outrage.

Athenæum.

TIMBER BRIDGES.

TO THE EDITOR.

Sir,—Having seen, in the fifth number of your journal, an article upon Timber Bridges, and an invitation to correspondents to submit for publication descriptions of, or remarks upon, timber bridges, under such circumstances I beg to lay before you the inclosed sketch of the Malahide Estuary Bridge (upon the Dublin and Drogheda Railway), now completed according to the design and under the superintendence of John McNell, Esq., engineer in chief to the company, and executed by Mr. William McCormick, their contractor for lots No. 1, 3, 6, and 7 of the railway works. This noble piece of work, unrivalled in the annals of modern timber bridges, was commenced in the month of March, 1842, and completed in March, 1843. Its entire length is 534 feet, comprising 11 bays, each 48 feet span (between main piles), 28 feet wide, and 20 feet high (from strand to level of rails). It stands in the centre of an embankment 1200 yards long, which carries the railway across the channel and estuary of Malahide, and where ordinary spring tides are 12 feet high. The abutments at each end of the bridge, as shewn on the drawing, are built upon piles driven into the strand 13 inches square, well shod, and driven by

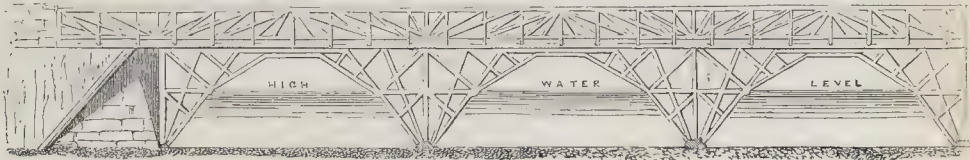
an iron ram 800 lbs. weight from a fall of fifteen feet, until at each blow they could not be driven more than half an inch, after which the piles were cut, and waling pieces bolted thereto. A second row of sheeting piles, 3 inches thick and 9 inches wide, were driven with the joints or edges tongued into each other, and united by strong bolts to the longitudinal or walled pieces; over those main and sheeting piles were placed large horizontal sleepers, bolted down and filled in between with strong sharp concrete levelled to the top, and the entire upper surface sheeted or floored over with wrought and jointed elm planking, 4 inches thick, spiked down. The superstructure of the abutments being thus forwarded, the masonry commenced, and consisted of large even bedded stones laid in hydraulic mortar, being 12 feet 6 inches thick at bottom, and 10 feet at top, faced with rock-faced Ashlar work, with chamfered joints, and backed with good rubble masonry and three counterforts to each abutment; the wing walls, as shewn on drawing, are also built with rock-faced Ashlar to a batter of 1 in 9, and coped with chiselled lime-stone, forming a very neat finish. The entire bridge is trussed and bound together in the strongest manner, and the balustrade forms a combination of taste and strength of

construction seldom to be rivalled in bridge joinery. The entire quantity of timber of the best description contained in the bridge is fifteen thousand cubic feet, and is bound and secured by wrought and cast-iron sockets, straps, tension-bars, bolts, &c., amounting in weight to about one hundred and fifty tons. I have often within the last three months stood upon the bridge when a locomotive engine with eighteen waggons of earth and stone have passed over it (to form the remainder of the embankment), and consider the vibration very little more than that of an ordinary stone bridge of one quarter its magnitude. The wood-work over the level of the strand is painted white, and is seen at a great distance from sea on the one side, and land on the other. Its perspective from the S.E. is very imposing, as the bays form a kind of intersection of skeleton arches or ribs similar to the open timbers in a Gothic hall of olden time. By giving the within a space in your journal,

You will oblige, Sir, your obedient servant,

JOHN KELLY, Architect.

44, Upper Gloucester-street,
Dublin, July, 1843.



Scale 25 feet to an Inch

Three of the eleven Arches of the Great Timber Bridge, or Malahide Estuary Viaduct, on the Line of the Dublin and Drogheda Railway.

ON THE APPROPRIATE DISPOSAL OF MONUMENTAL SCULPTURE.

THE following letter, addressed by Mr. Westmacott, A.R.A., to the Rev. H. Milman, Prebendary of Westminster, appeared in the *Athenæum* of Saturday last, and will be found well worthy of perusal. We shall on a future occasion make it the subject of consideration.

TO THE REV. H. MILMAN.

As I hear it is in contemplation to make some changes in the disposition of the monuments now in Westminster Abbey, and that sites are to be found for others that are likely to be placed in that church, I avail myself of the opportunity thus afforded me to address to you a few observations on a subject that has long engaged my attention, and upon which I already have had conversations with yourself and others who feel an equal interest in such matters; namely, on the appropriate treatment, technically speaking, and disposal of monumental and ecclesiastical sculpture. I am the more strongly tempted to put forth my views at the present moment by the growing disposition that is evinced to give art, generally, more consideration than hitherto it has received in this country, and especially by seeing how much attention is now bestowed on ecclesiastical architecture and decoration. I venture to think, therefore, that the remarks I am about to make may not be thought altogether undeserving of the attention of those in whose hands is the power of giving effect to such suggestions as may appear of any value, and of remedying one of the greatest abuses, in its way, which long continued carelessness has caused, and still suffers to exist.

Westminster Abbey and St. Paul's Cathedral, from the importance derived from their scale and character as the great metropolitan churches, have been considered the fit depositories of almost all the public memorials that have been erected in this country to departed eminence or worth. Perhaps no single church in the world contains monuments of greater interest than are to be found in the former; and its character in this respect is so generally recognized on the continent, that I well remember on being taken into the church of Santa Croce at Florence, the Italian friend who accompanied me thither exclaimed, pointing to the monuments of Galileo, Michael Angelo, Machiavelli, and others of his distinguished countrymen,—"Ecco il nostro Westminster Abbey."—This reputation of the cemetery of our kings, statesmen, poets, and heroes, is not undeserved; but standing, as I truly believe it does, pre-eminent for the interest which attaches to it for its public monuments, it may as truly be said, that it is quite as remarkable for the inappropriate and even objectionable style of the greater proportion of the works, particularly those of comparatively modern date, which

its guardians have allowed to be placed in it. In making this reflection, I do not mean to allude to the style of art exhibited in the various works referred to, which may be simply characteristic of a period; nor to the quality or merit of the workmanship, with which the present question has nothing to do: but it does apply most forcibly to the feeling, the sentiment, which pervades many of the designs, and which renders them as unfit for their situation as they are foreign to the purpose for which such works originally were intended.

Two classes of monumental design have been required in memory of the dead. One, of a personal and commemorative character, and having reference to worldly honour and achievements, and therefore illustrating the importance of the individual; the other, intended to be simple records of the dead, the reminders, not of the glory and honours of a transitory life, and of this world, but of that change to which all are doomed—of that change in which the tenant of the most gorgeous tomb, however "high, and mighty, and puissant" he may have been in his lifetime, must be viewed as only equal with even the least distinguished of his fellow men, and who, instead of being pointed at as an example of greatness, can only help to give greater force to the simple lesson which the dead may teach the living. I am anxious to mark strongly the distinction that exists between the two classes of monuments; and, without meaning in any way to interfere with the erection of works that, doing just honour to great deeds, may incite others to deserve equal acknowledgment from their country, to insist upon the importance of the classification; and, by so doing, to endeavour to pave the way for a more appropriate destination of the respective works.

A great error has, it appears to me, been committed in allowing monuments of the two kinds, and erected for such entirely different objects, to be placed in a common receptacle—more especially in our churches—in depositing thus, in close juxtaposition, the proud boasting illustration of heroic or warlike achievement, and the simple and unostentatious tomb of humble piety—one put forth as the incitement to attain to earthly distinction, the other placed there as the impressive record that "greatness is departed," and that "unto dust must we return." It is to this point then, especially, I wish to call your attention, with the hope of procuring your support and co-operation in persuading so important and influential a body as that of which you are a member, to give at once its sanction, by the steps it has the power to take in Westminster Abbey, to a more correct and a more decorous regulation.

It is well known to all who have studied the history and character of ecclesiastical sculpture, that in the earlier times monumental art was peculiarly distinguished for its quiet, unpretending, and, if it may be so said, religious sentiment. Even the most wealthy and the most dignified personages,

whether sovereigns, warriors, or ecclesiastics, were represented simply extended, on the lid of their stone tomb. When accessories were added, they appear as angels, supporting the pillow under the head of the deceased, or kneeling in prayer, or watching at his feet. In some monuments are found also figures of saints, or ecclesiastics, or even of members of the family to which the deceased belonged, placed in niches in the pedestal, or around the tomb on which the body is lying; but they usually are in attitudes of prayer or penitence. Sometimes the wall against which the tomb stands is decorated with paintings, or the niche which receives it, or the canopy over it, are enriched with relief, illustrating some scripture or religious story; subjects which afford a wide and attractive field to the artist for the display of deep feeling, fine composition, and every other high quality of art. There certainly are occasional exceptions to this rule among the older works, but it seldom happens, till a later period,—when perhaps the fervour of truly religious feeling was grown cold—that subjects are introduced having an exclusive reference to this world and the deeds of this life. It is not necessary to dwell upon this fact. An examination of monuments of the kind alluded to—the earliest of which, in this country, date from the eleventh century—will satisfy the observer of the truth of the remark; and a comparison of these with the style of monument of the sixteenth century, and extending down to our own time, will sufficiently, and, I may be permitted to say, painfully, illustrate the change of sentiment that had crept in, when ingenuity, finery, fancy, and mechanical skill, were substituted for earnestness of feeling and simplicity of design.

It does not become me to presume to lay down any rules for the treatment of monumental sculpture; but I am desirous to answer some objections that have been offered to returning to the more simple style of design. It has been said that if this should become general all monuments would be alike; that they would be tame copies of each other; that there would be no room for the display of skill, or the exercise of imagination; and finally that monumental art would be so mechanical that it would cease to have any effect on the spectator. But it must not be supposed, that in carrying out the principle of simplicity and singleness of feeling in monuments of this class, sculptors would necessarily be limited to one type. It is not necessary to recur to the monuments of the thirteenth and fourteenth centuries, as the models that are to be implicitly followed. It is quite natural that when sculpture was first used in monuments, and art in its infancy, the most simple forms should have been adopted; and these were shewn in the effigy of the person commemorated lying on his tomb. This, therefore, was the type generally employed, and it continued to be used, prescriptively as it were, for a long period. But the unqualified adoption of

these primitive forms need not be insisted on as the only means to give modern sculpture an equally expressive character. An artist, without losing sight of the principle, may still introduce a sufficient variety of action, to save himself from the suspicion of poverty of ideas, and his works from the charge of a dull, monotonous uniformity. Statues of all classes—of the king, the judge, the philosopher, the soldier, or the senator—of simple design, and in attitudes of meditation, offer ample opportunity for the display of all the higher attributes of art, whether of expression or form; and when to these are added appropriate illustrations in relief or in figures, it is going too far to say that church sculpture, so to call it, does not give the artist room to exercise his imagination, and to shew his skill. It might be interesting to trace the origin and growth of the mixed or pseudo-classical taste, and to attempt to account for the abandonment of the devotional or religious feeling which characterizes all the earlier specimens of monumental design; but the inquiry does not necessarily bear upon the purpose I have particularly in view, and its consideration would carry me far beyond the limits to which I desire to confine myself in this letter. A distinguished French writer has made the following remarkable observation:—"Quand la foi est morte au cœur d'une nation vilaine, ses cinquièmes ont l'aspect d'une décoration païenne." Surely, whatever may be the cause of such an effect, this may too truly be said with regard to the "aspect" of those of our churches in which monuments are found. Instead of inviting meditation, or giving rise to serious thoughts, they are in this respect little better than places of amusement—and, too often, exhibition rooms of bad taste and no feeling; and so far justify the doubt felt by a certain right reverend prelate, who as he looked round at the anomalous half pagan and mythological representations which crowd Westminster Abbey, inquired "whether he was in a Christian church or a heathen temple!"

This false taste is not confined to this country, and it is most unjust to charge it, as some are too much inclined to do, to the change of feeling produced by the Reformation. It is needless to particularize the numerous examples of it that may be found all over the Continent, in the churches of Germany, France, and Italy. In St. Peter's, at Rome, the monuments even of the Popes exhibit the most absurd and incongruous compositions. Their figures are frequently seen seated, standing, or kneeling, in the midst of mythological and allegorical personifications (under the forms of male and female attendants, either half naked or not clothed at all), which, instead of adding to the proper interest of the work, entirely rob the design of anything like a religious character. This style of design was at one time universal; it is, as I have stated, met with abroad, and it dates there from the same period as the objectionable taste which has helped to disfigure, and it may almost be said to desecrate, the churches of England with the same kind of monumental compositions—and it is more striking on the Continent, from the greater scale on which sculpture has there been practised.

It has been said that those who are intrusted with the care of our churches have endeavoured to prevent the introduction of objectionable designs; and one of the arguments that have been used in favour of charging fees for the admission of monuments into churches is, that it acts as a check to the erection of works of a character that are inappropriate to such buildings. That the imposition of high fees may occasionally prevent the erection of monuments at all, admits of no doubt, but that the fees, however exorbitant, have the slightest influence upon the style, or taste of the design of a work, or, to go further, that they are ever charged with the view to exclude a work simply on account of its demerits or inappropriateness to a place of worship, is, as we all know, contrary to the fact. The fees charged for erecting a monument, however humble its pretensions, in Westminster Abbey, are proverbially heavy. What effect has this produced? None; but to prevent those whose means are unequal to meet the demand from erecting monuments in the church—certainly none whatever either in giving a higher or better character to design; or in preventing the introduction of the most absurd, and, occasionally, the most objectionable fancies and follies that ever were "done into stone." I am told no fee is charged for the erection of monuments in St. Paul's Cathedral; but, with the view of preventing the erection of tablets and other works of small dimensions and trifling character, which might disfigure the church, a general rule exists that no monument or statue shall be admitted there, the expense of which does not amount to such a sum as shall secure the work being of a certain importance as respects size and character. This is well in its way, and as far as it goes; but there is no regulation to insure the design being of a Christian character, as may be seen by any one

who walks round that church. The monuments, creditable as they are to their respective authors for other qualities, are fully as often illustrations of the fables and mythology set forth in 'Natalis Comes,' or in Dr. Lempriere's 'Dictionary,' as they are intelligible and suggestive records of deceased Christian men.

In the above remarks I have referred, generally, to the distinction that properly exists between two classes of design; and I have stated the more striking objections that have occurred to others as well as to myself, to the admission into churches of monuments eminently deficient in the treatment appropriate to such destination. It now remains to be considered whether there are any means by which this evil may be removed, or if not removed, at least partially remedied. If these can be discovered, another important advantage will be gained, in addition to that alluded to, in the prevention of such questions as unfortunately have arisen with respect to admitting into churches ordinary commemorative statues of individuals whose lives or writings have been considered of a character to justify their exclusion. The guardians of our churches would then be spared that most painful and apparently uncharitable office, of pronouncing sentence upon a fellow-creature no longer amenable to human judgment; and a statue intended to do honour to the poetical genius of a Byron would not then be left for years in the cellars of the Custom House, because the authorities of the Church cannot consent to admit it within the walls of a place of worship.

The most obvious mode of effecting these objects would be to establish distinct receptacles for monuments so distinct in character as those last referred to, and what may be termed sepulchral monuments: to appropriate some public building, or apartments in such building, exclusively for heroic commemoration, and to let it be generally understood that no works but such as have a distinctive ecclesiastical character in their mode of treatment, are to be placed in edifices used for religious purposes. It is clear that any general rule established on this principle can only be made to apply to the future; but it may not be altogether beyond our means to effect some beneficial changes in the disposition of existing works, and it is to this subject that I would now earnestly invite your attention. Taking the projected changes as the ground-work for a more extended operation, I should propose to carry the partially new arrangement of the monuments much further than at present may be intended, and suggest that an entirely new *locale* may be used for those statues which are either placed where they cannot be seen, or inconveniently or improperly occupy situations in the body of the Abbey, or in its chapels. The fact of these works having already been received into the sacred edifice might seem to form an objection to their being removed; and it may be urged that, whatever regulations may be made with regard to admitting works in future, respect should be shewn to these "older tenants of the soil." Some objection to change may also be felt by those who connect historical associations with the monuments placed as they now are in the Abbey. It is far from my wish to disturb a charm that gives so great an interest and value to commemorative art. On the contrary, it is to increase the value of the associations to which monumental sculpture should give rise, that I urge the adoption, as far as may be, of my plan. I feel as strongly as any one, that the great object which art is intended to effect is only to be advanced by elevating it above the mechanical: that it is the power to excite thought that gives the productions of genius their hold upon the feelings, and raises the real artist to the rank of the poet and the moral teacher. It is, then, with the hope of giving the fullest effect to fine creations of art (too often destroyed from the works being placed in inappropriate situations), and, at the same time, of advancing another great purpose, by removing from a place of worship objects that are calculated rather to disturb than induce reflection, that I make the above suggestion. I would observe, too, that the question is not one of destruction nor rejection, but simply of change of situation. It must be remembered that very few of the monuments in the Abbey are immediately over, or, indeed, very near the remains of those in whose memory they have been erected: nay, it is perfectly well known that the subjects of many of them—as Shakespeare for instance—are not even interred in the church. Making, then, every allowance for these objections, and admitting that they rest on grounds deserving respect and consideration, I still venture to think they are not insuperable. The change of situation within the Abbey is, as I have observed, already contemplated. An occasion fortunately presents itself, if it can be taken advantage of, for carrying out a very important part of the plan I venture to recommend, while at the same time the utmost regard may be paid to the works which it may be thought expedient to select for removal. Admitting that the entire rejection of any monu-

ment already received into the Abbey might give offence, a simple change of situation to a building connected with and contiguous to the church, could not be considered to involve any disrespect to the works placed there. The opportunity of effecting this is now offered to the Dean and Chapter, if they should be pleased to avail themselves of it, by the removal of the public records from the Chapter House, in which hitherto they have been deposited, to a building exclusively intended for the reception of such documents. I would most respectfully, though earnestly, recommend, if the necessary permission can be obtained, that this portion of the Abbey should be used for commencing the reform every well-wisher to monumental or ecclesiastical art must be anxious to see made. The statues—for at present I only contemplate the removal of a limited number of these—might, under proper superintendence, be advantageously placed round this fine chamber; and thus, while the church would gain in beauty and character by having many of those works removed from it, a kind of Vahalla, or Hall of Heroes, would be commenced, having for its first tenants and decoration memorials consecrated, as it were, by having originally stood in the church itself. The works in relief, and other more extensive compositions, which are fixed against the walls of the church are, for the most part, quite as objectionable in style and taste as some of the single statues, and equally disfigure the building; but their removal would involve so much difficulty, both as regards cost and finding other places for them, that I will not venture to offer any opinion upon the best way of re-arranging such works, least, in my recommendation to do more than appears practicable, I fall in gaining your support towards what I feel really is so, if those in whose power it is to sanction the alteration will but earnestly give their assistance in carrying it into effect.

The adoption of some such principles as I have here endeavoured to advocate, would tend more than anything else to improve the character of monumental design of all kinds. Much has already been done by some of the more distinguished of our sculptors, by the adoption of a more simple mode of treatment, and by giving a more concentrated interest to their subject, to discountenance the miserable and objectionable mixture of times and character that have pervaded works of art; and it is gratifying to witness the manner in which this attempt to give a better direction to taste has been received, as well as the effect it has already had on the public mind. There is now no fear that we shall again see the heathen mythology ransacked to illustrate the character of a contemporary hero or divine. Mars and Hercules will no longer be the aides-de-camp of the victorious general; nor a naked Neptune, flourishing his trident, the attendant of a full-dressed admiral of the British fleet; nor will the presence of Apollo, or the supervision of the goddess Minerva, be considered essential to direct the pen, incite the genius, or advance the studies, of the poet, the orator, or the theologian; but were it understood that no sepulchral monuments would be admitted into churches that have not upon them the impress of serious thought, artists would by degrees have their minds attuned to the proper mode of composing and treating such subjects; while their poetical fancy would find abundant exercise in statues and relief of the commemorative class, to be placed in the open air, or in halls and porticoes, where feelings of triumph and aspirations after worldly honour and the praise of men may not improperly be indulged in. A more florid style of design may also have its advantages where a striking or picturesque effect is to be produced, or where great variety in the composition may be in harmony with surrounding objects.

I offer the foregoing suggestions with great deference and respect; but I trust I shall not be considered presuming for thus expressing my opinions upon a subject to which, from the nature of my pursuits, I have given much of my attention; and to which I attach a greater degree of importance than many are disposed to attribute to it. The records of the dead, in whatever form they come before us, are among the most interesting and affecting of the works of man, and, in many respects, among the most valuable monuments which one age can leave to another. In all regions, savage or civilized, and from the most remote periods, have such memorials existed; and whether they be the offerings of private affection or the tribute of public gratitude, they make their strong appeal to our sympathies, and are associated with many of the best feelings of our nature. In this point of view, then, they claim our highest regard; and I am most anxious to see such works justly appreciated and properly disposed of. I have presumed to think it is in the power of those who have the management of our cathedrals and churches, to avail themselves advantageously of the feeling that is now developing itself on all matters relating to art; and especially, to effect great improvements in those particulars to which I have alluded. The dean and chapter of

* Mr. Westmacott observes, in a note—"It is due to the Dean and Chapter to state that the fees for the restoration and repairs of the fabric; and that no charge is made for permission to erect a public monument."

Westminster, from their position and character, may exercise a most valuable influence in this respect, by boldly, though judiciously and carefully, taking the lead in these improvements. Their high authority and example could not but have great weight in advancing the cause I have endeavoured to advocate; and the attention of other ecclesiastical bodies would thus be drawn to a subject which calls for their interference, and fully merits whatever consideration may be given to it.

I remain, &c.

RICHARD WESTMACOTT, Jun.

Wilton-place, Belgrave-square, July, 1843.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1276).—Windows—House—Due Assessment

—Composition.

Partly having thirteen windows and compounding for nine only, is not protected from the duty for thirteen by his contract of composition. (48 Geo. 3, c. 55, sch. (A.) and 4 & 5 Will. 4, c. 54, s. 7.) At a meeting of the Commissioners of Assessed Taxes, at Ottery St. Mary, Devon, on 50th Sept., 1840, Abraham Stogdon, Esq., of Lymington, appeared against a charge by the surveyor for the duty from nine to thirteen windows, for the year ending 5th April, 1841. (48 Geo. 3, c. 55, sch. (A.) It appeared he compounded in the year 1819, under 59 Geo. 3, c. 51, for nine windows, and renewed the composition from time to time till 5th April, 1835, when the power of further renewal ceased; but the privilege to which compounders had been entitled, of opening extra windows free of duty, was continued to them from that period by the 7th section of 4 & 5 Will. 4, c. 54. The appellant made the following statement:—"In the year 1822, I removed two old windows from the south side of the roof of my house, and laid a fair roof in their place, and placed one of them in the western end of the same garret, and added a room over the back kitchen with a new window, so that I have now the same number as before I began to compound; since the year 1822, no alteration or addition has been made to my house or windows." He then referred to the 7th section, and to the printed instructions given pursuant to it, to the present year's assessors, of which the following is a copy:—"It will be seen that those persons who were under composition for window duty for the year ended 5th April, 1835, and who still inhabit the same houses, are now chargeable only for the same number of windows which was specified in their contracts, and not for any other windows which they have opened, unless since the 5th April, 1835, they have erected additional buildings." The appellant contended that the number of windows mentioned in his contract of composition was the number at which he stood assessed in the assessment, and was accepted as such by the commissioners signing the contract of composition, under which contract he had continued for sixteen years. He therefore contended he was clearly exempt from liability for the four extra windows.

William Kite, the surveyor, observed, that as the house contained thirteen windows (as shown by the appellant) at the time the composition was entered into, the composition ought to have been upon that number, notwithstanding the fault of the assessor in charging only nine: the contract therefore was not legal; and though renewed under 1 & 2 Geo. 4, c. 113, the 21st section thereof declared it void, by reason of being on a less amount of duty than ought to be included. And as to the interpretation of the said 7th section of 4 & 5 Will. 4, c. 54, he submitted that the word "duly" applied as well to compositions as to assessments, and meant valid compositions only; and for such reasons he considered the composition could not be set up as a protection against the charge, but that the charge ought to be confirmed.

We, the Commissioners, confirmed the charge accordingly, and the appellant being dissatisfied, has demanded a case for the opinion of her Majesty's Judges, which we hereby state and sign accordingly.

Geo. Smith, Commissioners.

J. E. LEE,

18th May, 1841.—We are of opinion that the determination of the Commissioners is right.

J. PATTERSON. T. COLTMAN. W. WIGHTMAN.

(To be continued.)

UNIVERSITY COLLEGE, LONDON.

The distribution of the Prizes took place at the College on Saturday, the 1st of July.

In ARCHITECTURE the prizes were awarded as follows:—

Course A. Fine Art Prize and 1st Certificate, E. DOBSON.

2nd Certificate, FREDERICK LETT.

Course B. Science Prize and 1st Certificate, J. CROUCHER.

2nd Certificate, E. DOBSON.

3rd Certificate, G. JUDGE.

We subjoin a copy of the examination papers to which the candidates had to give answers in the class-room, three hours being allowed for each of the courses.

ARCHITECTURE AS A FINE ART.

(Course A.) First Year. Greek and Roman Architecture.

1. Into how many orders has architecture been classified by the Greeks, Romans, and modern Italians?

2. State the leading essential parts common to every order.

3. Make a sketch of the first rude building, shewing the origin of the principal features of an order and temple.

4. Describe the distinctive features of each order.

5. How did the ante differ from the pilasters, and to which people were these features peculiar?

6. Name the parts of a Corinthian capital.

7. Draw the spiral of an Ionic volute with its diagram.

8. Specify the general proportions of each order.

9. Name some edifices in Greece, Rome and London, classified according to the orders.

10. State and define the classes of temples according to the arrangement of the plan.

11. Describe the styles of temples according to the intercolumniation.

12. Draw the plan of a peripteral hypethral temple, and put the names to the several parts.

13. What were the propylæa of ancient buildings, and their leading features? State examples.

14. Name and describe the principal parts of a Greek theatre, and give a rough sketch of the plan; note whether the circular part be a semicircle, or whether it be more or less than a semicircle.

15. With what people did triumphal arches originate? how many classes were there of them, and what the peculiar features?

16. Describe the uses and proportions of an agora and forum, and of the buildings connected therewith; note to what people each was peculiar.

17. Describe the Coliseum and thermæ or baths of the Romans.

18. Sketch a plan of a circus: state to what people peculiar, the uses of the parts, and the corresponding edifice with the other ancient people.

19. State the distinctive difference between Greek and Roman architecture.

20. What is the name of the classic writer on architecture? and at what period did he live?

Egyptian Architecture.

21. What are the earliest specimens of Egyptian architecture?

22. Describe the principal parts, the uses and decorations.

23. State the chief accompaniments of an Egyptian temple outside the peribolus, their arrangement, proportions and decorative embellishments.

24. Sketch the plan of an Egyptian temple, with its several precincts, courts and halls.

25. Make a sketch of a propylon with its decorative accompaniments.

26. What object in nature did the Egyptians adopt as the prototype of their capitals? Sketch, in their general proportions, two or three examples of shafts and capitals.

27. Draw a plan and section of a pyramid, shewing its galleries and chambers.

28. Name the situations and dimensions of any of the principal pyramids.

29. Describe generally the peculiar character of Egyptian architecture.

ARCHITECTURE AS A SCIENCE.

(Course B.) First Year.

1. State the number and names of the classes, into which may be divided the materials used in construction.

2. Describe the natural structure of a tree, and give a section of the trunk.

3. Name the leading varieties of timber trees.

4. State the principal countries and ports in Europe and America whence timber is imported into this country.

5. What is the relative value for constructive purposes of European and American timber?

6. State the leading features of dry rot,—the causes, effects, and remedies.

7. Describe the different sorts of resistance, which timber has to offer in construction.

8. What are the principal and different manners of placing a piece of timber so as to support or resist a force or weight, and their relative efficiency.

9. If a beam have one end fixed in a wall, and its fibres were wholly incompressible, what would be the effect of a load placed upon its other or projecting end?

10. What would be the effect of a load placed upon the projecting end of a beam with the like conditions, but with the fibres wholly inextensible or non-elastic?

11. Draw a simple king-truss for a span of twenty-feet, put the name to each piece of timber, describe its use, and indicate by arrows the course of the forces acting upon the truss, and the point of resolution of the forces.

12. Draw a queen truss with the like details.

13. Sketch the articulations of the timbers at the heads and feet of king and queen posts, ends of the beams and joints for plates, ties, and braces.

14. Sketch various sorts of scarfings, distinguishing those which are soundest.

15. Sketch the section of a Gothic collar roof; name the various timbers.

16. Describe the timbers of single-joisted floors, single-framed and double-framed floors.

17. Describe the system of Herr Laves and of Philibert de Lorme.

18. Describe the principle upon which centerings should be constructed, and where the straining piece should be.

19. Make a plan and elevation of the scaffolding for the Nelson Monument.

20. Describe the scaffolds used for raising the Obelisks at Rome and Paris.

21. Describe the machinery employed for raising the last statue of Napoleon to the summit of the Colonne Vendôme.

Limes, Mortars, Cements.

22. State the classes into which mortars or cements may be divided.

23. What are the leading distinctive features of the various classes of limestones?

24. State the basis, and also the component part which renders a lime hydraulic.

25. Are we to rely upon the physical or chemical features of a stone in order to ascertain whether it will produce a good lime?

26. What is the test?

27. Describe the processes of calcination.

28. Make a plan and section of a kiln for each process.

29. Does a limestone gain or lose weight by calcination, and in what proportion?

30. What are the different modes and phenomena of slaking time?

31. Is lime strengthened or weakened by the addition of other substances?

32. State how many classes of substance are used with lime to produce mortar, and their respective influences upon mortar.

33. Describe the features of good and bad mortar.

34. From what stone is plaster of Paris made? State its qualities, and whence procured.

35. How many qualities of plaster of Paris are there, and to what uses is each applied?

36. How, where, by whom, and when was the cement discovered usually called Roman cement?

37. What is the term by which the Professor recommends this cement to be designated?

38. What are the peculiar features of the cement stone, physically and chemically, and in what stratum found?

39. Does this stone exist in other countries; and where?

40. Is the cement weakened or strengthened by the addition of other substances?

41. How and for what purposes is it used?

42. How may the strength of cement be tested?

TRINITY CHURCH, COVENTRY.

The west front of this interesting old church is now in progress of restoration from the designs of Mr. Hussey, of Birmingham, and under the able direction of Mr. Ackroyd, the builder, of Coventry. We say the designs of Mr. Hussey, for it must be noted that some departures are being made from the strict matter of restoration, and we are sorry to say not in our mind for improvement's sake. We did expect better from Mr. Hussey.

The stone employed is a beautiful and somewhat new commodity in the market; it is from Temple Guiting, in Gloucestershire. It resembles very much the Bath stone in general appearance, but it is harder, denser, of closer, and we should say, more enduring texture. It is a stone that requires and deserves to be more generally known.

SALE OF THE EFFECTS OF THE LATE DUKE OF SUSSEX.—The following is a correct statement of the amount realized by the property of his late Royal Highness, recently sold by Messrs. Christie and Manson.—Plate and plated articles, 20,752l. 15s. 5d.; decorative furniture, 3,984l. 1s. 6d.; trinkets, rings, and seals, 2,473l. 2s.; snuff-boxes and bonbonnières, 2,238l. 22s. 6d.; clocks and watches, 1,994l. 5s.; swords, pistols, and sticks, 1,092l. 1s. 6d.; pipes, tobacco, and cigars, 3,617l. 9s. 6d.; bijouterie, 802l. 1s. 6d.; miniatures and pictures, 759l. 1s. Total:—37,723l. 9s. 11d.



THE CHURCH OF ST. MADELEINE, PARIS.

THE present edifice is the fourth in succession that has occupied the same site. The earliest was of the thirteenth century, at which period it stood at some distance from the city, upon a domain of the bishop, and from that circumstance was designated "de la Ville l'Evêque." Towards the close of the fifteenth century Ville l'Evêque had become a suburb of Paris, and the old church, or rather chapel, was razed to make way for a larger, of which the first stone was laid in 1487, by Charles the Eighth. Here Charles the Ninth established a religious community called that of St. Madeleine, into which himself and his Queen, Ann of Buhagne, were afterwards received. Nearly two centuries subsequent, Ville l'Evêque was constituted a parish, and in 1659 the church was again taken down and replaced by one of which the first stone was laid by Ann Marie Louise D'Orleans, under the title of the Church of St. Madeleine. At length the vast increase of population rendering even this church insufficient, it was in 1764 determined to replace it by an edifice on a scale commensurate with the requirements of the public frequenting religious services in this quarter of the city, and Constant D'Ivry being appointed the architect, laid the first stone on the 15th August of that year. "This new monument," says an eminent French writer, "is the noblest erected in the capital since the time of Louis the Fourteenth." Events, however, occurred to impede its progress; first, the death of D'Ivry, and secondly, the Revolution. From this period until France assumed the rank of an empire under Napoleon, the building of St. Madeleine had been suspended; by his command it was resumed; "It shall be," said he, "a temple erected to commemorate the glory of the French armies." To Pierre Vignon he confided the work, and placed at his disposal ample funds for its prosecution. After the death of Vignon, who was interred under the portal of the building, M. Huvé was appointed architect; he had been associated with Vignon from the commencement, and his ability had been confirmed by the recommendation of his predecessor as the person best qualified to carry forward the original design to completion.

This vast monument forms a parallelogram of one hundred metres in length, by forty-five in breadth, rising from a substructure of four metres* in height; it is supported by fifty-two fluted columns of the Corinthian order, fifteen metres in height, and five metres in circumference. The peristyle is formed by a double row of columns; each front of the edifice presents eight columns, and each of its sides eighteen columns; the grand entrance is approached by an ascent of thirty steps divided

into two flights. Nothing can be more imposing than the *coup d'œil* of this façade, adorned with all of excellence that sculpture could produce. The interior is lighted by three cupolas, each enriched by sculptures of four of the apostles. There are no perforations in the external walls, but there are niches for statues at each intercolumniation throughout the circuit of the building. The frieze is composed of angels holding garlands, intermixed with religious emblems; the cymatium, or superior member of the cornice, is ornamented with lions' heads and palm branches. A bas-relief of nineteen figures decorates the pediment of the principal front, the other is plain; and in this part of the structure an interior space has been devised to serve as a belfry without destroying the symmetry of the building.

The bas-relief on the pediment of the principal front is by Lemaire, and is upwards of thirty-eight metres in extent, and seven metres in height to the angle; the chief figure, the Saviour, being five metres and a half in height; the subject is the pardon of Mary Magdalen, enriched with numerous figures, attributes, and emblems, and the inscription *ECCE DIES SALUTIS*. The great door, matchless, say the French writers, in vastness of proportions and in enrichments, was designed and executed in bronze by De Triquet, assisted by Richard, Eck, and Durand; it is ten metres in height, and five in width; the impostes and panels are inscribed with the commandments, each illustrated by an appropriate subject from the text of Scripture—as an example, the commandment, "Thou shalt not kill," is accompanied by a representation of the killing of Abel, and the malediction of Cain: "Thou shalt not steal," by Joshua punishing the theft of Achem, after the capture of Jericho, &c. Statues of St. Philippe and St. Louis are placed to the right and left of this magnificent door-way. The niches of the intercolumniations on the exterior of the building, to the number of twenty-eight, are occupied by statues of the principal saints of the Roman Calendar, executed by the most celebrated artists. This, it may be observed, was truly a work of emulation among the sculptors of France. In the large number of statues just mentioned no instance of repetition by the same hand occurs; it was a great occasion, of which advantage was taken by the presiding spirit of the French nation to stimulate and reward the arts.

The vestibule of entrance displays three splendid bas-reliefs, those of the theological virtues, Faith, Hope, and Charity, by Guersent, Lequien, and Brion.

The body of the church consists of a nave deriving light from the three cupolas previously mentioned; the entrance is by an inte-

rior archway at the extremity of which are, on one side, a chapel for marriages, and on the other, a similar reserved space for baptisms. A miniature Ionic order prevails in the divisions occurring in the nave, which comprises six lateral chapels, three on either hand; and the six semicircular spaces above the chapels are filled by paintings representing the life of the Magdalen. Opposite the great door-way, centrally placed, and facing the spectator on his entrance, is the high altar.

As a whole, the interior of the Church of St. Madeleine is remarkable for the magnificence of its decorations in gold and marbles, sculptures, and paintings. A balustrade of white marble surmounts the various interior constructions and adornments resting against the external walls. The roof is entirely of iron and copper.

The object of the designer (*l'auteur*) of this great composition has been to bring under view the personages and events that have most essentially concurred in the establishment and maintenance of the Christian faith, and to impress conviction that its influence has always tended to the well-being and happiness of nations, and of society. The vast space upon which his genius has been exercised, aided by the talent of more than fifty of the most able contemporary artists, exhibits in sculpture and painting the history of the church and of her champions. Upon the frontal pediment, and to the right of the Saviour, Mary Magdalen is seen on her knees, in the attitude of a repentant sinner; but pardon and grace having already been vouchsafed, three angels extend below the clouds upon which they are borne a scroll, with the divine sentence *NOLEXIT MULTUM*. Similar expression pervades the decoration with which the edifice abounds; a history, indeed, of the institution and progress of Christianity, and a personification of its chiefs, the heroes of the crusades, and the saints and martyrs of the church. In the arrangement of this superb mass of mural painting, great judgment is displayed. On the concave recess before which the altar is placed, there is introduced, with surprising effect, a repetition of Christ and the repentant Magdalen, and other scriptural personages, so disposed as to form a great circle around the central point, where are celebrated the mysteries of religion.

The last group of this great composition is consecrated to Napoleon; the emperor is receiving his crown from the hands of Pope Pius VII.; the Bishop of Gênes holds the concordat, and near him are the legate Cardinal Caprara, and Cardinal Braschi.

The labours of the designer closed at this point. Upon a pedestal he has inscribed the year of the reign of Louis Philippe, in which they terminated, together with his name.

* The French metre is equal to 3 feet 3 inches and 371 decimal parts of an inch.

IMPROVEMENT OF THE LAW OF PATENTS.

In the last number of the *Mechanics' Magazine* is a letter from BENJAMIN CHEVERTON, Esq., "On the Velocity of Steam under different Pressures." The writer alludes incidentally to the inventions of Mr. PILBROW, and is thereby led to a consideration of the Patent Laws. The following sentences, with which the letter concludes, are well worthy of attention:—

"The fate of these two patent inventions of Mr. Pilbrow is a sad commentary on the state of the patent laws. Did they but admit, as might easily be imagined, of a twelve months' discussion and canvassing of the merits and of the originality of inventions, prior to the patents passing the great seal, and the greater part of the expenses being incurred, with the option of not proceeding beyond the first stage of a preliminary specification—did they but afford this opportunity, of making the inventions known to capitalists, and securing their co-operation without risk to the interests of the inventors; and also of ascertaining the nature of the inventions that were in the progress of being patented, without having, as now, either to wait till they are specified at the hazard of being anticipated by others, or to go forward, under perhaps reasonable apprehensions of having been already forestalled—what a world of anxiety, what a ruinous expense, what a wrecking of happiness would be spared to a class of men, who, to say the least, are the pioneers of society in the advancement of its material interests. Give me but this boon at a charge of five or ten pounds, and I would not care for the present heavy expenses attending patents—no, not even if they were doubled. Indeed, much may be said against, as well as in favour of, making patents cheap. The institutions of society, generally, have their birth and their continued existence only in a conflict of adverse interests and rights. But whilst in regard to their principles they must of necessity come into direct and palpable collision, it is all the more desirable that the working salient points should be rounded off, and that the crossing, jostling, and deflecting, inevitable to diverse and independent courses, should be effected without shock, and in a manner as smooth and as noiseless as possible. It appears to me, that in order to effect this improvement in the law of patents, little more is required than that a preliminary specification of the leading points of the invention should be enrolled and be open to public inspection—that it should not be substantially departed from in the final specification, without risking the validity of the patent—that it should be introduced, much in the same manner and under the same conditions, except as to secrecy, as specifications are at present, I believe, occasionally called for by the Attorney General, in cases of opposition—that in case the patent pass the great seal, the rights of the patentee should date from the application to the Attorney General and the simultaneous enrolment of the preliminary specification, which surely would not be more anomalous than retrospective legislation—and that if, from the time of such application, the patent were not sealed within a twelvemonth, the invention should become public property; but in the interim may be guarded from invasion, by application to the Lord Chancellor for injunctions, &c., pending the time allowed for the establishment of the patent."

It is somewhat singular that the writer of the best book on the law of patents, Mr. GOSNOLD, a man of high scientific attainments to boot, should have been in Parliament for years, and yet have done nothing for the amendment of the law which relates to property in inventions. The present Attorney General, whose office is so intimately connected with the administration of the law of patents, is also a man deeply versed in science, theoretical as well as practical; surely it would be an easy task for these gentlemen with their knowledge and influence, to frame and procure the enactment of a statute remedial of the evils with which experience must have made them so familiar. The time of the Attorney General is, undoubtedly, much taken up; but Mr. Gosnold, we venture to think, could find, or make, the requisite leisure for executing such a task, were he called upon. It is useless to throw out hints of improvement, unless they be followed up by some attempts to induce those who have power to bring them into operation. Were a meeting to be called, a document to be prepared, enumerating the evils of the present law and suggesting the remedies, and were that document to be presented by a deputation to both or either of the learned gentlemen we have named, there is very little doubt that they would gladly avail themselves of such an opportunity of benefiting their fellow-citizens, and doing honour to themselves.



The Rudston Monolith.



Stonehenge.

LECTURES ON ARCHITECTURE AND ANTIQUITIES.

ON THE ARCHITECTURE RECORDED IN SCRIPTURE.

WHEN the Israelites departed from Egypt and came to Mount Sinai, Moses was there instructed by the Almighty to make a tabernacle. As the people had yet to wander many years before they were to settle in one place, it is obvious that the tabernacle would have to be constructed in such a manner as to be easily transported wheresoever they went, and to be composed of materials best suited to that end. Accordingly, we find it planned in a manner to combine magnificence of decoration with simplicity of construction. The scriptural account and that of Josephus are exceedingly minute, though some passages are involved in great

obscurity. As the former account is within reach of all, it is perhaps only necessary to speak generally of this first temple of the Jews, which served in a great measure as the model for those more splendid and solid structures built by Solomon, Zerubbabel, and Herod. A court was planned 100 cubits in length (the cubit is generally reckoned at about 1 foot 9 inches) and 50 in width, within which area were set up 20 pillars on each side and 10 behind; these were of brass with silver capitals (capitres), their sockets were firmly fixed in the ground, and cords were passed through rings attached to the columns, and "tied at their farther ends to brass nails of a cubit long, which at every pillar were driven into the floor, and would keep the tabernacle from being shaken by the violence of the winds; but a curtain of fine soft linen went round all the pillars, and hung down in a flowing

and loose manner and enclosed the whole space, and seemed not at all unlike a wall about it." (Jos. Antiq. B. iii. Ch. vi. s. 2.) In the middle of the court Moses reared the tabernacle itself, the materials for which were more costly than those employed in the court. It was 30 cubits long, and 10 wide, and twice the height of the surrounding court, being 10 cubits high. The enclosure of this sanctuary was formed of shittim wood, "coupled together," having silver tenons and rings of gold, through which passed bars overlaid with gold; the boards also were covered with plates of gold, both within and without. Each "board," as the scripture version gives it, or "pillar," according to Josephus, had "two tenons belonging to them, inserted into their bases, and these were of silver, in each of which bases there was a socket to receive the tenon; now all these tenons and sockets accurately fitted one another, inasmuch that the joints were invisible, and both seemed to be one entire and united wall." "As for the inside, Moses parted its length into three partitions. At the distance of two cubits from the most secret end Moses planted four pillars, each a small matter distant from his fellow. Now the whole temple was called the Holy Place, but that part which was within the four pillars, and to which none were admitted, was called the Holy of Holies." (B. iii. C. 6, 4.) The walls of the tabernacle were hung with "curtains (or veils, Jos. Antiq.) of fine twined linen, and blue, and purple, and scarlet" (in fact embroidered), over these again were curtains to protect them and the tabernacle, made of "goat's hair." (Exod. xxxvi. 14.) And two other sets of coverings yet were made, "which afforded protection to those that were woven, both in hot weather and when it rained." (Jos. Antiq.) According to Moses one of these coverings was of rams' skin dyed red, and the outer one of badgers' skins. (Exod. xxxvi. 19.) This temporary holy place was the prototype of that more substantial and gorgeous temple which was built by Solomon—in form and general arrangement they were very much alike. The tabernacle, considering that it was a moveable building, appears to have been very splendid, and to have displayed great skill in the contrivance and workmanship; honourable mention is made by Moses of the "architects," as they are called by Josephus, who were set over the work, Bezaleel (the grandson of Hur and Miriam, sister of Moses and Aaron) and Aholiab, men "filled with the spirit of God, in wisdom, in understanding, and in knowledge, and in all manner of workmanship." (Exod. xxxi. 3.) The value of the materials we can account for when we recollect that when the Israelites departed out of the land of bondage, "the women borrowed of the Egyptians jewels of silver and jewels of gold, and raiment," and that "they spoiled the Egyptians." (Exod. xii. 35, 36.) Moses built an altar on the occasion of the defeat of Amalek (Exod. xvii. 15.), and probably he erected others in the different halting-places of the Israelites. In the 24th chapter of Exodus it is recorded that he "built an altar under the hill (Sinai) and twelve pillars, according to the twelve tribes of Israel." (v. 4.) It is supposed, and not unreasonably, that these twelve stones were disposed in the form of a circle, as it is maintained that the erection of the same number by Joshua at Gilgal, bears out this opinion, *Gal*, in Hebrew, signifying a wheel or circle, hence the name *Gal-gal*, or Gil-gal, because there "the reproach of Egypt" was "rolled away." (Joshua v. 9.) The Druidical temples were in the form of circles. The seven altars which Balak erected by Balaam's direction at three several times in different high places, had reference to the worship of Baal, under which name several deities were comprehended. The Israelites received a Divine command to destroy the idolatrous cities of the Canaanites, and from the means used to effect that purpose, they must have consisted chiefly of wood; thus Jericho, (Joshua, vi. 24), Ai, (ch. vii. 28), and Hazor, (ch. xi. 11), were burnt with fire, whilst the altars were to be thrown down and their pillars were to be broken, because they were of stone. Connected with the fall of Jericho are some incidents to which we will allude briefly; Joshua's spies, we are told, (ch. ii. 1), came to Rahab's house and lodged there; now, Josephus expressly calls her an inn-keeper, (B. v. c. 1, s. 2), and this opinion was held by most of the Rabbis; we are also told that when the king of Jericho received intimation that spies were in his city, he sent to Rahab to require them, but she had hid them under some stalks of flax which were laid to dry on the top of her house. The houses of most countries in the East are flat or terraced, with parapets or "battlements" round them, a precaution which was made the subject of one of the Mosaic regulations. (Deut. xxi. 8.) When the walls of Jericho fell down at the sound of the priests' trumpets, Joshua imprecated a terrible curse on the head of any one who should attempt to rebuild the city (Joshua vi. 26), and the curse and the prediction were fulfilled when Hiel attempted to rebuild Jericho. (See 1 King's xvi. 34.) At the pre-

sented time it is almost entirely deserted, having but thirty or forty small mean houses in it, which are inhabited by some wretched Moors or Arabs. The once fertile plain of Jericho produces scarcely any thing more than a few wild trees, in the place of the number of palm-trees, from which it was called "the city of Palm-trees" (Deut. xxiv. 3); whilst the celebrated balsam which grew near Jericho only has entirely disappeared. This precious drug was sold for double its weight in silver, and Justin ascribes the wealth of the Jewish nation to its possession. We must not omit to take notice of the memorial set up by Joshua, when the Ark, resting in the midst of Jordan, the people passed between its waves piled up as walls on either hand, after the manner of their passage through the Red Sea; twelve stones, according to the number of the tribes, were set up in the bed of the river, "to be memorial unto the children of Israel for ever." (Joshua iv. 7.) The continuator of the Book of Joshua (probably Samuel) observes, "and they are there unto this day" (v. 9), and Eusebius and other writers mention that they were to be seen for many centuries. Joshua also, in imitation of the example of Moses, set up twelve stones, according to the number of the tribes taken from the bed of the Jordan, and pitched them at Gilgal, forty years after the departure from Egypt. Here the passover was kept (ch. v. 10), and Gilgal was for many years after a rendezvous for the Israelites. In imitation of Moses and Joshua we find Elijah building an altar with twelve stones. (1 King's xviii. 31.) After Canaan had been allotted to the twelve tribes, and the portion of Gad and Reuben, and of the half tribe of Manassah, were given on the other side of Jordan, the last-mentioned tribes went over the river to take possession of their lands, when a serious quarrel had nearly arisen between them and the rest of the Israelites. The two tribes and a half erected an altar at the place of the miraculous passage, as Josephus says, "for a monument to posterity and a sign of their relation to those that should inhabit the other side. But when those on the other side heard that those who had been dismissed had built an altar, but did not hear with what intention they built it, but supposed it to be by way of innovation and for the introduction of strange gods, they did not incline to disbelieve it" (Jos. Ant. B. v. c. 1, s. 26), "and the whole congregation of the children of Israel gathered themselves together at Shiloh to go up to war against them." (Joshua xxiv. 12.) Their wrath was appeased by the supposed offenders making a declaration that they did not intend to establish a separate worship, but that they had set up the altar as a testimony to after generations that they had not deserted the worship of their forefathers, of which they feared to be accused by those who lived on the other side of the river. The name of this altar, which is described (verse 10) "as a great altar to see to," was "Ed, a witness that the Lord is God." (Verse 34.) Joshua raised several altars, among others, one in Mount Ebal (ch. viii. 30), which was accompanied by great solemnities before all Israel, in the presence of the ark, half the people standing on Mount Ebal, and the other half on Mount Gerizim. (Verse 33.) The altar is described to be of "whole stones," according to the command of Moses (Deut. xxvii. 5), "over which no man hath lift up any iron;" and upon the stones which were plastered with plaster (see Deut. xxvii. 4) Joshua "wrote a copy of the law of Moses." (Verse 32.) These stones were set up in obedience to the injunctions given by Moses. (Deut. xxi. 2, 4, 5.) Just before he died, to make a deep impression on their wavering minds, Joshua assembled the people at Shechem, and after an earnest appeal to them that they would not forsake the true worship for that of false gods, to which he foresaw their secret inclinations prompted them, he made a covenant with them, and wrote his "words in the book of the law of God, and took a great stone, and set it up there under an oak, that was by the sanctuary of the Lord." (Ch. xxiv. 26.) And Joshua said unto all the people, behold, this stone shall be a witness unto us, for it hath heard all the words of the Lord which he spake unto us; it shall be therefore a witness unto you, lest ye deny your God." (Verse 27.) In the 29th verse Joshua's death is recorded. The Jews supposed that the image of the sun was represented on his tomb, as a remembrance of the miracle of the sun standing still. Eusebius says that the tomb was existing in his time. (He flourished in the fourth century of the Christian era.)

The fears and presages of Joshua were soon realized, for in a very short time after his death, (B.C. 1427) the sacred history tells us that the children of Israel "forsook the Lord God of their fathers and followed other gods, of the gods of the people that were round about them, and bowed themselves unto them" (Judges ii. 12); "and they forsook the Lord, and served Baal and Ashtaroth" (verse 13), the sun and moon. They were therefore given over to the tyranny and dominion of the neighbouring princes, from which they were from time to time freed by deliverers raised up for that

purpose. The circumstance which roused the Israelites to shake off the yoke of the Midianites, was Gideon's overthrowing the altar of Baal by divine command (Judges vi. 25), and cutting down the grove, for which act he obtained the name of Jerubbaal. (Verse 32.) This indignity to their god incensed the Midianites, who demanded that Gideon should be given up to satisfy their vengeance; this being denied, they prepared to war, but were signally defeated by 300 men of Israel, chosen from their manner of drinking water. (Ch. vii. 7.) Gideon created an altar at Ophrah, in obedience to the command of the Lord, who appeared to him. (Ch. vi. 24.) In gratitude for his services, the men of Israel offered to make the supreme government (by which we may, I think, understand that he was to have the title of king) hereditary in his family; but this was refused by him. (Ch. viii. 23.) After his death, his natural son, Abimelech was made king by the men of Shechem, "by the plain of the pillar that was in Shechem." (Ch. ix. 5.) The pillar here alluded to, is that which was set up by Joshua (Josh. xiv. 26) with such solemn observance, as we have already noticed; and the plain of Shechem, or Morch, was also memorable for the great oak, near which Abraham built his first altar (Gen. xiii. 7), under which Jacob hid the strange gods (Gen. xxxv. 4), and where Deborah, Rebekah's nurse, was buried. (Verse 8.) G. R. F.

The accompanying engravings of the Rudston Monolith and Stonehenge, properly belong to the "Lecture on Architecture and Antiquities," given in Number 24; and upon reference will be found appropriate illustrations of the Druidical temple, and of the single or isolated pillar of stone, which served in the oldest time for various purposes of memorial, and, probably, also of religious rite.

FRIENDLY SOCIETIES.

COURT OF THE VICE-CHANCELLOR OF ENGLAND.

Saturday, July 15.

BAWDEN v. PEPPER.

Friendly Societies Act—Altering Rules.

The plaintiffs claimed to be annuitants according to the provisions of a friendly society called the South Moulton Society, and had instituted the present suit against the officers of the society, praying a declaration of the Court that they were entitled to annuities of 30*l.* each, and that an alteration of the 12th rule of the society, reducing the amount of the annuities, was contrary to law. By one of the rules it was declared that no member of the society, when they should become annuitants, should take share and share alike of such quarterly payments as should become due from the permanent funds of the society at the expiration of twenty years from the commencement of the society, and that the principal fund, after the expiration of twenty years, should not be reduced unless any member should happen to die within the first two years from the time of becoming an annuitant, and no annuity should exceed the sum of 30*l.*, unless directed by a majority of four-fifths of the members at a general meeting. The original rules had undergone considerable alterations, and received many additions since the foundation of the society, particularly by a revision which took place in 1820, when a rule was passed, declaring that after the expiration of twenty years from 1817, all the interest of the permanent fund of the society and all quarterly payments should be divided quarterly by way of annuity among such members as should be entitled to a certificate of qualification from the president and stewards, in equal shares. But, although the members might become entitled, no payment was to be actually made except on the day after the general meeting, and no share was to exceed the sum of 30*l.* in any one year, unless it should be otherwise determined by a majority of four-fifths of the members present at a general meeting. The last of this set of rules declared, "that the rules, orders, and regulations, or any or either of them, shall not be altered, neither shall any new ones be introduced, except with the approbation of a majority of the members present at a general meeting, and then only pursuant to the 10th George IV., c. 56, sec. 9. And the person or persons wishing to alter or introduce any rule, order, or regulation, shall, at a previous general meeting, make known his, her, or their wish, and set forth in writing the particular alteration or alterations, which he, she, or they contemplate; and that after the members at such meeting have decided on the adoption or rejection of such proposed alteration or alterations, no member or members shall afterwards introduce or propose the same point again, neither shall the same be again entertained by the society." The 9th section of the statute of George IV., to which this rule referred, enacted that no rule should be altered, rescinded, or repealed, unless at a general meeting of the members of the society, convened by public notice, signed by the secretary or presi-

dent or other principal officer or clerk of the society, in pursuance of a requisition for that purpose, by seven or more of the members of such society, which requisition and notice were required to be publicly read at the two usual meetings of such society, to be held next before such general meetings, for the purpose of such alteration or repeal, unless a committee shall have been duly authorized and nominated for the purpose at a public meeting, and unless such alteration or repeal should be made with the concurrence and approbation of three-fourths of the members of the society then present. On the 5th of June, 1838, a requisition was addressed to Mr. Teyner, the secretary, signed by twenty of the members, requesting him to issue a public notice to convene a general meeting on the 18th of July following, for the purpose of altering, rescinding, or repealing such of the rules as fixed the *maximum* share of each member becoming an annuitant at the sum of 30*l.*, and substituting such new rule or alteration in existing rules as might be necessary for fixing the *maximum* share of each annuitant at 7*l.*, or at such other yearly sum as three-fourths of the members of the society present at the meeting should concur in and approve, instead of the yearly sum of 30*l.* This requisition was duly followed by a notice from the secretary, and the meeting which took place in consequence finally passed a resolution, by a majority of 143 to 30, reducing the amount of annuities to 10*l.* The officers of the society, acting upon this resolution, had refused to any annuitant more than 10*l.* per annum, and hence arose the present suit.

The Vice-Chancellor said, taking it for granted that every thing which had been done was proper, except upon the disputed question of the construction of the 28th rule and the 9th section of the statute, if the requisition had stated that a meeting would be convened for the purpose of altering the rules of the society which fixed the *maximum* share of each annuitant at 30*l.*, and as introducing the alteration, voting it at 7*l.* or 10*l.* or any other thing definite, he should have considered there had been a compliance with the provisions of the 28th rule. But it did not appear when the party gave notice of the alteration that he had determined in his own mind what it should be. The thing intended was that the parties who were to compose the general meeting, and discuss the alteration, should have the advantage of knowing beforehand, by means of a statement in writing given at a previous general meeting, what the thing was they would have to discuss. Therefore the matter had not been sufficiently considered, and the resolution was wrong.

THE OLD CHURCH, LEAMINGTON.

WE were astonished the other day on looking into the enclosure of works, to which we were attracted by the numerous scaffold poles, to see so truly noble a spirit displayed in the execution of the restoration, or rather we should term it, the re-edification of this church; stone inside and out, pillars elaborately clustered, windows liberally moulded and enriched with tracery, and all on a scale of extent betokening a purpose of unusual munificence in the projector. We understand it is due to the reverend incumbent, Mr. Craig, that Leamington enjoys so much of promise; the principal part of the stone employed is a grey, though somewhat of a soft quality, from Elm-cote, or Edmundscote, near Leamington, but the four noble pillars of the "Evangelists" are of a lime-stone of very fine texture; Caen stone, however, is there also to salute our eyes with its well-known beauty and excellence. We are told, but know not if correctly, that it is intended to surmount the church with a spire in emulation of the glorious St. Michael's, of Coventry. The old church is in use while these extensive operations are in progress surrounding it. Mr. Jackson, of Leamington, was, we understand, the architect first employed, but Mr. Mitchell is now associated with the reverend patron in carrying out the works in scrupulous adherence to the formularies of the Camden Society.

THE GREENWICH PIER.—The lawsuit between the stone pier company and Messrs. Grissell and Peto, the contractors, has been stayed by proceedings in Chancery. Messrs. Grissell and Co. have obtained an injunction, the case has been referred to eminent counsel, and an amicable arrangement entered into, for both parties to bear an equal proportion of the expense to be incurred in putting the permanent pier into really substantial condition. It is stated that to do so at least 17,000*l.* must be expended. The pier company are driving a number of piles close to and alongside the watermen's floating pier, and are determined to drive them away from their position.

METHOD FOR DRAWING AN ENLARGED OR DIMINISHED CORNICE, &c.

TO THE EDITOR.

SIR,—I have much pleasure in acknowledging the courtesy and liberal feeling with which you received our communication of the 8th, and entered into the views of our association. I am also glad to find that our endeavours meet your approbation.

In accordance with the proposal then made, I have got out, with the hope of its being useful to your readers, a method, comprised in a couple of diagrams, with explanation for drawing an enlarged or a diminished copy of any given cornice or other assemblage of mouldings, preserving strictly the proportions of the original. The method of finding

the positions of points of irregular division upon one right line, in proportion to corresponding divisions on another longer or shorter line, is already well enough known to those acquainted with geometry; the part of the scheme that I claim as original, and which appeared a desideratum, is that which gives the proportions that the heights and projections relatively bear to each other. I have made the height and projection alike in the given cornice; and made the diminished one half the size, and the enlarged one just a half larger than the original, for the purpose that the correctness of the scheme may the more readily appear.

I remain, Sir, very obediently yours,
JAMES WYLLSON, Hon. Sec., B.A.A.D.
28, Southampton-street, Strand,
22nd July, 1813.

Fig. 1.

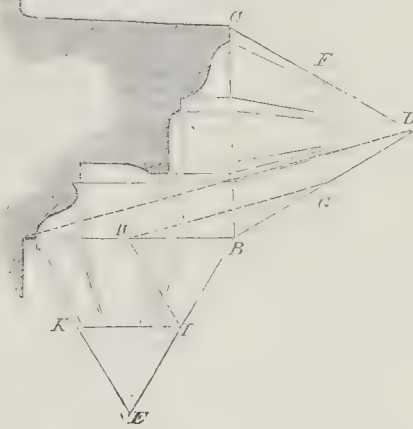
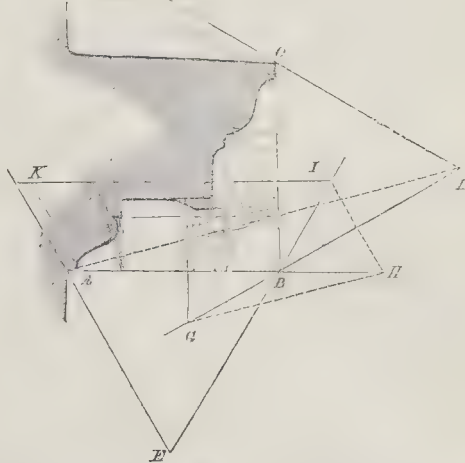


Fig. 2.



Figs. 1 and 2 exemplify one and the same method, the former being an example of its application to the diminishing, and the latter to the increasing of cornices.

Fig. 1. A B is the projection, and B C the height of the given cornice. Upon these lines, as bases, equilateral triangles A B E and B C D are erected; the projectures of the various members being produced down to the base of the former, and their heights out to that of the latter; such divisions of heights and projection being also continued, radiating towards their respective apices. To obtain any smaller cornice of the same proportions, it is only necessary, in the first place, to set off D F and D G each equal to the required height; when, F G, drawn parallel to C B, will be the line of heights; then by drawing G H parallel to D A, and H I parallel to A E, the situation for obtaining the line of projectures I K, parallel to B A, will be found.

[DEMONSTRATION.]

C B D being an equilateral triangle, the sides C B and B D are equal; and therefore B C and B D bear an equal proportion to B A: consequently the two sides A B and B D of the triangle A D B are to each other as the projection of the cornice is to its height.

Then, since G H is parallel to D A, and the right line A B cuts both, the angles D A B and G H B are equal; and, for the same reason, the angles A D B and H G B are also equal: then the angle A B D is common to both the triangles A D B and H G B. Hence the angles in the triangle A D B being respectively equal to the corresponding ones in H G B, the sides in each are in proportion to those in the other: wherefore

B G is to H H as B D is to B A, and G D and H A are in the same proportions. Consequently G F being equal to G D, because they are two sides of an equilateral triangle, and A H equal to K I,

because the opposite sides of parallelograms are equal—it follows that

K I is to G F as A B is to B C.]

Fig. 2. In this the process is similar to that described for Fig. 1. The triangles are called from A B and B C; G H, parallel to A D, is turned outward instead of inward; H I, parallel to B A, upward instead of downward; and the radiating lines, shewing the heights and projectures of the members, produced in a direction from the apices of the triangles instead of toward them.

Literature.

Steam Voyages on the Seine, the Moselle, and the Rhine; with Railroad Visits to the principal Cities of Belgium, &c., &c. By Mr. CHAEL J. QUIN, Esq.—London: Henry Colburn, Great Marlborough-street.

This work presents a notable contrast to the publication of Victor Hugo, of which we last week gave the reader some account. The book of the French author is distinguished by three characteristics: a sense of the beautiful in architecture, manifested alike by an enthusiastic appreciation of form, and a sagacious perception of causes, moral as well as physical, rarely equalled, and never surpassed; a passion, as in a poet was to be expected, for legends of the olden time, to the grandeur, terror, and pathos of which he blends new force; and lastly, a certain self-glorifying, mocking spirit pervading the whole book, and often provoking the reader to fling it aside in disgust. The work of Mr. Quin, on the other hand, has none of these qualities; from first to last it is chatty, lively, entertaining, but never poetical nor profound. He sees castles, hills, rivers, rocks, forests, plains, all appealing as forcibly to the imagination and the senses as the scenes visited by the impassioned Frenchman; he gives, moreover, an idea of them quite as correct, though not quite so suggestive; but he manages to do this without throwing his readers into transports of enthusiasm or agonies of distress. There is, in fact, a difference between the two books as marked, and by similar distinctions marked, as there is between the calm self-possession and subdued cheerfulness of an English gentleman and the declamatory style, all gesture, grimace, volubility, and passion of the representative of "Young France."

Mr. Quin seems to have made a point of noting down every thing that struck his fancy, without, however, troubling himself with details, or seeking to describe minutely. The subjects, therefore, that would more particularly interest the readers of this journal, are treated in a light and superficial manner. Every thing, nevertheless, that deserves commemoration, is noticed, and as a supplement to the guide-books, the work, especially as the author everywhere exhibits a correct and refined taste, may be relied on.

From the passages which we had noted for extraction, we select the following:—

CAST-IRON TOWER AT ROUEN.

"It may be remembered that a few years ago, a great part of the principal tower of the cathedral was struck down by the electric fluid during a tremendous storm. The damage has been since repaired in a most extraordinary manner—a manner peculiarly French. An imitation of the former summit, which was remarkable for its light and airy appearance in consequence of its being pierced through in every possible direction, has been planted on *cast-iron*; and this awful pile has been planted on that portion of the old tower which survived the tempest. I say *awful*, because it is calculated to attract the lightning so powerfully when the storm shall again collect its force in the neighbourhood of Rouen; and should vibration take place, and the mass tumble, as it seems always threatening to do, the devastation it must produce would be terrific. The difference of its colour from the lower part of the tower, and from that of the sacred edifice in general, is a deformity which no lapse of time can remedy."

CHAPEL OF ST. MATTHEW, COBERN.

"The ruins upon the height behind the little town of Cobern may be justly said to wear an air of peculiar grandeur. They consist principally of two castles, surrounded by massive walls of cut stone, according to the modern usage. Within the enclosure of the upper castle stands one of the most remarkable chapels in Europe, dedicated in honour of the apostle St. Matthew. It has been lately restored by a skilful architect, and is well worth examination. The best account I could find of this edifice represents it as constructed in the oriental style of which very few examples are to be seen in the Rhenish countries, and only one or two in Italy. It is in the form of the baptistry of Constantine, near the church of St. John Lateran, in Rome, or, in other words, of the church of the Holy Sepulchre. The model of it is said to have been brought over from Palestine by the Burggraf Henri d'Isenbourg, a near relative of Gerlach the younger, lord of Cobern, who described himself in all his acts as "Cruce Signatus." It is a hexagon of five-and-twenty feet in diameter, in the middle of which a second hexagon is elevated, terminating in a cupola of ten feet in diameter; the cupola is

lighted by six windows, and sustained by six columns, each of which rests upon clusters of four small pillars, united by arches. The windows resemble the ace of clubs in shape. The exact date of the construction of this very graceful building is unknown; it is well ascertained, however, that a perpetual lamp, established by the Archbishop Boëmond, was burning in it in the year 1360.

"The imposing beauty of this celebrated chapel, and its position upon a steep rock, had preserved it from injury, until the period of the passage of the Rhine by the allied armies in 1814, when some volunteer chasseurs, placed for observation in the town, entered the chapel in a state of intoxication, and broke one of the most elegant sculptures by which the altar was adorned. A holy hermit who lived near it collected the fragments, and took care of them while he lived. Their subsequent fate is unknown. The people of the country call this edifice the Church of the Knights Templar, very probably because, after the abolition of the order, several of its members resided at Altenberg for some years. It was the principal station of the great pilgrimage which used to take place every year upon the festival of St. Matthew, and which the inhabitants of Coblenz formerly extended along the banks of the Moselle, as far as Treves. The character of the country near Cobern, and the fashion of the houses, give it very much of a Swiss aspect."

PRECAUTIONS AS TO INTERMENTS AT FRANKFORT.

"I saw here, for the first time, a curious contrivance for guarding against the perils of premature interment. It is well ascertained that cases have occurred in which a profound lethargy, presenting all the appearances of death, has been mistaken for the absolute departure of the soul from the body. The cases, well authenticated, of this nature are certainly not numerous—at least, few have been discovered, in consequence of the rapidity with which, in most countries, the supposed inanimate remains are conveyed to that bourne whence no voice can be heard. I have myself seen, in Constantinople, the bodies of Greeks, who were believed to have died of the plague, carried to the grave in the clothes which they were accustomed to wear, and before the blush of life had wholly faded from the countenance, they were taken on a bier not even enclosed in a shell, and resigned to the earth within an hour after the malady had been presumed to have terminated fatally. It struck me most forcibly that in some of these cases premature burial must have taken place."

"The precautions used in the Frankfort cemetery against unhappy accidents of this kind, are simple and, in the event of reanimation, would, I imagine, be found effectual. The body is first conveyed to the chapel, where the funeral service is read by a clergyman of the religion of the individual accounted as dead; it is then removed to a sepulchral chamber, where a lamp is kept always burning; the lid of the coffin is taken off, and upon the top of each of the fingers and thumbs of the shrouded figure are placed small bells, or rather, indeed, thimbles, to which are attached wires communicating with a bell, which sounds upon the slightest movement of either of the hands. In an adjoining room attendants, who relieve each other at regulated hours during the day and night watch for the sound of this bell. An apparatus is in the attendants' chamber, which is contrived to shew whether in the night-time any of them may have slumbered even for a moment. I do not know whether I rightly understand the explanation given to us of this machine; but I believe the attendant was obliged to wind it up every five minutes, and if he failed to do so, it would of itself register his omission on a dial to which he had no access. The thimbles, moreover, easily slipped off, so that, as it was his duty frequently to visit the sepulchral chamber, he would at once perceive whether any movement of the hands had occurred, which might have failed to set the bell in motion. If no sign of returning life has exhibited itself within a certain number of days, then the sexton takes charge of the body, and deposits it in the grave already prepared for it."

"We anxiously inquired whether any instance had yet occurred in which this ingenious and humane contrivance had been the means of the restoration to society of any person who had been supposed to have disappeared from it for ever. The answer was in the negative. The attendant, however, added, that on one occasion the bell had been faintly heard, but upon examination it was found that the occurrence must have been the result of some accident, such as might have been caused by a galvanic movement of the hands undergoing the process of decomposition."

FLOATING BRIDGE AT NECKURSTINOGH.

"The machinery for moving the floating bridge is a simple, and for a river so liable as this to be swollen in the winter above its banks, of a very safe description. A boat is anchored at some distance

above the bridge, with which it is connected by a chain of other boats. When the bridge is let loose on one bank, the force of the current acting on the chain of boats gives to the bridge an impetus which swings it to the opposite side, describing a semicircle of which the anchored boat is the centre. Men with grappling hooks are in attendance to draw the bridge with its burden to the land, when the horses, which had been separated from the carriage, are put to and resume their journey."

An advertisement, prefixed to the narrative, informs us that the writer, while revising the proof-sheets, "became seriously ill, and died at Boulogne, where he had for some time been residing for the benefit of his health." Judging from the work before us, we cannot but say that the literature of this country has sustained a loss. Mr. Quin was evidently a man of an elegant and accomplished mind; well acquainted with books, not unfamiliar with men, and animated by a sincere desire to promote the cause of truth, and advance the good of society.

The Rhine, translated from the French of VICTOR HUGO.—D. M. Aird, Tavistock-street, Covent-garden.

(Continued from No. 24.)

THE progress of Victor Hugo is marked by reflection and observations altogether new and stirring; upon an intellect of daguerrotype quality, no object of interest to which it was applied escaped indelible impression. Alternately grave, gay, philosophical, or facetious, he has given us a *mélange* that will be long ere it tires. Approaching Soissons, with its plain, which the eyes of the greatest amongst military leaders had scanned and selected as the arena of mortal struggle for dominion, he observes: "I saw with the mind's eye peace hovering over the plain, now solitary and tranquil, where Cæsar had conquered, Clovis had exercised his authority, and where Napoleon had all but fallen. It shews that men, even Cæsar, Clovis, and Napoleon, are only passing shadows; and that war is a fantasy which terminates with them; whilst God—and nature, which comes from God—and peace, which comes from nature—are things of eternity."

The letter on Aix-la-Chapelle is full of interest; its attractions to the tourist of every grade; its legends, its relics, and the tomb of Charlemagne, are described with a vigour seldom present in books of travel. At Cologne we have the author's first glimpse of the Rhine. "The rain, wind, and fog, which were abundant for the last four days, gave way to a sun which, shedding its rays upon the scenery of the Rhine, induced me to embrace the opportunity of seeing this classic stream in all its riches, in all its loveliness, in all its charms." His impression upon a view of the Dome of Cologne, that immense superstructure, which modern devotion, and a desire to achieve plans that have been abandoned for so long a series of ages, proposes to crown with spires, outvying all previous efforts, is thus given: "The dream of Engelbert de Berg, which was realized into an edifice under Conrad de Hochsteden, may, in an age or two, be the greatest cathedral in the world. This incomplete Iliad sees Homer's in futurity. The church was shut. I surveyed the steeples, and was startled at their dimensions. What I had taken for towers are the projections of the buttresses. Though only the first story is completed, the building is already nearly as high as the towers of Notre Dame, at Paris. Should the spires, according to the plan, be placed upon this monstrous trunk, Strasburgh would be, comparatively speaking, small by its side. It has always struck me that nothing resembles ruins so much as an unfinished edifice. Briars, saxifrages, and pellitories, indeed, all the weeds that root themselves in the crevices and at the base of old buildings, have besieged these venerable walls. Man only constructs what nature in time destroys."

Were we to follow our inclination, it would be to quote more largely, but it is difficult to select where all is so appropriate and well given. Hugo's "Rhine" is effective as a guide, and unrivalled in details of local and classical interest.

The navigable ship canal, to unite the Red Sea and the Mediterranean by a cut directly north from Suez on the Red Sea to Lake Menzaleh, is proceeding under the Pasha's auspices.

CULTIVATION OF THE FACULTIES FOR THE ARTS.

TO THE EDITOR.

SIR,—In your valuable Magazine of the 22nd inst. is inserted a paper of mine from the *British Magazine*, "On the importance of a due Cultivation of the Faculties for the Arts." I am glad to see this most important subject brought forward in *THE BUILDER*; for I am sure all who are connected with building matters must consider it a most useful work. There are not the finishing means wherever a house or an edifice of any kind is to be completed, but the very commencement of every building work whatever, and which will be clearly seen on a perusal of my works entitled "Illustrations and Description of Kilpeck Church," and "Early Fonts of England." The arts for the last several centuries have been lowered to the common-place qualities of mere caprice and ornamental shew—making them a vehicle of inconstancy, instead of practical information. In the middle ages, the arts were used for the purposes of edification, as they also were in the early ages of the Hebrews—in whose works we find the true principles of design; yet for the last several centuries we have preferred executing our own disordered imaginations. But I trust these conceits will not much longer make a stand against common sense. These are not the times for receiving flat contradictions and absurdities, and any thing short of truth will be exposed ere it commit further mischief. One of the most extraordinary anomalies in existence is the notion that certain faculties given to man ought not to be exercised, because there are instances on record wherein the faculties have been abused. But in this conclusion men presume that God created the faculties for the arts without wisely considering their end; and the heads of education have unfortunately overlooked these faculties of the human mind, for they are not to be found in their catalogue of educational matters. The legislature have only just now awoke from their slumbers on education, and have begun to think that there may be faculties for the arts, and therefore have established schools of drawing and design. I have for many years endeavoured to impress this important subject upon the public mind; and in 1838 I published an "Address to Manufacturers in particular," and the nation at large, on the subject of British Manufacture," in the hope that the manufacturing body would see the necessity of establishing schools upon true principles for promoting a due cultivation of the faculties for the arts, in order that consistent designs might henceforth be produced and connected with every kind of manufactured goods. But little effect has as yet been produced, and for this simple reason, the manufacturers are not judges of the subject. Their faculties for the arts should have a sound training, a legitimate exercise, and a right direction given to them, that they may become judges upon all matters connected with their calling. This is a simple statement enough, and which no one can deny; but are the manufacturers judges of the wares they manufacture? Let any one use their reflecting faculties when they walk through some of the principal streets, and look at those goods which have coloured designs upon them, and they will easily come to the conclusion that the manufacturers are not judges of design or harmony of colour either. For patterns of discordant and outrageous colour, as well as senseless forms, we may with safety say that no previous time has been so prolific. Indeed, I often wonder how the ladies can allow their complexions to be made to suffer so much as they do by having dresses made up of such discordant and violent colours—acting as contrasts most injuriously to the peculiar tints and complexions of the rosy dames of our fair land. A vast reform is wanted in design for manufactures, and come it must, for the present undesigning system will not be endured much longer. Nor should it; for there is no reason why we should be behind our foreign neighbours: there is nothing to hinder us from doing what they do in design, or even more, for our minds are not so artificialized as theirs. We have a much more lively and active feeling for the beauties of nature on the whole than our foreign neighbours have, and which is a most important step towards arriving at true design; but then we have neglected many essentials through our craving and endless appetite for aggrandisement: this love of gain has so engrossed our minds, that we have become such money-hunters, as to be unable to see into the merits and importance of an intellectual undertaking, while the monied gains are made to appear the all-important feature in it. The perfecting of the intellectual character should be the chief aim of every one; and we should then see an end of the miserable absurdities called inventions of the grotesque, and all the other deplorable esques, which the human mind has been mistified into. Incongruous patch-work of half-human, added to half-horse, half-fish, half-vegetable, forms, would no longer be allowed to con-

taminate the human mind, but the works of creation in their original purity would be announced as the only true materials wherefrom designs should be formed. It is now my intention, with the assistance of Mr. Barker, to establish courses of instruction in the arts for various classes, that each may obtain the kind of information his particular calling may require, so that his perception and faculties of form, colour, and constructiveness may have a legitimate exercise and right direction given, that they may be always progressing towards true design. Seeing in the important article entitled "State of the Iron and General Mining Trade in Staffordshire" of your magazine, *THE BUILDER*, the following remarks on design: "Schools of design require then to be formed as much as quarterly meetings of iron masters to be held—the one is incomplete without the other, the theory of business, of trading intercourse, has been too far pushed in one respect; the equipage, in the respect we speak of, requires to be maintained, and schools of design inculcating right moral principles of guidance, with high and just aims and ends, will tend as much as an enactment on money-making to rectify the evils flowing from the past. We cannot enter into detail in the compass of a chapter, but we are zealously burning to see a change for the comfort and advantage of our countrymen; and shall be more than happy to enter into any plan or purpose that may be set on foot and in a right spirit for this end." Therefrom I may easily conclude you will give this important subject that consideration for which you are so well qualified; and should these remarks and the article you published of mine, together with the enclosed prospectuses, meet with your approbation, I shall be happy to furnish you with further information upon that part of my system which applies "to mechanics and artisans in every trade," some of whom have already expressed great anxiety to receive a course of instruction, in order that they may obtain the power to draw all forms, produce harmony of colour, and execute such designs as may be required of them. I have promised to come forward and convey to them all the information I possess on the above matters as soon as classes are formed. I understand they are now endeavouring to do so; and for any assistance you can give them in their undertaking, through your excellent magazine, *THE BUILDER*, I am sure they will feel greatly obliged.

I am Sir, yours faithfully,
Geo. R. LEWIS.

16, Upper Norton Street;
July 25, 1843.

Legislation.

GENERAL DRAINAGE BILL; ABSTRACT AND NOTICE OF.

A BILL has been introduced by Mr. Pusey, for the purpose of facilitating "the drainage of lands, the improvement of water power, and for the embankment, warping, and irrigation of lands."

Of this bill, having the support of the government, we propose shortly to point out the leading features.

With respect to the drainage of lands or improvement by means of embankment, warping, or irrigation, any person or persons interested as owners or as occupiers in any such land may make application to a board of commissioners to be established for that purpose, requesting that a district may be declared; and this application is to set forth the means by which such improvement is to be effected, together with maps or plans shewing the lands to which such application relates, and the land or property required to be taken, cut through, &c. for the purpose, as also the rivers, watercourses, &c. to be cleared, secured, embanked, or deepened, together with various other particulars in the bill specified, and also the probable amount of expense and the extent and value of the improvement calculated upon by carrying such works into operation.

To give effect to this proposal, two things are requisite—first, that the commissioners after due inquiry, which by the bill they are directed and fully empowered to make, shall be satisfied of the expediency of the measure—and secondly, that at the least one-half of the proprietors of the land proposed to be included in such district shall expressly assent thereto, and that there shall be no express dissent by proprietors to the amount of one-fourth of such land.

When the commissioners shall approve of the plan as originally proposed or as amended, and when the requisite assent is procured to such original or altered plan, the work is to proceed.

The proposed works must be carried out under the superintendence of a board of trustees (not more than nine nor less than three), to be appointed by the proprietors; and this board is to continue the permanent guardian and manager of the work, after it shall have been completed, when all the parties interested are not agreed as to the necessity for, or the mode of executing the proposed works;

but when they are all agreed, this board may be dispensed with, and on the request of the parties interested in the land, and on the approval of the commissioners of any plan proposed by them, the work may be executed by such person or persons as shall be named by them in their memorial to the commissioners, or by such persons as the commissioners shall name, with the same powers for executing and maintaining the proposed works, as by the bill are given to the board of trustees.

Of these powers, it is enough to say, that they seem to be sufficient, and no more than sufficient, to enable the parties to carry out their object; for instance, where any weir, dam, or other work or obstruction causes occasional flooding, works may be constructed for the discharge of the surplus water; and necessary alterations to the same end may be made in any mill or factory, so that the water power of such mill or factory be not lessened thereby—or such mill or factory may be taken by paying the value and twenty per cent. in addition thereto; and they are to make all needful reservoirs and embankments, and may divert the surplus waters of rivers, &c., adjoining the reservoirs, and may make and maintain roads over lands adjoining to such reservoirs.

These and numerous other powers thus given to the trustees are to be exercised only with the sanction and under the control of the commissioners, who are to direct the amount of compensation for damage done to parties whose property is touched, subject to appeal as to such amount to a jury to be impanelled for that purpose—with a further general power of having all questions tried on a regular issue at law. We find nothing extravagant or unreasonable in the powers thus vested in the trustees or commissioners—nothing, in fact, beyond what is commonly included in private drainage acts or other acts for the execution of public works; and the details in general as to costs, the employment of purchase money, &c. &c., the question of ownership, and the mode of charging costs, seem to have been prepared with care and strict attention to the best precedents afforded by former acts, tested by experience. In so far as this bill affects large districts of land, capable of improvement by drainage, &c. it seems to be in the nature of the general inclosure act, or rather of the bill lately introduced for that purpose, namely, to render unnecessary an application to Parliament in each particular case; and it has this advantage, a general drainage bill being even more necessary than a general inclosure act, because Parliament is far less qualified to legislate in detail on a question of drainage than on one of inclosure. The innumerable difficulties that must arise in the execution of extensive drainage operations require that very extensive powers and discretion should be vested somewhere; and a general board, whose experience will be as extensive as possible, and who will act under the direct eye of the government, and who are responsible to the public, will be a far more satisfactory and efficient tribunal for this purpose than any that would be formed for a particular drainage district. Such is the effect of the bill as applicable to large districts, which, though they might bear the cost of a private bill, may yet be largely benefited by being enabled to avail themselves of the provisions of a general act, both with reference to a more efficient performance of the works to be executed, as also to the greater security thereby obtained against jobbing, and an unnecessary waste of money by parties who are virtually all but irresponsible, under the provisions of ordinary private acts; and still further with reference to the greater degree of confidence which, it is presumed, parties advancing money for the execution of such works would feel in a board of commissioners, than in any number of trustees, in whose selection they had no voice. The principal value of the bill, however, as it appears to us, is as it affects districts of limited extent, requiring drainage, embankment, warping, or irrigation, and which by reason of such limited extent and value, cannot bear the cost of a private act. In all such districts this bill affords the means whereby such land may be drained or otherwise improved. The bill authorizes A. to cut through the lands of B. under the sanction of the commissioners—adequate compensation having been made to B., &c. &c. To such lands, and this is by far the most extensive and important class, this bill seems to be particularly directed, by providing the most simple and inexpensive machinery by which to carry out the work.

The title of this bill makes mention also of "the improvement of water power," and on this head the 37th clause enacts, that for the purpose of maintaining a constant supply of water for mills, factories, or works on any river, or preventing sudden floods therein, the commissioners, with the assent of the proprietors of such mills, &c., the value of the working water-power of which shall be equal to three-fourths of the value of the working water power of the mills, &c., existing on such river, may authorize the proprietors to elect trustees for making and maintaining reservoirs or embank-

ments; and they shall have power to make and maintain such reservoirs and embankments as shall be authorized by the commissioners; and for the exercise of these powers there is also given sufficient means and corresponding checks and compensation. The bill also recites that by reason of the neglect or want of co-operation among the proprietors or occupiers of lands to maintain the banks, and cleanse and scour the channels of existing drains, streams, or rivulets, lying in or forming the boundaries of the outfall from such lands, much injury is done thereto and improvement prevented, it is enacted, that where any proprietor or occupier shall so neglect, the proprietor or occupier of any land injured thereby may require him to join in effectually doing so; and if after fourteen days' notice he refuse, then such proprietor so requiring may do the work, and may recover the just proportion of the costs before magistrates in petty sessions.

And further, it is enacted, in order to prevent the obstruction of rivers, streams, and drains, that if any person shall wilfully throw or place any stones, gravel, or other material, in any river or watercourse, on being convicted of the same before two justices of the peace in petty sessions, he shall forfeit not less than 5s.

We give these provisions of the bill in order to show how very complete a measure it seems to be. It may be satisfactory, too, to know that it is by no means a bill hastily got up; it is not in answer to the recent appeals by landlords to their tenantry, to drain and improve their lands, although, as it happens, there is in recent events very abundant confirmation of its necessity: the very general feeling which has of late appeared on this subject is remarkable. This measure, however, in one form or other, has been before Parliament for several years past. During that period it has repeatedly received the benefit of inquiry and discussion in committees of the House and otherwise. A general drainage bill for Ireland was passed last year, and is now in operation, and the experience gained during the preparation of and in the working of that measure, has been made the most of in this.

Mr. Handley, the late member for Lincolnshire, is, we believe, entitled to the credit of having first pressed the subject on the consideration of parliament, and whatever benefit may result will be due to the energy and perseverance of that gentleman. On his retirement from Parliament, his friend, Mr. Pusey, took up the subject, and submitted a bill (a mere transcript of the Irish act) in the early part of the present session to the consideration of the House of Commons. That bill was referred to a select committee, and upon it the present one has been engrafted, under the advice of and with the assistance of parties whose experience and zeal are sufficient guarantees that they will not allow this, or any other measure affecting the agricultural interests of the kingdom, to pass out of their hands incomplete.—*Justice of the Peace.*

HOUSE OF COMMONS, Friday, July 21.—COPYRIGHT OF DESIGNS BILL.—On the motion of Mr. GLADSTONE, the report on this bill was received.

INCOME TAX.—Mr. RICARDO inquired whether any additional facilities were to be given to persons receiving small annuities from the funds for the return of the income tax.—The CHANCELLOR of the EXCHEQUER said that additional strength had been given to the commissioners of the income tax, and he hoped that the difficulties complained of would be removed.—**LOAN SOCIETIES.**—On the motion of Mr. MANNERS SUTTON leave was given to bring in a bill to continue the act to amend the laws relating to loan societies.—**THE USURY LAWS.**—Sir GEORGE CLERK moved for leave to bring in a bill to continue an act for exempting certain bills of exchange and promissory notes from the operation of the laws relating to usury.—Mr. W. WILLIAMS trusted that before any attempt was made to proceed with this bill, the Chancellor of the Exchequer would consent to the appointment of a select committee to inquire into the operation of the present act.—Sir GEORGE CLERK observed that they only intended by the present bill to renew the present act for two years, the period for which it had been renewed from time to time since its introduction in 1834.—The motion was agreed to.

RATING STOCK IN TRADE.—On the motion of Sir J. GRAHAM, leave was given to bring in a bill to continue the exemption of inhabitants of parishes, townships, and villages, from liability to be rated as such in respect of stock in trade, and other property to the relief of the poor.—The report on the Public Works (Ireland) Bill was received.

HOUSE OF LORDS, Monday, July 24.—SCRIPTIVE SOCIETIES BILL.—On the motion of the Earl of DEVON, the bill was read a third time and passed.—**HOUSE OF COMMONS.**—**ALLOTMENT AND LOAN FUNDS.**—Lord ASHLEY moved for leave to bring in a bill to establish, regulate, and protect societies for the improvement of the industrious classes, by extending the allotment or field-

garden system, and the more general establishment of loan funds in England and Wales. His object was to establish a body of gentlemen in London having the privileges of landlords in the purchase, hiring, and letting lands for the poor, but having no other power. It was in evidence that "both landlords and agents of estates find it much less trouble to meet six than sixty tenants on a rent day."

It never ought to be expected that landlords generally will let out their lands in allotments if they are to be at the trouble and expense of collecting the rents. Waste and common lands in great abundance are often met with in the vicinage of towns.—Nottingham has both waste and common lands, also at Coventry, Warwick, Bedford, Mansfield, Leicester, and, I believe, at Lincoln, Manchester, Newcastle, &c. &c. The system he proposed would not interfere with local boards. Connected with those boards he proposed to put the loan funds. When he looked to Ireland, he was struck with the superiority of the management and the effects. He would apply as far as he could the system of Ireland to England. The contrast was very remarkable.

BY RETURNS OF 1813.

ENGLAND.

Number of loan societies	69
Amount circulated in 1842	£104,373 12 0
Number of loans issued in 1842	20,766
Gross profit	6,450 3 9
Expenses of management and bad debts	6,669 5 7
Net profit	456 0 1

IRELAND.

Number of loan societies	300
Amount circulated in 1842	£1,691,871 0 0
Number of loans issued in 1842	488,702
Gross profit	59,943 2 0
Expenses of management and bad debts	41,704 17 3
Net profits	18,967 1 5
Loan funds deficit	46
Total amount	£2,301

In detail he found:—

No. of Loans.

1,029 A. Amount circulated in 1842	£6,030 0 0
Expense of Management	286 0 0
1,228 B. Amount circulated	5,592 0 0
Expenses	217 0 0
1,864 C. Amount circulated	11,870 0 0
Expenses	439 15 0
756 D. Amount circulated	3,640 0 0
Expenses	148 0 0

ROSCREAU.

5,501 Amount circulated in 1842	£16,503 0 0
Expenses	220 0 0

BELFAST.

11,594 Amount circulated in 1842	£48,447 0 0
Expenses	385 0 0

COUNTY OF CORK.

55,473 Amount circulated in 1842	£151,277 0 0
Expenses	1,577 0 0
The loss in Ireland was only little more than 2,000l. out of the 1,691,871l., and that arising principally from the defalcation of clerks. (Hear, hear). Leave was given to bring in the bill.	

ORNAMENTAL GLASS.

TRUE to our vocation in the enlargement of the boundaries of useful knowledge and building science, we are now brought to the consideration of a subject which will occupy us some time in exhausting. We mean, the placing before our readers accounts of the various modes of working or ornamenting on glass. The proposed competition for the Parliament House decoration in glass-staining (as well as the other branches of fresco and carved work) will render what we are entering upon of more than common interest, although at present we do not propose to go into that enlarged view of the subject which the competition referred to may be said to embrace, but to confine ourselves to the humbler circle of operations in glass, such, in fact, as pertain to the advancement of the ordinary dwelling-house. There are many things of this class which we shall secure the thanks of our building friends for bringing them acquainted with, such as ornamental glazing, ornamental tiling and paving, ornamented slate work, embossed leather, carving, modelling, and the like. London abounds with ingenious and pleasing inventions in these and various other applications of the arts; it is the mart for their display, and it therefore remains for us to carry the intelligence of such matters to the shop and the office of our country friends, convinced as we are that by so doing, we shall be conferring upon them large and important benefits. To begin then with ornamental glass.

The simplest, and, at the same time, the cheapest operation in this way that we have

yet seen is the one practised by Mr. Long, in King-street, Portman-square. He has introduced a machine whose power of describing many devices, or ornamental lines, is of the same character as the rose chuck engine, known to so many of our friends who are skilled in turning; this rapid and fertile source of production enables him to go through a large province of design and ornament with mechanical certitude, and to furnish panes of glass of his manufacture suited to every size and situation, at prices varying from 2s. to twice and thrice that sum per foot; that at 2s. is admirably adapted for the simple class of cottagers and middle-class dwellings. Its character will be best understood when we say that it is familiarly known to many of our readers and the public as embossed or etched glass, that is to say, it resembles it; the difference, however, is in favour of Mr. Long's method, since his process does not deteriorate the quality or strength of the glass by burning or eating in the design, but contrariwise, it may almost be said to strengthen it, since the matter for procuring the opaque or deadened surface is laid on the glass, and burnt in or incorporated as a new substance and surface.

It occurs to one instantly on seeing it for how many agreeable purposes it is applicable; in particular, how well it is calculated to serve the purpose of window-blinds, dispensing with the cost, or a large part of the cost, and all the objections to which window-blinds are open; the lower three panes of a window being filled with this glass, presents an agreeable screen from the exterior view, and yet admits, when an open pattern is adopted, of a perfect vision of the street from the interior.

Devices without end are, as we have remarked, produced on it, and colour also; but the difficulty of matching colour in case of breakage is an objection to its general introduction; the plain tint or grey has, however, two or three degrees from a slightly opaque or semi-transparent to a snowy or silvery white. Checked, or, as we may term them, plaided patterns, have a very nice effect with the two tints of grey and the transparent glass, and they are either straight-lined or wavy, in curves; sprigs, leaves, flowers, stars, are imitated, commencing with the simplest patterns, as we have stated, at 2s., and ascending by 2d. per foot according to the scale of work; fanlights, skylights, hall-lamps, and the like, offer the most inviting media of application; in the last respect in particular we have seen very beautiful effects produced through a pattern of central work and radiating lines, but altogether the capabilities would be too long for us to enumerate. We have given the principal features, and leave them to the active invention of the manufacturer and his patrons.

One feature of advantage we must not omit to name is the rapidity of the power of supply in case of any emergency; as an order for one or two hundred feet may be taken as it were this morning and completed by to-morrow night, and any pattern to order or to match, can be as readily executed.

TO THE EDITOR.

SIR,—In your journal of the 1st of July, you stated that the designs of Messrs. Wardell and Littlewood, of Bishopsgate-street Within, for the Literary Institution at Richmond were accepted. Allow me to correct this error, as it is the proposed *Mechanics'* Institution for which those gentlemen are the successful architects, and for which erection no less than twenty-five designs were submitted to the committee. I should be glad if you will take notice of this in your next, there being a Literary as well as a *Mechanics'* Society in this town, although the former, I regret, is far from being in a position to erect an Institution.

I am, Sir, your obedient servant,

A SUBSCRIBER TO YOUR JOURNAL.

Richmond, July 24, 1843.

The history of the international copyright question exhibits a new feature, at the present moment which is worth recording as significant of its progress. From one of the strongholds of the piracy has come out an accession to the army of reformers. One of the leading houses of publication, in Brussels, Messrs. Famar and Co., has petitioned for the abolition of literary piracy; and announced its determination to have no other competition with French publishers than that which aims at the relative perfection of the original works produced in the respective countries.

To any of our SUBSCRIBERS who are in possession of copies of Nos. 3, 4, and 8, in an unsoiled state, and who do not require them for binding up, we shall be happy to return the full sum of THREEPENCE in exchange for such Nos., they being now entirely out of print.

THE BUILDER,

NO. XXVI.

SATURDAY, AUGUST 5, 1843.

We had occasion a few days ago to make some inquiries in a principal provincial town, once flourishing—a very few years ago flourishing—in all the pride of active building operations; we inquired as to the state of building interests, and looked about for the residences of the competent retired master builders, whom we supposed would be found to have grown out of the activity we have adverted to. We saw around us a new city, a good deal of palatial magnificence and boastful show; lines of streets, terraces, villas, splendid hotels, new churches and chapels—where, in the memory of very young men, stood, but so many years ago, a few straggling cottages, or, at best, a moderately respectable market-town. All this altered fortune of the site was impressed upon us, and had been so on many previous occasions, not a little to our special wonderment; and we could not help, on all occasions, associating with it an idea of altered and improved fortunes for master and journeymen builders—for those whose energies, and skill, and enterprise had effected so much of this marvellous change. We looked and inquired for some of these; but there seemed a blank and stolid apprehension in the mind of our *cicerone*. We drove it harder into him.—“Where do your master builders live who reared these houses, and their fortunes?” We again importuned him,—and at last his melancholy reply was—“True, Sir, the houses are here, but the builders have disappeared—fortunes they reaped none! bankruptcy and beggary have well nigh engulfed them all. I cannot—truly, Sir, I cannot—point out one of them, one substantial remnant of those builders, to your notice.”

Yes, we believe that this is pretty nearly the fact; that in the town of Leamington,—for it is of Leamington we are speaking,—in this town of almost pompous appearances, isolated from the little hamlet of a quarter of a century back—inflated, substantially for many purposes of our argument, notwithstanding that lath and plaster, and bird-cage abominations have their place here as well as in places of more sober or lethargic progress. In this Leamington,—so far from there being scores of comfortable and well-appointed domiciles and establishments of the principal men who have contributed to all this, we cannot find one,—the Gazette of past years, or the little better reminiscence of their abandonment of this life of their once anxious labourings, is all that remains to point out that Leamington had master builders; for all the rest it might have been the work of a migratory horde of inferior craft of freemasons, who had settled here for the purpose of the day, and departed on its being served.

There is a sad canker in that which produces such a state of things as this we have adverted to; and it is not alone as regards the masters either that we deplore it, but for its enormous moral consequences on all concerned, particularly the men; and we advert to it

now, because there are several speculations on foot in many parts of England, pushed forward on similar principles, and under similar auspices, to that which led to the lamentable end in question, and which, if not minded, will, we fear, have a resemblance also in the ending.

We wish not to speak disrespectfully of any parties; but it is well known that fortunes have been reaped, or businesses founded, upon the ruin of the builder, excited and urged on by tempting facilities, furnished by those who have taken good heed to their own special safety. It is against this that we would earnestly warn our friends, and we shall return to the subject for this purpose. There is a middle line between over confidence and cunning suspicion—and this line is to be trodden on by the discreet, yet energetic; the prudent, yet enterprising of our aspiring fellow-craftsmen. How to detect it, and having detected, to walk in and confine the steps to it, shall be the purpose of our future suggestions and reflections.

LIFE ASSURANCE.

We took advantage, when inserting last week the Annual Report of the Norwich Union Society, to observe upon the comparative decrease of business at the Equitable Office. All who are interested in these matters should recollect that the establishment and progress of the latter are the index to whatever has subsequently been done, or attempted, in the formation of Life Assurance Companies or societies. Its establishment proved the practicability of *working the system*, not only upon the mutual assurance plan, but fifty others; its realization of capital demonstrated that no prior conceptions of accumulation had been attended by such mighty results. A concurrence of favourable circumstances, such as no other association may hope for, had, however, much influence in advancing the prosperity of the Equitable. In the first place, its affairs were for more than half a century under the superintendence and control of the late Mr. Morgan, who had the singular chance and good fortune to see a fund of probably not less than twelve millions grow up under his eye. An administration so successful, enjoyed a dignified exemption from that species of meddling interference so frequently detrimental to the interests of public bodies; it was, therefore, characterized by an undeviating policy, and if Mr. Morgan's life could have been extended another half-century, the wonder-workings of compound interest might have rendered the Equitable Society creditors for a very considerable portion of the national debt. The calculations of that society were erroneous, as being deduced from a ratio of mortality inapplicable for general purposes, but it was error on the safe side, and therefore persevered in by Life Assurance Societies as a sure source of stability and wealth; in annuity business, however, much mischief was wrought thereby. For many years the Equitable, or rather the Northampton tables, were used in the purchase and grant of annuities, which were consequently bought and sold precisely as much *below* as the premiums for life assurance were *above* true values. A second cause of the prosperity of this society was the state of the public securities during a period occupying a large proportion of its most active operations; its tables assume 3 per cent. only as the rate at which money can be invested and improved at compound interest, and in this assumption of a standard rate for business purposes, the example is followed by all the offices; any one, how-

ever, referring to prices of the funds during the twenty years of war which terminated with the victory of Waterloo, will find that the average price of consols admitted of purchases yielding permanent annuities of between 5 and 6 per cent., thus *doubling* the rate assumed by the offices. In a question relating to the improvement of money by perpetually adding interest to capital, this was a feature of the first importance, and of itself sufficient to have created the bonuses or additions to policies made by the Equitable Society. The recurrence of depression of such a continuance is very problematical, and while the public funds retain any thing like buoyancy, the newer offices will fail to realize any very material advantage beyond the rate of interest prevailing in their tables; but whatever, in addition to the standard rate of 3 per cent. may be obtained, is one of the sources of *indirect profit*. Of like kind, but more certain in favourable results to the offices, are *lapsed premiums*, or assurances discontinued either from inability to pay them, or from an alteration in the views of parties who had entered into contracts for the payment of annual or other periodical sums. To the middle and industrious classes, a moderate rate is, upon the ground of many casualties affecting their means, a consideration in which a very great extension of the system is involved. While it is acknowledged on all hands that the premiums should be sufficient, and even ample, excessive demands should be avoided by offices who may desire to obtain the preference of these classes; the difference of even a few superfluous shillings may delay or prevent the small tradesman or mechanic from paying a premium, and cause the forfeiture of many previous investments. Considerations of this nature induce us to think highly of offices who permit a portion of the premium to remain unpaid, subject to ultimate deduction with interest from the amount assured; we are persuaded that an extension of this plan, which could not in any manner trench upon the security of the offices adopting it, would be a great and appreciated benefit, and it seems, moreover, that the amount of premium allowed to remain in arrear admits of being apportioned in a manner to prove greatly advantageous to them. The reigning principle upon which money is heaped up for the purpose of some prospective addition to policies, in the shape of *thirds*, *fifths*, or *fifteenths* of profits, will not bear comparison in point of utility with that of lessening the strain upon the current resources of the assured. We are speaking now, and particularly, of the middle rank of our own class; for the richer among society the system of high premiums and large future expectations is peculiarly adapted; these features of the *Tontine* will no doubt continue to have attractions, but they are the least useful in a broad and popular sense. It will be evident to our readers that the points at which we have glanced are severally of much importance, and that they require the further notice and illustration which we purpose devoting to them. The assurance of life is no matter of speculation. Mortality holds a dominion which experience shews to be exercised with an even hand; it is this unerring law that enables us to reason upon and to demonstrate the value in present or periodical payments of given sums when the casualty of death shall successively happen to each individual composing a society or mass.

CISTERN CEMENT.—Ashes two parts, three parts clay, one part sand, mixed with oil. It will make a cement as hard as marble and impenetrable by water.

THE CARTOONS.

THE public has already been made acquainted, through the medium of contemporary publications, with the particular merits and imperfections of the Cartoons now exhibited in Westminster Hall. It is not, therefore, our intention to renew the discussion upon this subject, nor to canvass the correctness of the decisions which these journals have recorded. We are anxious rather to induce our readers to visit the exhibition themselves, and to exercise their own judgment and discrimination, instead of placing implicit confidence in the opinions of writers whose criticisms, unfortunately, are not always characterized by fair and impartial investigation, but whose writings too frequently bear strong evidence of a disposition to withhold commendation from the gifted artist, for the mere purpose of gratifying a private pique or a personal aversion; while, on the other hand, they elevate the merits of their friends into undue importance, and touch their many and glaring faults with tenderness.

It is our intention, therefore, to view this subject in a different light—to take these Cartoons as illustrative of the *principles and feelings at present existing in the public mind*. To effect which we cannot do better than analyze the nature of the subjects chosen by the artists for this exhibition. It will be remembered that the Royal Commission of Fine Arts required the artists to select their subjects from British History, or from the works of Spenser, Shakespeare, or Milton. Now how many artists have supplied themselves from these sources? Upon examining the catalogue, we shall find that from British History there are about 70 Cartoons, 18 of which are distinctly of an ecclesiastical nature; from the works of Spenser 9 subjects have been chosen, from Shakespeare 16, and from Milton 32. There are also about a dozen of an allegorical nature, and a few miscellaneous; but there are not more than six Cartoons which attempt to embody conceptions of a national or a philosophical character—which attempt to clothe in material forms the loftiest conceptions of genius, and thus tend to raise the country in which they are produced, to the highest pitch of renown.

Now, in viewing the Cartoons in this light, it may happen that the subjects which we point out as illustrating our position may not be works which display the greatest amount of artistic talent, but such a circumstance will not militate against our principles. The humblest artist may have had the loftiest conception of his subject, although he may not have been proportionately successful in the execution of it; and it is with the former only that we have to do on the present occasion. Among the Cartoons, then, which, in our opinion, embody conceptions of a national and philosophical character, we would instance "Edward I. addressing the First Deputies of Boroughs," "Alfred the Great submitting his Code of Laws for the approval of the Witan," "A First Trial by Jury," "King John signing Magna Charta," "A Witch led to Execution," "The Fight for the Beacon." Such subjects as these are eminently fitted for exercising the talents of gifted artists. They form, too, so prominent a portion of our national history, they have to do with times which nerved men's hearts for heroic deeds and lofty actions. Stirring times were these which these artists have chosen, whether we view them with reference to the period when the people's representatives first formed a rough and important sketch of the future House of Commons, or to the time when the mighty Saxon arranged those laws which, though now lost, served long as the basis of English jurisprudence, and which are generally considered to have been the origin of what is now called the *Common Law*. Then there is the Trial by Jury, and the signing of the Great Charter; then again those periods when superstition stalked through the land, when men's minds, in their fearful and gloomy imaginings, peopled this beautiful earth of ours with scarcely other than demoniacal existences. There are others, too, which refer to those fierce and half-barbarian days when pirates and midnight marauders infested our coasts. These subjects, we repeat, have been well chosen, because they constitute a part of our national history, and of our parliamentary legislation, but how small a part do these form of the entire collection!

Place in contrast to this circumstance the

fact of there being nearly 20 Cartoons descriptive of battles, of the warfare of physical strife and of brute force. Such a circumstance cannot be spoken of but with deprecatory feelings; it is the old stigma on our national taste, it reminds us of those days of fierce conflict, when this ruling passion found a hearty response in the domestic circle, and eleven out of every twelve pictures in a room were battle-pieces. They were times when it seemed men delighted in nothing so much as to view heaps of slain and fields of carnage. These feelings, indeed, have not yet passed away, as is proved by the large proportion which those subjects bear in the present collection of Cartoons. They are, however, the necessary result of giving undue importance to military achievements and their consequences,—fire, bloodshed, and desolation,—rather than to the encouragement of the more humanizing principles of civilization,—the magnanimity of self-devotion, and the cultivation of the kindest feelings of our nature.

In passing through the list of these 140 Cartoons, we cannot but regret the absence of works of intellectual grasp and vigorous comprehension, such productions as were the pride and glory of Grecian art, and which still command the admiration of the world. There are devils and fiends in abundance, but only one Caractacus—a captive in the streets of Rome, with his soul soaring above his misfortunes. The eventful period of Charles the First's reign has produced only one Cartoon. There is a complete absence, too, of subjects connected with modern events, many and stirring as those events have been; there is a yielding to the common error that we must look to past times for heroic deeds and soul-stirring aspirations. Does the human heart, then, beat less proudly and less strongly now than in days of yore? Do we not find it now throbbing with towering ambition, and anon silently breaking under unmerited suffering? Do we not find it rising and falling as frequently now—incased in coat and waistcoat though it be—as ever it did in the so much vaunted times of the steel-clad age? Human character can never be placed in such circumstances that there is not some important truth to be told respecting it, some dignity to be discovered, or a lesson to be taught.

There is also much that is tamely beautiful and coldly correct among these Cartoons, a display of a smoothness of outline and a prettiness of treatment, with a due portion of silk and satin, and a crowding together of simple shepherds and shepherdesses, which betrays but a mediocre appreciation of the truly beautiful. Such a mode of treatment shews the subjugation of talent to the conventionalities of a profession, and often produces creatures which nature would not own as her legitimate offspring. It reminds one of Lucian, who to form the portrait of a perfect beauty recommends that she should have "the forehead and eyes of Praxiteles's Venus; the turn of the face, cheeks, and nose of Phidias's Lennian woman; the mouth and shoulders of his Amazon; the neck and fine hand of the Venus of Alcmena; the smile, modest appearance, and drapery of Calamis's Sosandrian; the youthful air of the Venus of Cnidus; the beautiful colours and paces of the Juno; the beautiful colours and paces of the Cassandra of Polygnatus; the delicate tints of the Pacata of Apelles; and the lips of Acteon's Roxana." This mode of "embellishing" nature will not do, no student will follow his advice, for it would produce a monster rather than a beauty.

Art is seriously abused when made to subserve such caprices as these; neither should it be used to delineate unfortunate creatures in the agonies of a violent death, or expiring under the poisonous breath of pestilence. The Greeks, it is true, were familiarized to the effusion of blood and to spectacles of death, but a mind of sensibility must lament over the most successful production of an artist who could form his idea from the dying gladiator, paint from a man involved in grief and distress, or describe a situation like that of the unfortunate Laocoon and his children devoured by frightful serpents. It was not such scenes as these that immortalized Grecian art, and though they may excite admiration in some minds, they must ever occasion pain to the humanized and tender-hearted. God knows we behold enough misery, wretchedness, and privation around us to excite our commiseration, without the artist labouring to perpetuate recollections at which the heart sickens. Let

us not, however, be mistaken; we do not sympathize with those whose feelings are so exquisitely refined that they must have every thing removed from their eyes and ears which may excite unpleasant emotions; such persons as they who cannot encounter a case of suffering because it may perchance disturb the placidness of their countenance. What we contend for is, that the constant delineation of these subjects does not tend to increase our sympathy for suffering humanity, or stimulate our exertions for ameliorating the condition of our fellow-creatures. There are deeds of heroism and of self-devotion in the field of battle, which are as fitting subjects for the pencil as the pen, but such subjects are seldom chosen,—the present exhibition, to wit; the painter too frequently delineates only the horrors of the scene, without leaving an object worthy for the mind to rest on.

One word more before we close these observations; although there is in this collection much that is bad, exceedingly bad, both in the choice of the subject and in the style of execution, yet, viewing the whole as a reflection of the public mind, and as a fair embodiment of the public taste and feeling, we see in it much that is worthy of commendation, much which proves to us that there is a gradual cultivation of a healthier moral sense in the community. There is another circumstance, too, which we cannot pass unnoticed, namely, an increasing desire on the part of the public to be admitted free of charge to all the national depositories of art and science. Our own opinion is that such a measure would be attended with the best results; we shall therefore always advocate the free and unreserved admission of the public to them, without money and without price. The working classes have proved by their conduct that the opprobrium cast upon them was extremely unmerited and unjust; they have shewn that they can visit the soul-stirring realization of the poet's fancy without leaving behind them such marks of spoliation as many persons above them in station have left in almost every city in Europe; in short, the working classes have avoided that which is a disgrace to the English character, and which leads every English traveller of cultivated taste and refined feelings to blush for his countrymen. We shall always advocate the free admission of the public to these institutions, because we believe that the Fine Arts have ever exercised a benign influence over the thoughts and actions of mankind; they remove man for a time from the chilling effects of the selfishness and the hard-heartedness which surround him in life; they abstract his thoughts from the mere materiality of his existence; they leave his imagination free to rove in the bright world of idealities; they purify his thoughts, they turn his actions into the kindest channels, and they lead him to cherish the loftiest aspirations of his nature.

THE SMOKE NUISANCE.—The committee of the House of Commons, of which Mr. Mackinnon is chairman, sat for the first time on Tuesday week. During the course of last week Dr. Reid, Dr. Urquhart, Mr. West, of Leeds; Mr. C. W. Williams, of Liverpool; and many other scientific men, engineers, manufacturers, and others, were examined. The general opinion expressed by the witnesses was, that the smoke which emanates from the chimneys of the metropolis was a great evil, and that there were abundant means for its almost total suppression. Mr. West stated, that, in Leeds, where active measures had been adopted by the corporation, there was a great deal less given off in the atmosphere; and Mr. Smith, a commissioner of police from Bradford, stated, that from the efforts of the commissioners, aided by a local act, out of 138 mills in the jurisdiction of the town, there were but four in which smoke-consuming apparatus of some kind had not been introduced. The effect of this was that the smoke had been lessened one-fourth, whilst in the course of a short time there would be no difference in the atmosphere one week day to that of a Sunday. The evidence was also very conclusive as regards the influence of smoke upon the personal appearance, social habits, and moral condition of the poor. The sittings of the committee will probably extend another fortnight, and one part of its object is the examination of the various patented and other plans that have been brought forward for its suppression. The members are composed chiefly of the representatives of towns and districts who complain most of the evils. [We shall notice the report when printed.]

FLINT WORK.

TO THE EDITOR.

SIR,—In my last to you, I described how walls were constructed with mud, presuming it would be interesting to those who have not seen buildings put up with any thing but stone and brick (and I know there are many); in this I am influenced by the same motives, i.e. of giving information to those who are hundreds of miles off, how we construct our buildings, and the materials we use, and again, that others may do the same. What a fund of practical information might be gained by such a course, and how useful it would be to those who have to seek the country over for employment. Many will be deterred from doing so, from not using themselves to any thing of the sort, and the fear of committing mistakes; to those I would say, fear not, do your best; should we commit errors in our descriptions, we are sure to be corrected by our editor, and how pleasant to be corrected by those who are "zealously burning" for our welfare.

Flints are very plentiful in this part, the soil is thickly strewed with them; this plentiful supply we take advantage of in constructing walls. Those found on the surface and in the soil are not so good as those got from the chalk, on account of being disfigured in colour by some chemical action, and rather shabby, and generally too small. About two years ago, a friend of mine was in search of employment, and hearing of my being in this quarter, came to see me; I was having at the time flints used in walling; not having before seen any flint but in a tinder-box or on the lock of a gun, he said, evidently with the feeling of giving me a valuable suggestion, "Mr. F., this flint appears to be a prime material for outside work, as it may be considered imperishable and impervious to the weather; but I think it would be much better if you could contrive some means of getting it in large blocks, thereby avoiding so much labour in setting, and fewer joints." My friend was labouring under the impression that flint was got from quarries, the same as stone. I explained to him that flints are got when digging in the chalk; that they are found in detached pieces, and that we seldom find one, when worked, that would be more than six or eight inches square. When they are found, they have a sort of white enamel on them about a quarter of an inch thick, and they are in all kinds of shapes; sometimes they occur in veins or strata like a string course, six or seven feet apart, but still detached. The chalk in this neighbourhood in which they are embedded is about six hundred feet deep!

My friend seemed somewhat astonished at my explanation of how we came at our flints, then felt somewhat curious to know how they came there; but I could not inform him. I recollect reading an essay on flint, which attempted to prove that they had been fish; and have heard a geologist of some note say they have been sponges; how they have originated I cannot tell.

The process of working flints, in preparing them fitted for use is simple, though it requires some practice, on account of their brittleness and liability to break in the wrong place. The first process is to break them with a large hammer, then with a smaller one to square up the pieces; the generality of the larger pieces and those that look the best are about four or five inches long, and the same in depth, so that they course with the bricks when used. A great deal depends upon the cutter of flints, in making flint-work look well, in squaring them up well.

If these humble remarks meet your approval, I will in my next supply a sketch as they appear in the wall. I am, Sir, your obedient servant,

JAMES FITZCROFT.

Near Stockbridge, Hants, July 30th, 1843.

WARMING AND VENTILATION.

TO THE EDITOR.

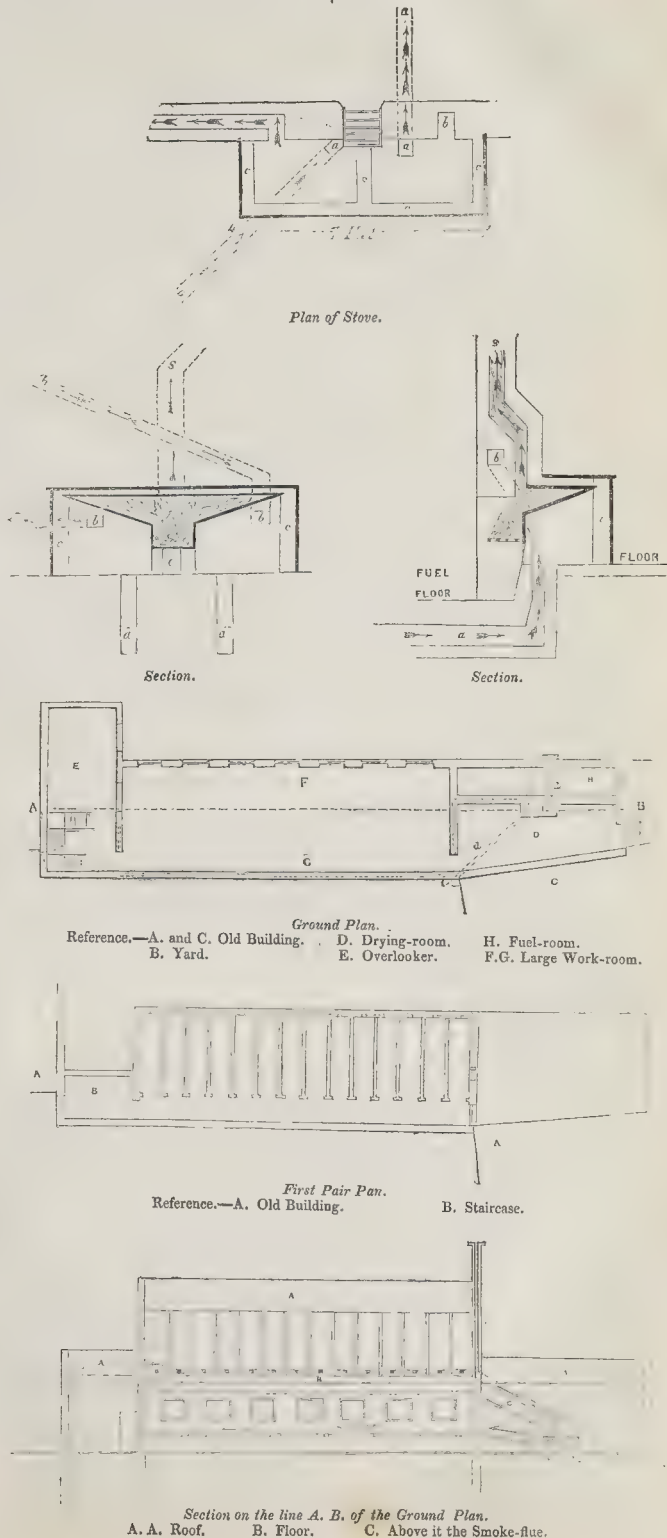
SIR,—I enclose you a sketch of the building mentioned in my letter in THE BUILDER of the 6th May. A jury would certainly decide when they had an example like the building mentioned before their eyes. It is merely work-rooms.

Yours obediently, T. H. C.

The plan and sections of the hot hearth or stove shew the bottom of grate; the cold air-flues, *a*, entering into what may be called the air-chamber, and the hot-air flues, *b*, passing out; the arrows the current; *c* brickbreath casing inside the front and end stove-plates and partition; the strong lines the iron-work. It will be perceived there is a plate of iron under the top, to prevent it becoming too hot. *S*, the smoke-flue, which passes into the gable; one hot-air flue passes under the windows in the wall at *F*, ground plan, and as shewn in the section,

from thence over the window and door, in the wall between the staircase and work-room, and back in the wall, *G*, and continues a separate flue up the gable. The other hot-air flue passes over the windows, without any outlet, into the room below, and back just over the floor, with a ventilator into each small room,

and so on a separate flue up the gable. The small rooms are divided by quarter partitions, lighted each with a skylight. There are ventilators in the ceiling and roof. This, in summer, is used to ventilate the building with cold air, the drying stove not being required.



INSTITUTION OF CIVIL ENGINEERS. SESSION 1843.

No. 559.—ACCOUNT OF THE VICTORIA BRIDGE, ERECTED ACROSS THE RIVER WEAR, ON THE LINE OF THE DURHAM JUNCTION RAILWAY. By DAVID BRENNER, Assoc. Inst. C.E.

—The district through which the Durham Junction Railway passes, for the purpose of completing the connection between the city of Durham and the towns of Newcastle, South Shields, and Sunderland, is extensively undermined by coal-workings, and great caution was requisite in the selection of a spot which suited the level of the railway, and where a foundation could be formed sufficiently sound to support such a structure as the bridge described in the paper. The advice of Messrs. Walker and Burges was therefore sought by Mr. Harrison, the engineer of the line, and their design was adopted; but subsequently several alterations were made, either to favour the locality or from motives of economy. The bridge is 810 feet 9 inches long, and 21 feet wide between the parapets. It is, with the exception of the quoins of the main arches, built of freestone from the Pensher quarries; there are three semicircular arches, of 144 feet, 100 feet, and 60 feet span respectively, a centre arch of 160 span, with a radius of 72 feet, and three arches of 20 feet span each at either end, forming the abutments. The main pier is founded upon a rock, 24 feet beneath the bed of the river: and the height from the foundation to the top of the parapet is 156 feet 6 inches; the under side of the main arch, at the crown, is thus 121 feet 9 inches above the level of the sea. The paper describes at length the nature of the building materials employed, the dressing of the stones, the composition of the mortar, the general detail and dimensions of the construction, the centering of the arches, with the precautions used in striking them, and gives a very full account of the travelling and other cranes employed in the construction; these are stated to have been very efficient. The north arch, of 100 feet span, containing about 980 tons of stone, was entirely turned with two of the cranes, in twenty-eight hours, giving an average weight of 17½ tons of stone laid by each crane per hour. The perseverance and practical skill of Messrs. Gibb, of Aberdeen, the contractors, are particularly mentioned, as the difficulties attending the getting down the foundations, especially that of the main pier, were very great, and required all their talent and energy. The detail is given of the precautions taken with the coffer-dam, in which, at one period, a steam-engine of twenty-horse power, working two pumps of 18 inches diameter each, was insufficient to keep down the water, and it became necessary to drive a range of sheet piling all round within the dam, before the leakage through the bad strata above the rock could be stopped. By calculation it appears, that the pressure on the foundation of the highest pier of the bridge is about 37 tons on each square foot, exclusive of the additional weight of the passing coal trains, which frequently weigh 120 tons each. The bridge was commenced on the 17th of March, 1836, and was finished on the 28th of June, 1838, occupying about 714 working days, and cost, with extra works, nearly 40,000l. The paper is illustrated by three drawings, shewing a plan and elevation of the bridge in several stages of its construction, and when completed; the details of the centres, hoists, and cranes, the coffer-dam, engine, pumps, and of the foundations of the whole structure. Mr. Vignoles had examined the bridge very minutely, and had been much struck with the excellence of the workmanship, which was quite in accordance with the beauty and simplicity of the original design; it was an extraordinary example of care and attention on the part of the contractors, and did infinite credit to all engaged in it: yet with all this, it had cost less, in proportion to its dimensions, than any similar structure in this country. The President observed, that the structure first proposed was to have been of cast iron, but when he and his partner (Mr. Burges) were consulted, they advised the employment of the freestone from the adjoining quarries on Lord Londonderry's estate, and they furnished a design, based upon that of Trajan's bridge, at Alcantara, which was adopted by the directors; but subsequently an alteration was made, by introducing three small arches in each

abutment, which, in his opinion, had injured the design; that was the extent of his connection with the bridge; the merit of the construction must be given to the engineer and the contractors, and he must corroborate the statement of the superior manner in which the work had been executed. The bridge had been placed nearly at the spot marked out by Mr. Telford, for the great north road to cross the Wear, and as the railway would now form part of the line between Newcastle and Darlington, Mr. Telford's plan would be virtually executed, although with the difference of substituting a railway for a turnpike road.

INSTITUTE OF BRITISH ARCHITECTS, JULY 24.

W. TITE, Esq., V.P. in the chair.—A paper was read by Professor Donaldson, V.P., explanatory of the peculiar arrangement of the fronts of some houses in Belgian towns erected in the 15th, 16th, and 17th centuries, illustrated by a numerous collection of sketches of decorated fronts of ancient dwelling-houses, &c., formed of stone, brick, and wood, in Tournay, Mechlin, Antwerp, and Bruges, taken by him during a tour last Autumn.

Mr. Maugham explained the process adopted by Mr. C. Payne, the patentee, for the preservation and improvement of wood and other vegetable matters.

This being the last meeting of the session, the chairman addressed the members, and alluded generally to the results of the session as having been satisfactory; that many papers of great interest had been read at the meetings, and various committees had been engaged during the session in the consideration of topics of an important nature, connected both with the practice of architecture in general, and the interests of the Institute. He alluded, likewise, to the proposed New Building Act, now before Parliament, as having met with very general opposition, but was now referred for revision to three gentlemen, two of whom were members of the Institute, and there was reason, therefore, to expect that it would be greatly modified and improved; that the subject had much occupied the attention of the council, who were desirous of doing every thing in their power towards the accomplishment of that desirable object. He further noticed the increased attention given to the subject of Gothic architecture, of which he avowed himself a warm admirer, but at the same time considered it proper to caution the junior members from being led astray by the very strong and unqualified language of some writers of the present day on the subject, which tended to recommend the exclusive practice of that style on all occasions and for all purposes, to the total neglect of the classical styles of Greece and Italy, which must nevertheless be acknowledged as infinitely more suitable on many occasions for modern purposes.

YOUNG ENGLAND.

TO THE EDITOR.

SIR,—In a late number of your very interesting journal, in treating of the application of Life Assurance to securing to tenants the absolute freehold of the house or farm, in which by the present system of occupation they can have no living interest, you observe that the dearest interests of "Old England" are involved in the projected scheme of freehold assurance, inasmuch as it promised to give to every man a new and lasting tie to his country.

But it appears to me that "Young England" has even more to hope from the system than the mother country, and promises more advantages to the capitalist who will enter upon it. By "Young England," I may observe that I do not here intend any allusion to the "Young England" of Mr. Joseph Hume and the *Spectator*, that Heracitus of the press, viz., the white-waistcoated and white-neckcloth gentry, whose pleasure and business it is to make speeches of a certain class in the House of Commons, but the young colonies of Englishmen, now forming in all parts of our colonial empire. You propose to give to the house tenant the freehold of his house on condition of his paying you an annuity on his life instead of a rent. Doubtless, with proper precautions against the effects of depreciation of property in England, by deferring the period of purchase, for example, until some years' payments had been made, and charging a bonus premium for the bare insurance, a large proportion

of the locked-up capital of this country might thus find ample investment. But colonial land, under proper and active colonization, must increase in value; it is at its minimum on the formation of the settlement, and therefore here there would be inexhaustible scope for the application of this freehold assurance project. It is to be observed with the *Examiner* newspaper, one of the most sensible and impartial of the opponents of systematic colonization, that there is one radical evil in the Wakefield system, as at present in operation, that it involves in the very outset the sinking of capital in land and labour.

The colonist is, in general, not a capitalist (never a large capitalist), but what we may call an incomist, his income often being not in his pocket, but in his character and in his head and his hands. He has not 20l. of capital, even though he may have 20l.; for capital, in the wide sense, is the accumulation of years of industry: and the 20l. saved out of a few years' toil represents only the aggregate income of these years, but does not in the available sense claim the name of capital. The colonist, therefore, can pay an annual sum, but he is not justified in launching out the hoardings of a few years in land. But, again, the general feeling in the new colonies is decidedly against sinking income in the shape of rent, so common in this country, and productive of such disastrous consequences and cruel injustice in Ireland. What then remains? Either, on a small scale, to secure the freehold of small properties by combination of annual contributions, as in the English building societies: or, on a large and truly effective scale, by payment of life annuity instead of rent; one annual payment so calculated, guaranteeing the freehold to the heirs of the annuity payer, as well as securing the lender the return of his capital.

A Scottish Kirk colony has been lately established in New Zealand on a very excellent theory of preparation: and as far as the funds will provide for such preparation, the result will be a flourishing and a comfortable settlement. The charge of 2l. an acre is made for the land: and out of this 2l., thirty-shillings is devoted to emigration, the building of roads and bridges, &c. We would go a step further, and without waiting for gradual sales of land, make every preparation at once: and the necessary means—the money—we should gather in this way.

We shall suppose that the Church of England establishes the next New Zealand settlement. Let the friends of the Church and the English capitalist purchase of the government or the New Zealand Company at once, by combined capital, one hundred thousand acres of land, at (on an average of town, rural, and suburban land) four pounds an acre.

Out of this allot to the

New Zealand Company	£100,000
Emigration	100,000
Religion and Education	100,000
Roads, Bridges, Clearing, &c.	100,000
	£400,000

And charge the public at the rate of 5l. an acre, to be paid, not at once, but by annuity, secured on land necessarily increasing year by year in value from such effective combination. A yeoman (whose physical health must of course be certified) of 30 years of age might, on this principle, be secured in the immediate freehold of a farm of 100 acres by a payment of 374 10s. per annum, to revert to his children or heirs at his death, *unincumbered*. The New Zealand Company, and the English capitalist, and the English people, would rapidly feel the good effects of such a system. For the security would be unexceptionable, the advantage to the yeoman unprecedented in any colonial scheme, while the good result to the church or sect forming the settlement, as well as to the settlers, would be realized in a very few years. Let the church do this—and let the Wesleyans, and the Catholics, and other religious denominations, follow their example, and colonial and social progress will receive a new stimulus, and sectarian jealousies will be abolished with their causes. You will perhaps permit me to enter more fully into detail on a future occasion.

Meanwhile I am, respectfully, yours,
MIDDLEAGED ENGLAND.

FURTHER EXTENSION AND ACCELERATION OF THE MORNING MAILS.—By command of the Postmaster-General, Salisbury and Stockbridge are added to the list of 130 post towns despatched every morning from the General Post-office in St. Martin's-le-Grand. We understand also, that on and after Tuesday, the 1st of August, the down mail to Birmingham will leave the chief office at half-past nine, A.M., instead of ten, as heretofore. This acceleration will not, it is expected, cause any alteration in the time of posting letters and newspapers either at the General Post-office or at the several branch offices throughout the metropolis.

MR. BERNHARDT'S SYSTEM OF WARMING AND VENTILATING.

NOTWITHSTANDING that we feel it to be of the greatest importance to the general public that this question should be set at rest if possible, and a determination come to on the mode of most economically and effectually giving warmth to our apartments, and changing the air, so as to render it perfectly wholesome for respiration, yet we cannot occupy so large a space with the discussion as to insert all Mr. Bernhard's papers now before us. They consist of, first, a general letter of notice of the previous correspondence in this paper, recapitulating facts, &c.; secondly, the reply of Mr. Bernhard to the official report of Dr. Ure, published in the *Architectural Magazine*, for 1838; thirdly, testimonials from at least half-a-dozen eminent men, founded on the successful issue of Mr. Bernhard's operations; and lastly, a brief reply to two points urged against him by T. H. C., and Mr. Spencer, in number 24 of this journal, which we will give in Mr. Bernhard's own words.

"The readers of this paper will find that I was aware that there were upright pipes in use before I heard the name of Dr. Ure, and that Mr. Angel, and the royal engineer, under whose direction the eight apparatus were erected in the hospital of the city of Magdeburg, did not know the science required to erect any warm apparatus, without liability to mistake, as the testimonials of 'Frank,' the minister, in my behalf will shew. The said engineer published a pamphlet, announcing to the public that he could cure every smoky chimney, but he proved unable to cure even the mistakes made under his order.

"In answer to the questions of Mr. Spencer, I say, having made him acquainted with the quantity of fuel the fire-places require, I advise him to take the trouble to go to the House of Commons, and to make the calculation himself, as I think the public in general will be satisfied to find that I know how large or how small the apparatus must be to warm a room or building perfectly; and that this can be effected without the least waste of fuel, and without any experiment. If Mr. Spencer will visit Mr. Frey's Warehouse, No. 130, Fenchurch-street, and observe the large surface of skylight in the roof of the same, he will hardly believe that one single fire-grate of middling size can warm, notwithstanding the large surface of skylight and windows, a warehouse of such large dimensions, where four fires were formerly insufficient."

At the same time that we feel compelled to exclude what would occupy so much of our space, we shall endeavour to do justice to Mr. Bernhard, by summing up at considerable trouble to ourselves, and for the benefit of our readers, the amount of that which is urged in the three papers above named. We agree in the main with a correspondent of this week, who says, "that if the infringement or non-infringement of Mr. Bernhard's patent, is to be the alpha and omega of the discussion, the sooner it is brought to a close the better." (Not that we would have it understood that we are indifferent, nor do we think our correspondent indifferent, to the question of right and justice, or to the "dog-eat-dog" principle upon which unfortunately so many of our talented and inventive minds are at this day proceeding.) "But if, on the other hand, the discussion be carried on without running into personalities or channels of mere personal interest, but with a view to practical results, I am persuaded it will be attended with much good, and be hailed by your readers generally, as it is agreed on all hands, to be a subject of the utmost importance, and on which very imperfect ideas generally prevail."

To proceed, then, with paper No. 1.—Mr. Bernhard appeals to our own experience, examination, and approval of his plan, together with that of Dr. Toulmin, and above twenty architects who preceded us, referring to the drawing we gave in No. 9, of one of his 'Britannia Fire-grates.' He terms Dr. Ure's a "jealous and invidious attack," and adverts to the reply—the subject of paper No. 2, which he says "the editor of the *Mechanics Magazine* did not in fairness insert. He insists, in contradistinction to Mr. Spencer, that 'testimonials proceeding from practical men, and gentlemen of honour and veracity, are not to be borne down by the shallow pinions of partial judges, founded on a superficial glance of that which they know not how to appreciate, because they have not dived into

its principles." He says that in the works of Montgolfier, Rees, Sylvester, Tredgold, Gilbert, Becket, Franklin, J. Bull, &c., there may be found abundance of theory and perplexing calculation, but these are useless to the community at large, and "that the science which treats of the properties of the material elements of our atmosphere is as yet imperfect," which he has proved by hundreds of facts—and then refers to the several successful instances of his operations.

He disputes Dr. Ure's qualifications for judging in this matter, on the ground of the doctor's own confession as to the bad management of his own apartment, and of his incompetency to secure good ventilation for himself, and asks, "Can Dr. Ure inform the public what knowledge is requisite to direct the smoke-flues from ten fire-places into one chimney 15 inches square? Can he do this at once, without experiments, and without in the least inconveniencing the ten different apartments?" which he (Mr. Bernhard) "did successfully, eleven years ago, at the royal palace of Potsdam."

Mr. Bernhard says, "he defies explosion with his apparatus, the possibility of setting the soot on fire, or injuring the purity of the atmosphere, and thus disposes of the absurd idea started by Dr. Ure—absurd as would be the act impossible, of blowing or attempting to blow up the Parliament House, like a second Guy Fawkes." After two years' trial of his apparatus at the House of Commons, Mr. Barry's report was—"From the experiments I have made, and from the evidence of others, I believe that any degree of warmth may at all times be obtained by means of the stoves which he has erected." "The warmth," Mr. Bernhard continues, "as produced by my apparatus, is from a continual change of air, properly called ventilation."

Until his discovery, Mr. Bernhard "asserts the whole system to have been one of quackery, a process of art without science, and consequently uncertain in its results," and points to various instances of fatal effect upon persons breathing the bad atmosphere produced by the plans of "modern experimenters and philosophers," and concludes the first paper by stating as a fact that it was actually intended to have placed in the Queen's travelling carriage one of these "poison-producing apparatuses."

Of the second (paper the reply to Doctor Ure, published in 1838) we need only take a cursory notice, as so much of the same ground has been already travelled upon. We must say for it, that it is written in a fair and unexceptionable spirit, and would, in our opinion, if inserted in the *Mechanics Magazine* at the time referred to by Mr. Spencer, have differently influenced his conclusions and opinions.

The principal question turns on the point of Mr. Bernhard's plan as applied to Lord King's house, which Dr. Ure examined and reported upon, and it does appear that the doctor is involved in something of unfair dealing when he applies his judgment of an apparatus used for forcing the drying of a newly plastered house, and draws conclusions prejudicial to it in reference to the ordinary and proper usage of the apparatus, which it appears he never witnessed. When Dr. Ure saw it in work, it was in the interval of three weeks, during which the whole house was perfectly dried.

In reply to Dr. Ure's charge upon him, that he is but very slenderly acquainted with the principles of warming and ventilating, Mr. Bernhard says that the best answer is a reference to the various works he has executed. He then retorts: "If Dr. Ure had any practical knowledge of warming and ventilating apartments, he would have known beforehand what effects would be produced by the stove he put up in his bed-room, and which might have caused his premature death. I am sure many of the readers of the present paper could have told him the consequences, if he had consulted them beforehand. Can it be healthy where there is no ventilation? And is there any kind of a stove to be put in a room that produces effective ventilation?"

Mr. Bernhard meets the charge concerning the accumulation of soot, by shewing that it is not necessary more than twice or thrice in the year to sweep the flues, and that this can be done with the greatest ease in the basement story, and without the necessity of climbing-boys; and he demonstrates the perfect safety from

fire. With regard to the expense in Lord King's house, he says it was greater, in consequence of his lordship's choice and resolution to use slate instead of the usual plan of brick flues.

We have thus, we trust, given the necessary full and fair abstract of Mr. Bernhard's replies, after which let us hope that the important subject of "warming and ventilating" will be treated on its own merits, and with pure consideration of the public advantage, in which way we also hope that every aspirant to public favour will reap his due reward.

We ought to add that there is another paper of Mr. Bernhard's accompanying these, not bearing, however, upon the question immediately at issue, and therefore to be noted on a different occasion; it is a printed tract, addressed to Earl de Grey, the President of the Institute of British Architects, and contains fifty-two searching, and some of them somewhat puzzling, questions on the matter of fires, fire-places, flues, &c., from which we may in future quote, not so much for Mr. Bernhard's sake as for the general enlightenment.

SONNET TO JOHN BRITTON
(THE ANTIQUARY),

On attaining his Seventieth Year, 7th July, 1841.

BRITTON! I do rejoice that thou has gained
Fulness of years: the past doth honour thee
As thou the past hast honoured; thou shalt be
For a long age in memory retained
With those stone deeds whose glories have remained,
And hallowed now by "hoar antiquity,"
As is the storm-enduring Druid tree,
Or echoing aisle with storied windows-stained,
Antient of days, but aye a boy in heart,
Still hoping on with sympathies unspent,
Example to the Apathist thou art!
Would that thy frame might fifty represent
Thy spirit's freshness!—then should ills depart
And the grey tyrant, Time, for once, relent.
JOSEPH ELLIS, jun.

Extract from "Friendship's Offering."

What a crowd of thoughts rush in upon the mind at the mention of the name of Britton—grateful recollections of his labours in the cause of architectural and general archaeological research—vain attempts to estimate the large amount of service he has thereby rendered—speculations as to the position we should have been in without him—the eye tracing, or endeavouring to trace out the vast gap in the chart of our knowledge that he has filled up. We see him toiling up the mountain steep of difficult and painful investigation, cheered on, and cheering by his devotion, passion, perseverance, the zealous leader of many who rose under him to eminence, and creating in thousands a spirit of emulation out of which greater good has sprung forth. We admire his simplicity of mind, and its admirable fitness to the times, and the work he had undertaken. Oh, that every head now enriched with the stores of Britton's gathering would subject itself to the suggestions of a grateful heart, and consider how much of the advance ground upon which they stand has been opened and secured to them by that Columbus in adventure and discovery. It is not for us, however, to enlarge upon a topic of this cast, while the ears of the veteran are yet open to the sounds of mortal minstrelsy. Let us hope that our rude and harsh attainings may not fall discordantly, where the more refined gratulations of his own conscience and the wiser approbations of better voices produce a music of more fitting melody.

"May he live all the years of his life," and may they be many. Coronets and stars have been conferred on the bravely struggling in the path of war, on the laborious aspirant to eminence, too, in the channels of the law. Who shall say that the desert of a champion in the arts of peace is not full well as worthy of crown and renown? Those others obtain applause and reward in life as well as memorials after. Shall we wait the expiry of the life of one who has so signalized himself in our behalf, and then vote him a bootless cenotaph? How much better would it tell for future emulators to see the laurel of reward placed on the living brow, rather than one of cypress on the cold marble! We pray that our brethren would think of this!



LYCH-GATE OF WEST WICKHAM CHURCH, KENT.

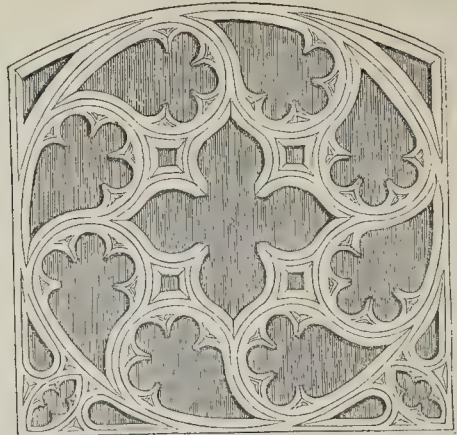
LYCH, or lich-gate, is the covered gate or porch under which the corpse and mourners stood sheltered at the entrance to the burial-ground or churchyard in early times. Lych is derived from the Saxon *lic* or *lice*, meaning a corpse; the German designation for this sort of gate being very similar, and evincing the common derivation of the words—it is *leichen-gang*. There are several interesting specimens of this sort of gate remaining in this country, and the practice of setting them up is beginning to be renewed, especially under Mr. Pugin's direction, in Catholic churchyards.

SHIP JOINERY.

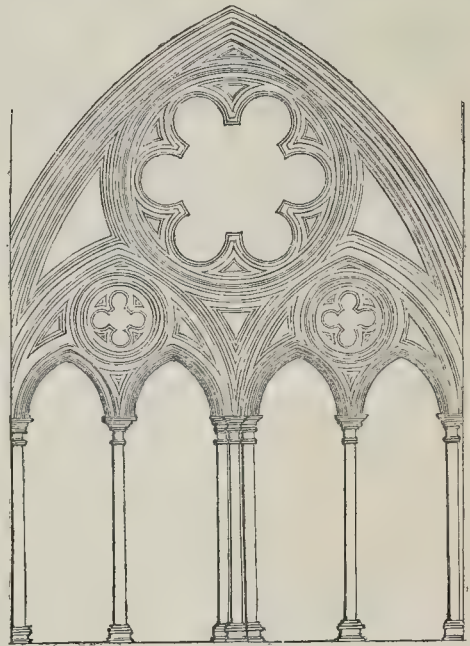
THIS is a subject which to a maritime people, and in maritime cities, is never wanting in interest; it is one that might be elaborately treated on, and presents more of general interest than would at first sight appear probable. The joiner's work, as it is termed, that is, the fitting up of a ship's cabins, is now advanced along with decorative painting to a high pitch, we may almost call it a luxurious extravagance; and since many members of the ordinary building craft are interested in such things, we shall just glance at a description of the fittings of the famous new American packet ship, the *Victoria*, which is now lying in the St. Katherine's Docks. She is just arrived over here,—the work of the New York shipwrights,—her architect is her Captain,—Morgan, and a splendid work of structure and design she is. Named after our beloved sovereign, and bearing a figure-head respectfully carved to represent her Majesty, look like not unmeaning or ungrateful compliments; the free-masonry of our craft drawing us also towards her, it was with peculiar pleasure we stepped on board the *Victoria* to scan her first attraction, and, if need be, to resume our visit and be more discursive on the subject of her general merits.

The whole of the chief cabin may be said to be lined with satin wood, and margins of rose and zebra wood, and American bird's eye maple; the handles of the doors to the berths are of glass; the ceiling is in white and gold. The ladies' cabin is most appropriately delicate, in the like white and gold, sides and ceiling; the chairs and tables of beautiful drawing-room fabric, with silk damask curtains; carpets of most select pattern and staple, and altogether the sight is particularly choice and unique.

One thing struck us regarding the seats by the side of the dining-table of the chief cabin; the back rail is ingeniously contrived for the comfort of sitting to the table or turning away from it; the supports of the back rail are metal uprights, made to hinge below the seat, and thus to admit of being turned over either edge of the seat. The same principle may be applied in many instances of an ordinary nature. We shall endeavour to get a drawing of it for the instruction of our readers.



WINDOW IN BURWELL CHURCH, CAMBRIDGESHIRE.



ELEVATION OF CLOISTERS, SALISBURY CATHEDRAL.

WE are indebted to our painstaking contributor, J. L. C., for the beautiful specimen of a window from Burwell Church, Cambridgeshire, and for a drawing of part of the famed cloisters of Salisbury Cathedral, both of which we now produce from the hands of the engraver. The matter of supplying our columns in the most efficient way for the public and private benefit, is beginning to be displayed as we had promised. THE BUILDER is not the production of dull, plodding hirelings, who sit down to a task of daily drudgery, in which intellectual interest has little or no part; but it is composed of the varied contributions of zealous and friendly fellow-labourers with us in

the good cause of architectural and building progress. We owe to a friend near Southampton an apology for not before replying to his obliging offer to delineate the details of Netley Abbey; but we have so much before us just now, that we would gladly defer for a period engaging in more. One thing, however, we would beg to impress upon our friends, that is, to attend to details. Sections of mullions, jumbs, mouldings, the joints of the stones, and the like, should be given, with their communications and dimensions. Let them sit down to their task in a careful spirit, and the discharge of it will be pleasant and profitable in a greater degree.

ON JOINING SHEETS OF PAPER TOGETHER.

TO THE EDITOR.

SIR,—In one of your late numbers I find that you recommend (as the best method for joining sheets of paper) the use of paste made of flour, water, and alum. That method I have frequently tried, as also glue, gums, &c., but have invariably found that each of them leaves a puckering or uneven surface, the result of all watery solutions.

I have now, however, in use, a method which obviates that evil. The cement I use is a thick solution of caoutchouc, which being applied to the edges of the paper (and suffered to remain a short time before put together, in order that it may get a little dry and sticky), makes a clean, firm, and even joint; it is far before glue, gum, or paste, as it is no inconvenience to prepare, and makes a much better joint.

Yours, &c.,
WILLIAM CURTIS.

London, July 31, 1843.

CROTON WATER.

Our readers will recollect in an early number of *THE BUILDER* an account of the Croton aqueduct for conveying water to New York; the following is an extract from an American paper advertising to the results. There are many positions in this country in which water might and ought to be supplied upon the same principle; but the Americans appear to be destined in every thing to "go a head" of the parent country—and not a little so in matters of unquestioned public benefit:

"The impression is becoming general among our citizens, that the abundant supply of 'pure and wholesome water' furnished to 300,000 inhabitants, by the introduction of the Croton river into this city, was not too dearly purchased, even at 12 or 13 million dollars. The hydrants are now so regulated that a constant stream flows from each, say half an inch in diameter, and these 1200 fountains, scattered all over the city, are free to all. There is no labour at pumping or drawing—just hold your bucket, or set it down, and it will soon be filled with as wholesome and palatable water as can be desired. If any one would see how much comfort is afforded by this abundant supply of water, let him pass through the streets in a hot day or evening, especially those which are occupied chiefly by labouring people, and he will want no further evidence. To such an observer it will seem as if everybody wanted water. The children—and adults too, in many cases—are drinking at the hydrants; the women and men come with pails, pitchers, and cups, according to the extent of the wants which are to be supplied; and none go away empty, or stinted in their allowance—for there is enough and to spare. If you walk on till late in the evening (but perhaps you had better not), the same impressions will meet you in another shape. The streets are now still; the hydrants are nearly or quite deserted; but the sound of running water, cool and refreshing, meets your ear on every side, and you wonder if it is possible that you are in the midst of a great city, noted for its filth and swine! It requires no great stretch of fancy to imagine yourself in some rural retreat, abounding with rivulets and streams, fresh from the hand of the Creator, and, with such voices as they have, uttering his praises. If you enter the houses of the affluent, or those of persons who, without wealth, are accustomed to all the conveniences of life, you will find a branch of the same Croton, supplying all the wants of the family—kitchen, bed-rooms and all—with perhaps a shower-bath in the garret. If a house takes fire, all you have to do is, to attach a hose to one of the hydrants, and direct the full stream upon the burning building. Before many of the engines arrive, the fire will probably be extinguished. If you want to supply a vessel with water for a voyage, just attach a hose to the nearest hydrant, and conduct the other end to the water casks on board, and they will soon be full. If the weather is hot and the gutters foul, open the hydrants for half an hour, and the filth will have disappeared. Then there are the beautiful fountains playing in the public squares, delighting the eye with their ever-varying forms, and the ear with their music. These, too, are branches of the same invaluable Croton."

FOLKSTONE PAVILION, ON THE LONDON AND DOVER RAILWAY.

This building is much admired, and yet it is a mere conversion of a boat-building and shipwright's shed—showing how much may be done with the meanest materials by the hand of the man of taste. This title has been earned by Mr. Lewis Cubitt, the able engineer of the London and Dover Railway, who has contrived a complete establishment for travellers—refreshment-rooms, parlours, and bed-rooms—within the despised carcass we have described.

The conversion of the meaner structure to the purposes of a pavilion, furnished and furnished up, so as to be fitted for the tenancy of Mr. Vantini, the well-known artist, if we may so term him, and surveyor for the public taste in matters of *haut-gout*, was effected in the short space of five weeks, and is now nothing less than an attraction to the traveller by this well-managed and economic railway, and the visitor to Folkestone.

PARIS AND ORLEANS RAILROAD.—The receipts of the Orleans railroad for the week ending on the 18th inst., are 113,971*fr.* 99*c.*, about 4,560*l.*

Washington Irving has succeeded to a large fortune, which has been bequeathed to him by one of the Society of Friends, to whom the distinguished American author was personally unknown.

POMPEIAN PAPER-HANGINGS.

TO THE EDITOR.

SIR,—I have recently, in the course of my perambulations, happened fortuitously upon some works of decorative art, such as I had not been previously aware lay at all within our power; in fact, so far from believing they were available, I did not know that they existed.

I trust, should this meet the eye of the gentleman to whose establishment I have here occasion to refer, he will not deem me taking an unwarrantable liberty in doing so, but excuse it as a duty which a professional individual owes to the body to which he belongs. If men who, possessing superior taste and talent, carry the branch of art they have adopted to an unprecedented degree of excellence, yet, in their labour of love, overlook or hesitate to make use of those means of publishing their success which lie within their power, and which it is a duty they owe to themselves, and the community they move in, to employ, it becomes the more the privilege of others, interested in the produce of their industry, to take the steps for that purpose which they may consider expedient and desirable, with a view to the general good.

It is in this feeling then, after having visited with a friend the paper-hanging manufactory of Mr. Clarke, High Holborn, I am prompted to briefly communicate to you what I had there an opportunity of inspecting. The papers that particularly attracted my attention, and in the production

of which the manufacturer has exercised so creditable a taste and had to exert so much perseverance, are Pompeian and Herculanean, and exhibit faithful copies of the peculiar and beautiful style presented to us in those long-sealed-up treasures of art; the drawing, the colours, the tone and character are admirably followed, and excellent fac-similes obtained: and whether we regard the varied architectural combinations, or the graceful and pleasing groups that are shrouded within them, we are struck with the importance of such an acquisition; but we are also impressed with a wondering veneration for a people whose imaginative pencils delineated, whose intelligent and appreciating tastes enjoyed, nearly two thousand years bygone, those same triumphs of conception and skill which still live, to command admiration.

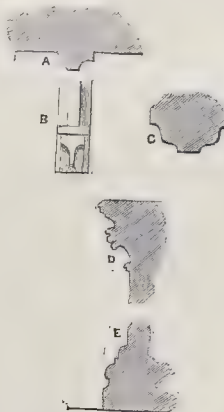
The introduction of these Pompeian hangings is a circumstance to be hailed with lively satisfaction, as an addition to our architectural resources; indeed, in the narrowest view, it is so, as offering a stimulus in a trade which really stands in need of some impulse towards freshness and originality, to rescue it from its present generally meaningless state, and stamp it with a higher character.

I saw papers also, of great merit, in Elizabethan, Moorish, &c.; but as my wish is only to direct attention to what I find standing out in marked and bold relief from what is usually met with, I shall refrain from encroaching further upon your other matter. Remaining Sir, very obediently your

PEREGRINE. B.A.A.D. 87



PORCH WINDOW, STANFIELD CHURCH, SUFFOLK.



Details of Porch Window.

SIR,—With the view of contributing to the general stock, I forward the accompanying sketch of the Porch Window of Stanfield Church, Suffolk. Should you deem it worthy of a place in *THE BUILDER*, I shall be happy to forward you others as opportunities occur. I have sketched the details to twice the scale, as, to my mind, the value of many of

the sketches of Gothic windows, which have already appeared in your paper, would have been considerably enhanced had they been thus illustrated. With best wishes for your success in your endeavours for the general weal,

I remain, Sir, your obedient servant,
W. H. I.

Literature.

De l'Art en Allemagne (Of Art in Germany, by) Par Hippolyte FORTOUL.—Paris, 1842: Jules Labitte.

We were induced to examine this work, of which as yet no English translation has appeared, by the immense reputation which it has acquired, as well among the people for whose instruction it was written, as in the country the monuments and works of which it describes. The perusal of a few chapters was sufficient to assure us that in this instance extraordinary celebrity had been produced by unusual merit. Great learning, a pure and delicate taste, nice powers of criticism, an ardent fancy, eloquence of the highest order, an enthusiasm unsurpassed for art, and thorough honesty, are properties of mind which M. FORTOUL has brought to bear on the task which he has accomplished. Some detached portions of the work we had already seen in the reviews, and though they failed not to make a deep impression on our mind, it was not until we had become acquainted with the general plan of the author, and its execution, that we arrived at the full appreciation of their value, and his claims on our respect. The book professes to be composed of letters addressed to intimate friends of the writer, and such letters, it would appear, were its foundation: much, however, has since been added; the letters have become a treatise, methodical and comprehensive, not on German art only, but on art in general, considered in its history, its philosophy, its technicalities.

M. FORTOUL looks on architecture as the parent of art, as the index of a nation's sensibilities to art, as the test of its artistic powers, and their bent at any given epoch. On this theme he speaks thus:—

"Why should I address to you a pahegryic on architecture, to you who have visited Italy? You have seen the genius of each of its cities written with the ineffaceable characters of stone and marble; you have seen the palaces of the merchants of Genoa and Florence, those of the patricians of Venice, those of the Roman prelates; you have seen the history of each of these great cities summed up in one single edifice: Venice, in the palace of its doges, that monument, half Oriental, half Gothic; Milan, in its cathedral, in which the art of Italy and that of Germany meet at the foot of the Alps; Pisa, in the Campo Santo, where the cloister and Holy Land still speak of the Crusaders' conquests; Florence, in that church of Santa Maria del Fiore, which Arnolfo di Lapo constructed by wed- ding the ogive vault of the Ghibelline to the semicircular arch of the Guelph, and on which Brunelleschi raised his cupola like a pharos of the Revival; and finally Rome, where St. Peter's approximates antiquity to modern times, and unites the city of the Pagans to the city of the Popes. You have seen all this, happy that you are, and more than this! you have seen the Italians venerate the last vestiges of the great men who raised these monuments, more than we revere the memory of our dearest and most illustrious poets. Our antiquaries have not yet been able to find with certainty the house where Molière was born; but you have seen the people of Vicenza shew with pride the dwelling of Palladio. At Verona you have heard the name of San Micheli pronounced in accents such as we would not utter, when speaking of the defender of his country. At Mantua, you have sought in vain the traces of Virgil; but you have found Giulio Romano honoured for having raised those temples of pleasure for the Gonzagos. At Rome you have heard the painting of Raphael compared to the architecture of Bramante.

"Yes, architecture is the parent of all arts, and therefore also the most rare, appearing at long intervals of ages, and only under conditions so rigorous as to be difficult of realization. Sculpture, painting, poetry may, up to a certain point, borrow life from caprice, and be indebted to the potent imagination of one man for an apparent splendour; but architecture, on the contrary, cannot produce any thing, save by the assent of an entire people, and under the empire of one idea generally adopted. It is not until nations have reached the highest step of their development, until they have full possession of their strength, that they raise up on the soil monuments that retain for ever the traces of their passage and the marks of their civilization; thus was it that the religious temples of Greece and of the middle ages were built at the latest epochs of faith, and amidst that universal concert of minds which announces the approaching dawn of scepticism. Vitruvius was right when he said that architects ought to study philosophy with earnestness; for there is

no great structure that does not express a complete cycle of metaphysics. Paganism, does it not still breathe in the Parthenon? and under the vaults of Cologne's cathedral, does not one feel that the boundless aspirations of Christian dogma are there soaring towards heaven? As often as the forms of architecture change, so often, be assured, is civilization renewed; and if you live at an epoch of which the structures want originality, say without fear that its ideas have none. Monuments are the real handwriting of a people.

"What then is the character of that architecture which the new schools of Germany practise? Since architecture is the beginning, the abridgement of all the other arts, the answer to this question will announce the law of development in painting and sculpture."

We shall not pause to criticise this theory. One not altogether dissimilar from it is propounded by Victor Hugo in his *Notre-Dame de Paris*. The writer shews most distinctly in his work the positive subordination of modern painting and sculpture in Germany to the law that governs and animates architecture, and traces, if we may be allowed such an image, the generation of the former by the latter. So far, therefore, the theory has a practical value. We come, then, to his description of architecture:—

"Lutherans of the North, Catholics of the South, all the Germans of our day agree in this, that no one of the known forms of art can of itself satisfy them. At the same time the creation of the new forms, that should suffice for new wants, does not seem to tempt their ambition. In no other country would it be possible to meet with that variety of systems and luxury of reminiscences which are to be found in the constructions of the capital of Bavaria.

"The modern art of Germany is essentially historical. Erudition is one of the principal characteristics of this nation. Born in the universities of Italy, it was brought into France by the Scaligers; but since the seventeenth century it has found in Germany the most patient intelligences, and there it has established its principal seat. It is erudition, combined with Catholicism, that has produced all the monuments which are now in the progress of erection at Munich. Animated by the political and religious passions of Bavaria, it has contrived to realize a living and almost complete history of architecture. It will interest you, I think, to make with me a pilgrimage through the streets of this city, when all the forms with which modern art has clothed the different parts of Europe will pass in succession before your eyes. In France, it seems to be agreed that art consists above all in invention; but this great principle, which not infrequently encourages ignorance, neither preserves from monotony nor from bad taste. In Bavaria art is practised as if men had made up their minds that it resided in the memory. But in exhibiting more of knowledge than of genius, the architects of that country furnish a curious field for the study of critics, and prepare a new epoch, in which, according to the ordinary law, and under the restrictions imposed by the peculiar character of each people, the transfigured forms of anterior epochs will mingle and become incorporate."

The writer then, in a succession of chapters, describes the Latin basilica, the Greek basilica, and the specimens that belong to the Italian middle age, to the Teutonic middle age, and to the period of the Revival. He commences with

THE LATIN BASILICA.

"The basilica of St. Boniface, which is at the entrance of the Maximilian suburb, opposite the Glyptothek, is the last edifice to which hand has been put in Munich. It was founded in 1835, and the entire completion was fixed for the year 1842. M. Zeibland, who has been charged with the construction, was born at Ratisbon in the year 1800. He is a distinguished man, and has lately returned from Italy, where he travelled at the expense of the King, for the special purpose of studying the architecture of basilicas. At the moment at which I write, the monument which he is erecting has not received the whole of its exterior coating; nothing has been done to the interior, beyond placing in it sixty-four columns of granite, covered with white marble from the Tyrol at the base and the top, which divide the edifice into five naves. Though the most recent of the churches of Munich, it is that one of which the forms are the most ancient, bringing us back, indeed, to the very commencement of Christianity.

"When the Christians issued forth from the catacombs and were permitted to enjoy the light of heaven, they sought on earth for edifices in which they might adore their God. They were too ignorant of art—their dogma itself was not as yet im- pressed profoundly enough on their minds,—to in-

vent an architectural form congenial with their faith. Still they would not place their tabernacle in a Pagan sanctuary. Besides that it was repugnant to them to assimilate their worship to polytheism, they could not accommodate themselves to these narrow temples, in which the Greeks and the Romans concealed the unworthy impostures of their sacrifices and their oracles; they had neither idols nor jugglers to veil from the eyes of the crowd. Their object, on the contrary, was, to collect at the bleeding feet of Him crucified the whole multitude of the faithful whom his passion had made a people of brothers; they sought that one of all the ancient monuments which might best suit their religion; they chose the basilica.

"The basilica was a change, a tribunal, a vast place in which the affairs of commerce and those of justice were carried on. At one time business and law proceedings had been carried on in the public forum; but they were driven from an asylum which liberty had rendered strong and formidable; they were put under the shelter of lofty structures, in which nothing could recall to the degenerate Romans the traditions of the ancient republic. A large precinct for solemn affairs that were discussed aloud; at the back part a hemicycle for the judges, or the privileged spoilers of the public fortune; all around, accessory galleries, sometimes accompanied by the *pleus*, enclosures aloft for concealing persons who wished to debate in secret their particular interests; above all this, carpentry placed nakedly on the walls, and inclining on each side, so that the lateral naves became less elevated in proportion to their distance from the central axis of the edifice; such was the plan of the Roman basilicas. Palladio has traced the design of them after the text of Vitruvius, and excavations made at Pompeii have demonstrated the exactness of Vicentino's conjectures. The Christians drove the merchants from their temple; and established themselves in their place. The hemicycle became the choir, the galleries the nave; and thus was found the form of the first churches.

"It was after this plan that Constantine founded at Rome, in the fourth century, the famous basilica of St. Paul *extra muros*, that precious monument of earliest Christian art, which was almost completely destroyed by fire in the year 1825.† In this construction, however, two remarkable alterations on the design of the ancient basilicas were made. Instead of carrying on the lateral naves to the apsis, they were separated from it by a double transverse nave, which formed with a principal nave the figure of a cross. Whatever may have been the cause of this change, it was thenceforward universally adopted, and became a necessary datum of Christian churches. Another alteration, not less important, is the introduction of arches, which were substituted for the architraves which united the columns that supported the different naves. The semicircle, which succeeded the right lines of Greek architecture, underwent an alteration in the course of time, and engendered in its turn a new order of architecture. But centuries march slowly, and it was only by passing through Byzantine architecture that the Gothic was reached.

"The basilica of St. Boniface at Munich is imitated from the Basilica of St. Paul *extra muros*; but whether it was that M. Zeibland intended expressly to approach nearer to the purity of the ancient basilicas by suppressing the additions to them which Christianity made, or that he was with regret compelled to sacrifice them to restrictions imposed by his budget or his site, he has not given to his temple the posterior and symbolic form of the cross. For the rest, although the edifice is not vast, its proportions appear to me to be combined in a fashion that will produce the effect of real grandeur."

We propose to give the author's account of the other buildings at Munich in a future number.

NEW PARISH CHURCH, LEVEN.—The first stone of this church was laid on Thursday last, by R. Bethell, Esq., lord of the manor of Leven. On the silver trowel were these words—"Presented to Richard Bethell, Esq., on the occasion of his laying the first stone of the new parish church of Leven, by George Wray, M.A., rector of Leven, A.D. 1843." On the brass plate was the following inscription—"This first stone of the new parish church of Leven, dedicated to the Holy Trinity, was laid July 11, A.D. 1843.—Richard Bethell, Esq., lord of the manor of Leven; George Wray, M.A., rector of Leven; R. Dennis Chantrell, of Leeds, architect."—The church is to be built by private subscription; Mr. Bethell gave the site, above an acre of ground, and 500*l*.

* The writer, it must be confessed, treats the triple ceiling of the basilica somewhat superficially.

† There is now exhibiting at the Diorama a view of the interior of this basilica as it appeared before and after the fire.

LECTURES ON ARCHITECTURE AND ANTIQUITIES.

IV.—Continuation of Lecture I.
SACRED ARCHITECTURE.

AMONG the extraordinary instances of the astonishing strength with which Samson was gifted, one in particular may be here noticed, viz. that last proof which he gave of his recovered strength when he avenged in so fearful a manner the loss of his eyes, and brought down destruction at once upon his enemies and upon himself. The Philistines were gathered together at a great feast in the house of their god Dagon, to celebrate the deliverance of their enemy, Samson, into their hands. "And it came to pass, when their hearts were merry, that they said, Call for Samson that he may make us sport; and they called for Samson out of the prison-house, and he made them sport, and they set him between the pillars, and Samson said unto the lad that held him by the hand, Suffer me that I may feel the pillars whereon the house standeth, that I may lean upon them. Now the house was full of men and women, and all the lords of the Philistines were there, and there were upon the roof about three thousand men and women that beheld while Samson made sport. And Samson called unto the Lord and said, O Lord God, remember me, I pray thee, and strengthen me, I pray thee, only this once, O God, that I may be at once avenged of the Philistines for my two eyes. And Samson took hold of the two middle pillars upon which the house stood and on which it was borne up, of the one with his right hand, of the other with his left. And Samson said, Let me die with the Philistines, and he bowed himself with all his might, and the house fell upon the lords and upon all the people that were therein." (Judges xvi. 25 to 30.) Now, if we suppose this building to have been of a circular form, with a gallery running round, which is the same perhaps with what is termed the roof, and place in it two principal pillars supporting beams to carry the gallery, we shall be able to form a notion of the temple of Dagon, and considering the edifice to be constructed of wood, we shall not find it difficult to believe that Samson, by removing the chief supports, could bring down the whole of the edifice. It is very probable that the centre of the temple was open to the sky; if so, the flat roof or terrace would hold a great many persons, whose very pressure would accelerate their destruction after the first disruption.

We may bring forward two apposite illustrations from profane history. The celebrated athlete, Cleomedes of Astypalea, who was called the last of the heroes, tore down the pillars of a school, when sixty boys were crushed to death by the falling in of the roof. (Pausanias, i. vi. c. 9.) Another celebrated hero, Milo, exerted his vast strength to a better purpose. He was one of the disciples of Pythagoras, and when the pillar which supported the roof of the school suddenly gave way, he sustained the entire weight of the building and gave the philosopher and his pupils time to escape. Many large rooms in Eastern countries are found with only one supporting column in the centre, and some of our own chapter-houses are similarly constructed. When the Philistines resolved on restoring the Ark of the Lord, the possession of which had been so fatal to them, the hitherto unyoked kine brought it of their own accord into the field of Joshua, "where there was a great stone." (1 Samuel vi. 14), which is called in verse 18, "the great stone of Abel, which stone remaineth unto this day."

Twenty years after this return of the Ark, the Philistines were signally discomfited, on which occasion Samuel set up a stone near Mizpeh, "and called the name of it Eben-ezer, saying, Hitherto hath the Lord helped us." (vii. 12.) In the 16th and 17th verses it is stated that Samuel "went from year to year in circuit to Beth-el, and Gilgal, and Mizpeh, and judged Israel in all those places. And his return was to Ramah; for there was his house, and there he judged Israel; and there he built an altar unto the Lord." Of the stone "Eben-ezer," Josephus says, "it was set up as a boundary of the Israelites' victory, and their enemies' flight," and that it was called the "Stone of Power." (Jos. Ant. B. vi. ch. ii. s. 2.) With good reason therefore were the people of Israel periodically assembled at places intimately associated with the remembrance of their ancestors, and identified by landmarks which could not be mistaken: one brought to mind the early patriarchs, another the victorious camp of their great captain Joshua; a third was connected with their recent victories, and in the fourth they were brought more immediately under the eye of their revered ruler Samuel. When the people required that Samuel should give them a king, he was by Divine command instructed to choose Saul, who, on the occasion of his father's asses being lost, sought the prophet to consult him as to their recovery. Saul found Samuel entertaining a large party, thirty in number, according to the Scriptural account (1 Samuel ix. 22), though Josephus says that the guests were seventy

in number, probably the Sanhedrim. (Joseph. Ant. B. iii. ch. iv. s. 1.) Samuel took Saul with him to the top of his house, and there communed with him; when he dismissed him, after having privately anointed him, he informed him that he should find two men by Rachel's sepulchre—Josephus says (B. iii. ch. iv.) Rachel's monument—who should give him tidings of the safety of his father's asses. This monument, the same erected by Jacob, was



on the south side by an aperture through which it was difficult to crawl, and found on the inside a square mass of masonry in the centre, built up from the floor to the roof, and leaving barely a narrow passage for walking round it. It is plastered with white stucco on the outer surface, and is sufficiently large and high to enclose within it any ancient pillar that might have been formed on the grave of Rachel. Within, on its walls, are written many names in Hebrew, Arabic, and Roman characters." Particular mention is made of the first altar erected by Saul: "And Saul built an altar unto the Lord; the same was the first altar that he built unto the Lord." (1 Sam. xiv. 35.) The disinterested friendship which subsisted between David and Jonathan gave occasion to the latter to exert himself frequently in behalf of the former, when exposed to the jealous fury of Saul, even at the risk of falling a victim himself. Once David was directed by his friend to hide himself by the stone Ezel

therefore standing in Samuel's time, between six and seven centuries after its original dedication; and it appears not impossible that it may exist to this very hour, for Mr. Buckingham says, "A little distance from the road, near Ephraim, is shewn the reputed tomb of Rachel, which we turned off to enter. Instead of a pillar, the spot is now covered by a Mahomedan building resembling tombs of saints in Egypt and Arabia. We entered

(1 Sam. xx. 19), and there to remain until he should receive assurance by the shooting of an arrow the king's disposition towards him. This stone is not spoken of elsewhere; we can only conjecture therefore that it was similar in design to the other pillars of memorial. The last instance of this nature which we can bring forward is the pillar set up by Absalom. "Now Absalom in his lifetime had taken and reared up for himself a pillar, which is in the king's Dale, for he said, I have no son to keep my name in remembrance; and he called the pillar after his own name, and it is called unto this day 'Absalom's place.'" (2 Sam. xviii. 18.) To this account Josephus adds (Antiq. B. vii. ch. x. s. 3), that it was of marble, and called "Absalom's hand;" and Bishop Wilson says that, "according to Sandys, this pillar is still standing, and the Turks, when they pass it, throw a stone at it, so that it is half covered, in abhorrence of his unnatural rebellion." G. R. F.

ON THE PROPER DISPLAY OF MODELS.

—“When we mean to build,
We first survey the plot, then draw the model;
And when we see the figure of the house,
Then must we rate the cost of the erection:
Which if we find outweighs ability,
What do we then, but draw anew the model
In fewer offices; or, at least, desist
To build at all?”

—Shakespeare, by *Bardolph in Henry the Fourth.*

MODELS of lands and buildings have from time immemorial been employed to convey to the minds of individuals correct information of their forms; and of late, the models of houses and other structures, with their adjoining grounds, have been used by our intelligent architects and civil engineers, in order to convey to themselves and to those interested an idea of the appearance of the real or proposed originals, when viewed from corresponding positions to those arranged by the models; as the greater number of the models of our public and private buildings are formed so small, that they merely shew their exterior forms, and, in a few cases, are prepared to exhibit their interior arrangements. These facts being borne in memory, does it not seem strange that nearly all those which are exhibited in public are either placed so low that a person is compelled to stoop, to view them properly; or reared upon some lofty shelf, where you must mount a step-ladder, or employ one of the many optical instruments at present in use, to scan a few of their parts?

Models that are merely constructed for the purpose of illustrating the form of any structure should in general be placed so that their parts and connection with each other may be clearly traced and perceived by merely walking around them; but when they are prepared to convey an idea of the appearance of any celebrated or proposed building, it then devolves upon those who have the care of them to place them so that the eyes of the beholders can only be brought to view them in such corresponding positions as the originals might be seen from.

As an example, we now place before us a

small model of the exterior form of a house.

The first thing we have to determine is the proportional scale by which its various parts have been measured. By referring to the plans, elevations, and sections of the proposed house, we find that the model is so constructed, that every quarter of an inch in length is intended to represent one foot in length of the proposed building; or, in other words, it has been measured by a scale of a quarter of an inch to a foot. This being the case, assume that the building is to be erected upon a level plot of ground; it is then requisite to determine the height that the eye ought to be placed above the plane representing the ground level, and allowing the average height of the eyes of the gentler sex to be 4 feet 8 inches above the surface upon which they may stand, and that of their protectors 5 feet 4 inches above the same surface; by taking the medium height, which is 5 feet, this will, under general circumstances, be found the best height from which to view models of buildings, &c.

Returning, then, to apply this rule to the model alluded to: as 5 feet from the 4 inch scale is equal to 14 inches; by deducting this length from 5 feet, it leaves 4 feet 10 inches as the proper height of the plane upon which the model ought to be placed. These two important points being ascertained, it only remains to make arrangements, so that the observers may view the model in such corresponding positions as the original might be seen from.

By placing the model upon any even surface, with the 4 scale of feet, plot off the positions of the principal roads and footpaths connected with it; then take a piece of card, and place it so as to correspond with all the windings of the roads and paths already described; afterwards raise it perpendicularly 14 inch above the plane upon which the model is placed, and then proceed to view it from any position from which it can be seen below the edge of the card.

If this simple method of exhibiting models of our proposed public and private buildings, was once adopted by our leading architects, it would prevent many after disappointments;

for not only they, but the public, who soon give a character to any building when once erected, would be spared from making those remarks which they are so frequently led to do, on examining those structures which they are desirous of seeing models of taste to the present and to future generations.

As there are many models which cannot be viewed from all suitable positions according to the foregoing rule; it then remains for the projector to execute perspective views of them, allowing the eye or principal point to be placed in various favourable situations. In fact, with regard to the greater number of interior views, architects are in general obliged to employ perspective representations, in order to satisfy the minds of those who are likely to find the means of erecting the proposed structures.

We might proceed to explain many simple and effective methods which we have adopted in order to give effect whilst reviewing models; but as architects are generally sufficiently well versed in the science of optics, it seems needless to give such illustrations; more particularly, as we could scarcely do justice to this part of the subject without a few lineal or pictorial illustrations.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1477).—Windows—House—Due Assessment—What is.

A party appearing in the late survey to have eleven windows in his house, is liable to be charged for the same, although he had been assessed for eight only since 1834, he not shewing that he had opened additional ones since, or that he had been duly assessed in the year ending 5th April, 1835. (48 Geo. 3, c. 55, sch. (A.) and 4 & 5 Will. 4, c. 54, s. 7; and 3 & 4 Vict. c. 17, s. 12.)

At a meeting of the Commissioners of Assessed Taxes, held at the White Hart Hotel, in Hayle, within the said division, on the 12th day of October, 1840, to hear and determine appeals against the first assessment; Mr. William Hichens, of St. Ives, appealed against a charge made on him by Mr. Mitchell, the surveyor, in the course of his late survey, for three additional windows. The party being charged by the assessors for eight, and by the surveyor from eight to eleven windows. (48 Geo. 3, c. 55, sch. A.)

The appellant being sworn, stated that in the year 1834, ending 5th April, 1835, he was assessed for eight windows in respect of his present dwelling-house, wherein he then resided, and has continued to reside ever since, without having made any addition thereto, and that there are now eleven windows in his house.

That having been so assessed in 1834, and still occupying the same house, to which no addition whatever has since been made, he claimed, under the 7th section of the act of 4 & 5 Will. 4, c. 54, as extended by the 12th section of the act of 3 Vict. c. 17, to be exempted from any increased charge in respect of the additional number of windows now found therein.

Mr. Mitchell, the surveyor for the crown, in support of the charge, contended that finding on his survey of the appellant's house there were eleven windows therein, and believing from inquiry then made that no additional windows had been opened since the year 1833, the appellant was bound not only to prove that he was so assessed in 1834, but that he was then "duly assessed," and therefore called upon him to prove that there were no more than eight windows in the house at that time, and that he had since opened the additional number (three).

But the appellant declined to answer the question, and contended that by the facts already proved, he had satisfied the statutes referred to, and that no further *onus probandi* lay on him.

The Commissioners, however, determined otherwise, and confirmed the charge, with which determination the appellant was dissatisfied, and prayed a case for the opinion of her Majesty's Judges, which we hereby state and sign accordingly. Dated 17th November, 1840.

THOMAS PASCOE.
WM. CORNISH.
JOHN PUNNETT.

13th May, 1841.—We are of opinion that the determination of the Commissioners is right.

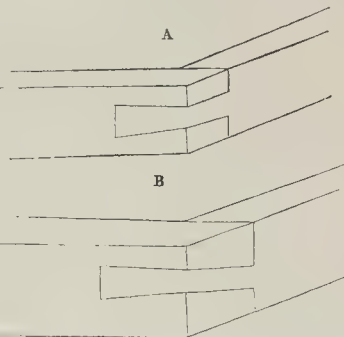
J. PATTERSON. T. COLTMAN. W. WIGHTMAN.
—Justice of the Peace.

(To be continued.)

ON FRAMING THE ANGLES OF BREST-SUMMERS, WALL-PLATES, &c.

MR. EDITOR.—Having by chance taken up a number of *THE BUILDER* about three weeks ago, I was so much pleased with the good-feeling and kind encouragement shewn towards the working classes, that I immediately ordered all the back numbers, with the intention of becoming a permanent subscriber to a work which I find deserves better support than it appears to receive from that class for whose benefit it is particularly intended. I have known other works published with the same professed views, but so far from soliciting contributions from the operative class, they seldom noticed any such when sent to them. Now, Sir, it does appear to me that *THE BUILDER* is the very thing required to enable those who have no wish to hide their light under a bushel to communicate any little piece of useful knowledge they may exclusively possess for the benefit of the general body, but particularly the rising generation. Should my first essay be favourably received, I shall endeavour, as opportunities offer, to contribute my mite towards the mountain of information which by your means may be raised. This, my first essay to the Editor of *THE BUILDER*, will be upon the methods used by carpenters in framing together the angles of brestsummers, plates, templets, &c. The most common method is dovetailing, and I think it the best, but as it is well known that the dovetail will draw apart the same way as it is put together, it is usual to put a wooden pin or an iron bolt through the angle; now this is what I object to, because it is expensive, unnecessary, and injurious, particularly in wet or damp situations, for it

is well known to all practical men that wherever a pin is driven, the wet is sure to follow, and the parts adjacent become rotten; and in case of a bolt being used, it in a short time becomes so much corroded as to be of very little service. I will now endeavour to explain my method of putting such work together, which if once seen is easily understood. Suppose a pair of brestsummers, &c. about to be dovetailed together, it is usual to cut out the mortice part first, and at the same time taking care to cut the parallel part of the mortice or mortices at the end quite parallel with the edge of the piece of timber; but I take care to cut them bevelling down towards the shoulder side, say an inch or an inch and a quarter to a foot, by which simple method you will perceive the impossibility of its coming apart again when it has got weight upon it; in fact, the more weight there is upon it the more closely the one piece will keep to the shoulder of the other, because it is in a manner always sliding down an incline, and thus the dovetail holds it one way, and the utter impossibility of its rising prevents separation the other way. This method is particularly useful in putting together the angles of large oak plates or templets, on which to build wharf or other walls, Greenwich Pier fronts, for instance, where the body of earth behind is continually tending to thrust out the walls. In conclusion, I beg to say, that simple as it is, I believe it has never been thought of by any one but myself, and I have sufficiently proved its efficiency. Sketch A shews the common method, B shews mine. I have only shewn one dovetail, in order to shew it more clearly; and I have drawn the sketches as little out of proportion, for the same reason.



It must be remembered, that to mark the second piece correctly by the first, it is necessary to keep the first piece as much higher than the second as the mortice is cut out of a level or parallel line. If this is not attended to, the work will be spoiled, in

consequence of one piece being about an inch below the other, instead of coming together flush.

Wishing success to *THE BUILDER*, I beg leave to subscribe myself, Yours, Sir, respectfully,

CHARLES NEWNHAM.
No. 1, Walcot-square, Lambeth.

THE INVENTOR OF THE SCREW PROPELLER.

TO THE EDITOR.

SIR,—I recently read a most interesting account in a French magazine (*Les Guêpes*), from the pen of the clever Alphonse Karr, of one of those inventive spirits who, while they seem born for the benefit of their contemporaries, rarely reap the fruits of their own industry. Without pretending to the eloquent style of the original, I shall merely transcribe a few facts. A man named Sauvage invented a new method of propelling steam-vessels by means of a *helix* in place of the paddle-wheels, which incapacitate them for war. Thanks to his system, the steamer is rendered independent of the changes of the wind. After thirteen years spent in endeavouring to call attention to his invention, after entirely exhausting his slender pecuniary resources, wasting his health, and maintaining an incessant struggle against the malice of some and the incredulity of others, Sauvage at length obtained the favour of a trial. Accordingly, the *Napoléon* was built at Havre by M. Normand for the government, and after several vain attempts at improvement (for improvement, read endeavours to evade the patent by some paltry alteration which should answer the end of robbing the clever inventor of the benefit of his labours, and enriching others at his expense), they were obliged to return to the parent idea—the steamer was completed and performed its passage from Havre to Cherbourg triumphantly, saluting Portsmouth and Southampton on its way back. On board the *Napoléon* was a committee composed of engineers and naval men, presided by M. Comte, postmaster-general. Where, meantime, it may be asked, was the real mainspring of all, the head that set them going? In prison at Havre for a paltry debt, contracted during his struggles to

bring his invention into notice. He, who ought to have been the hero of the day, "cabinéd and confined" within four walls, while the offspring of his brain was riding on the waters! Would not some men be maddened in such a situation? Yet Sauvage only complained that the *Napoléon* did not completely answer his expectations: and hopes still to perfect his helix, and solaces the tedious hours by constructing numerous little ingenious machines. The curious in these matters may refer to the *Guêpes*, and see how, with a little paper, a few feathers, and a bottle, this ingenious man has contrived a model of a mill, to be propelled likewise by means of a helix. Is it believable that neither the King of the French, nor the *Ministre de la Marine*, nor indeed the inhabitants of Havre, who ought to be proud of such a genius, should have felt compelled from mere shame to redeem him from his unhappy condition?

Now it strikes me, Mr. Editor, that were Sauvage's case known in this country, a subscription would be raised in his behalf. It would be a noble deed to atone to such a man for the ingratitude of his countrymen—the only species of warfare against our neighbours that philanthropists ought to approve—because a war against injustice and prejudice. It is not to our government that to appeal is made—though, perhaps, it might be to their advantage to secure his services—but to private individuals, and there are plenty of generous spirits who would cheerfully contribute to the enlargement of one of the *martyrs to invention*, who, alas! are seldom pitied till after their death. Should you think it worth while to insert this letter in your Journal, you will, perhaps, render good assistance to a deserving individual—publicity being help in a case like this—and greatly oblige one of your subscribers,

A FRIEND TO INVENTORS.
July 31, 1843.

Legislation.

HOUSE OF LORDS.

Landlord and Tenant.

LORD PORTMAN is the author of this bill, which is intitled "An Act to amend the Law relating to Landlord and Tenant." The order for the second reading this week was discharged; but his lordship expressed his intention of carrying it through this session, so that our readers should be made acquainted with it. It recites, sect. 1, that it is expedient that provision should in certain cases be made for securing compensation to tenants, who shall make permanent improvements on the lands they occupy, and proposes to enact, that it shall be lawful for any tenant of any farm or land, who shall hold the same from the freeholder or tenant for life, for a term not less than twelve years, intending to make any permanent improvements thereon, and for which an adequate immediate return cannot be obtained, to give notice thereof to his landlord, or to the agent of such landlord, specifying in detail the nature of such intended improvements; and such landlord, on receiving such notice as aforesaid, shall, within the space of three months then next following, signify in writing, to be given to the said tenant, or left for him on the premises occupied by him as aforesaid, his dissent thereto.

Sect. 2. In case such landlord shall not within the said space of three months signify his dissent as aforesaid, it shall be lawful for the tenant to proceed with such permanent improvement as aforesaid; and in case such tenant is compelled to quit the said premises by notice from his landlord, previous to the expiration of the said term of twelve years, and in case of disagreement as to the value of such improvement, or the amount of compensation to be made to the said tenant, the same shall be settled and determined by two surveyors, one to be appointed by the said landlord, and the other by the said tenant, and in case they cannot agree, then by an umpire to be appointed by such surveyors; and the award or umpirage so made by them as aforesaid shall be made in writing, and shall be binding and conclusive on all parties, and the performance thereof shall and may be enforced by action in any of her Majesty's superior courts of record.

[There should be an *express* enactment that the landlord shall be liable to pay compensation for the improvement. As the bill at present stands, that main cause of its introduction is to be gathered from it by implication only. After the words in the 2nd section, "improvement as aforesaid," some such words as these should be added: "and such landlord shall be liable to pay to the said tenant such compensation for such permanent improvement as shall be agreed upon between them."—*Justice of the Peace.*]

COPYRIGHT OF DESIGNS BILL.

Bill to amend the Laws relating to the Copyright of Designs.

THE preamble recites an act passed in the fifth and sixth years of the reign of her present Majesty, intitled, "an act to consolidate and amend the laws relating to the copyright of designs for ornamenting articles of manufacture," whereby was granted to the proprietor of any new and original design, with the exceptions therein mentioned, the sole right to apply the same to the ornamenting of any article of manufacture, or any such substance as therein described, during the respective periods therein mentioned; and that it is expedient to extend the protection afforded by the said act to such designs hereinafter mentioned, not being of an ornamental character, as are not included therein. Section 1 enacts, That this act shall come into operation on the

Section 2 enacts, That with regard to any new and original design for any article of manufacture (except such designs as are within the provisions of the said act, or of two other acts, passed respectively in the thirty-eighth and fifty-fourth years of the reign of his late Majesty George III., and intitled, respectively, "an act for encouraging the art of making new models and casts of busts, and other things therein mentioned," and "an act to amend and render more effectual an act for encouraging the art of making new models and casts of busts and other things therein mentioned, and for giving further encouragement to such art,") so far as such design shall be for the shape or configuration of such article, and whether it be for the whole of such shape and configuration, or only for a part thereof. The proprietor of such design, not previously published within the United Kingdom of Great Britain and Ireland, or elsewhere, shall have the sole right to apply such design to any article, or make or sell any article according to such design, for the term of three years, to be computed from the time of such design being registered according to this act.

Section 3 provides, That no person shall be entitled to the benefit of this act unless such design have, before publication thereof, been registered ac-

cording to this act, and unless the name of such person shall be registered according to this act as a proprietor of such design, and unless after publication of such design every article of manufacture made by him according to such design, or on which such design is used, hath thereon the word, "registered," with the date of registration.

Section 4 enacts, That unless a design applied to any article of manufacture be registered either as aforesaid or according to the provisions of the said first-mentioned act, and also after the copyright of such design shall have expired, it shall be unlawful to put on any such article the word "registered," or to advertise the same for sale as a registered article; and if any person shall so unlawfully publish, sell, or expose or advertise for sale any such article of manufacture, he shall forfeit for every such offence a sum not exceeding five pounds nor less than one pound, which may be recovered by any person proceeding for the same by any of the remedies hereby given for the recovery of penalties for pirating any such design.

Section 5 enacts, That all such articles of manufacture as are commonly known by the name of floor-cloths or oil-cloths shall henceforth be considered as included in class six in the said first-mentioned act in that behalf mentioned, and be registered accordingly.

Section 6 enacts, That all and every the clauses and provisions contained in the said first-mentioned act, so far as they are not repugnant to the provisions contained in this act, relating respectively to the explanation of the term proprietor, to the transfer of designs, to the piracy of designs, to the mode of recovering penalties, to actions for damages, to cancelling and amending registrations, to the limitation of actions, to the awarding of costs, to the certificate of registration, to the fixing and application of fees of registration, and to the penalty for extortion, shall be applied and extended to this present act, as fully and effectually to all intents and purposes, as if the said several clauses and provisions had been particularly repeated and re-enacted in the body of this act.

Section 7 provides for the appointment of a registrar.

Section 8 enacts, That the said registrar shall not register any design for the shape or configuration of any article of manufacture as aforesaid, unless he be furnished with two exactly similar drawings or prints of such design, with such description in writing as may be necessary to render the same intelligible, according to the judgment of the said registrar, together with the title of the said design, and the name of every person who shall claim to be proprietor, or of the style or title of the firm under which such proprietor may be trading, with his place of abode, or place of carrying on business, or other place of address; and every such drawing or print, together with the title and description of such design, and the name and address of the proprietor aforesaid, shall be on one sheet of paper or parchment, and on the same side thereof; and the size of the said sheet shall not exceed twenty-four inches by fifteen inches; and there shall be left on one of the said sheets a blank space on the same side on which are the said drawings, title, description, name, and address of the size of six inches by four inches, for the certificate herein mentioned; and the said drawings or prints shall be made on a proper geometric scale; and the said description shall set forth such part or parts of the said design (if any) as shall not be new or original; and the said registrar shall register all such drawings or prints from time to time as they are received by him for that purpose; and on every such drawing or print he shall affix a number corresponding to the order of succession in the register, and he shall retain one drawing or print which he shall file at his office, and the other he shall return to the person by whom the same has been forwarded to him; and in order to give a ready access to the designs so registered, he shall keep a proper index of the titles thereof.

Section 9 enacts, That if any design be brought to the said registrar to be registered under the said first-mentioned Act, and it shall appear to him that the same ought to be registered under this present act, it shall be lawful for the said registrar to refuse to register such design otherwise than under the present act, and in the manner hereby provided; and if it shall appear to the said registrar that the design brought to be registered under the first-mentioned act or this act is not intended to be applied to any article of manufacture, but only to some label, wrapper, or other covering in which such article might be exposed for sale, or that such design is contrary to public morality or order, it shall be lawful for the said registrar, in his discretion, wholly to refuse to register such design: Provided always, That the Lords of the said Committee of Privy Council may, on representation made to them by the proprietor of any design so wholly refused to be registered as aforesaid, if they shall see fit, direct the said registrar to register

such design, whereupon and in such case the said registrar shall be and is hereby required to register the same accordingly.

Section 10 enacts, "That every person shall be at liberty to inspect the index of the titles of the designs, not being ornamental designs, registered under this act, and to take copies from the same, paying only such fees as shall be appointed by virtue of this act in that behalf; and every person shall be at liberty to inspect any such design, and to take copies thereof, paying such fee as aforesaid; but no design whereof the copyright shall not have expired shall be open to inspection, except in the presence of such registrar, or in the presence of some person holding an appointment under this act, and not so as to take a copy of such design, nor without paying such fee as aforesaid."

Section 11—Interpretation clause.

HOUSE OF LORDS, July 25.—FINE ARTS—HOUSES OF PARLIAMENT.—LORD BROUGHAM, knowing the character of the artists of this country, wished to notice something which had occurred in the Houses of Parliament building committee. The Committee of Taste had issued an advertisement addressed to all the artists of this country, inviting them to send in drawings or models of an ornamental nature for the two houses of Parliament. He looked upon this, not so much as a matter of delay, because their lordships could sit in the new houses before they were adorned, and they might be adorned during the long recess, but he looked upon it as a source of great expense. He was far from saying what the wisdom and generosity of Parliament might do, but it was only charity to give those persons who were likely to send in models or drawings timely notice that they would do so at their own risk. The artists who sent must be told they would be wrong, if they thought thereby that they were certain of public orders to execute the work, or if they took for granted that they would obtain remuneration for their labour.—The Marquis of LANSDOWNE said that great care had been taken, in all the notices with regard to the works alluded to, to guard the artists against supposing that they would receive any remuneration besides that specifically stated in the notice. No expense would be incurred, except for the prizes, on the subject of the cartoons. With regard to them, persons had to go out of their usual habits of study, which they could not be expected to do without a remuneration in the shape of prizes. With respect to other departments of the art, they would only have to execute works in accordance with their usual studies; the object was only to give specimens of the public proficiency of each artist. He would be as jealous as his noble friend if any great expense were to be incurred; but a committee of the other house had advised that advantage should be taken of the decoration of the new houses to give encouragement to art.—LORD BROUGHAM was aware that there was to be no payment for the models or drawings, but the artists would expect afterwards to have employment; now it by no means followed that after the artists had sent in their models they would obtain employment: they should know it was not certain that the wisdom or economy of Parliament would allow it.—July 31.—Upon the motion of Lord WHARNCLEFFE, the Loan Societies Act Continuance Bill was read a third time and passed.—Upon the motion of the Marquis of LANSDOWNE, the Bridges (Ireland) Bill was read a third time and passed.

HOUSE OF COMMONS, July 27.—LORD ASHLEY moved that the order of the day for the second reading of the Industrious Classes Bill be now read, for the purpose of being discharged. The noble lord intimated that he would again introduce the bill during the next session.—July 28.—On the motion of Mr. M. SUTTON, the Loan Societies Bill was read a second time; went through committee, and was read a third time and passed.—July 31.—METROPOLITAN IMPROVEMENT BILL.—On reading the order of the day for the second reading of this bill, Mr. HAWES wished to know from the noble Earl at the head of the Woods and Forests when he intended to proceed with this bill?—The Earl of LINCOLN said that he would postpone this measure until next session, as he found so many honourable members anxious to take part in the discussion of it. [We shall take an opportunity before the next session of laying these bills before the reader.]

WOOD PAVEMENT.—Since Wednesday week, a number of labourers have been engaged in picking up and removing the Macadamised stones on that portion of the Great Western road extending from the entrance to Kensington Palace to the western end of Kensington High-street, a distance of nearly a quarter of a mile, preparatory to the whole being laid with wood pavement, by order of the Commissioners of the Metropolitan Roads. The contractors (Messrs. Mylne and Co.) are under bond to complete it within two months.

COURT OF THE VICE-CHANCELLOR OF ENGLAND.

Thursday, July 27.

BACK v. RENNIE.

Injunction—Patent Archimedean Screw.

Mr. Bethel made an application *ex parte* for an injunction to restrain the defendants, Messrs. J. and G. Rennie, the engineers, from making use of the patent invention of the plaintiffs employed in the navigation of steam-vessels, and commonly known by the appellation of the "Archimedean screw." The patent, which was granted in 1836 to Francis Petit Smith, had become vested in a company called the Ship Propelling Company, who were empowered by their Act of Parliament to sue in the name of their secretary. The company had worked the patent very extensively, and granted numerous licences to other persons for the same purpose. Under one of these licences the patent had been very successfully applied by the Commercial Steam Company to a vessel called the *Mermaid*. This vessel having become the property of Messrs. Rennie, had been so worked as to excite the suspicions of the plaintiffs, and after much difficulty it was discovered, on the 16th of June last, that the defendants had employed, as it was alleged, a somewhat varied machinery from the invention of the plaintiff, but so completely identical in principle and in its position in the vessel (*which formed an important feature in the invention*), as to be a manifest invasion of the patent. The present suit was instituted by the company in the name of their secretary, to restrain the alleged infringement of the patent.

The Vice-Chancellor, after a minute inspection of the models of the machinery, expressed his opinion that there had been an invasion of the patent, and directed the injunction to issue.

[A motion for dissolving the injunction will, we presume, be made, and the arguments thereon shall receive our attention. Should there be a variance in the machinery, and the injunction be sustained on the ground that the position is the same, the case will become exceedingly interesting.]

MARGARY'S PATENT FOR PRESERVING TIMBER, CANVAS, AND CORDAGE FROM DRY-ROT AND DECAY.

This process consists in steeping the substances to be preserved in a solution of sulphate of copper, of the strength of one pound of the sulphate to eight gallons of water, and leaving them in it till thoroughly saturated.

For this purpose it is necessary to allow timber to remain in the tank two days for every inch of its thickness.

Numerous experiments have been tried by the Admiralty, the Ordnance, and several eminent engineers, to ascertain the efficacy of the process, and specimens of wood prepared according to the patent, after being subjected to the severest trials (such as the fungus pit at Woolwich, exposure in wet saw-dust, &c.), have always, on examination, been found perfectly sound, while the corresponding pieces unprepared were completely rotten. It has even been applied with success for stopping the ravages of dry-rot already commenced in a building.

The expense is very trifling, for assuming, from the result of a variety of experiments, that a load of timber absorbs twenty-four gallons of the solution, three pounds of sulphate of copper will be consumed, and this being fourpence per pound, a load of timber can be rendered imperishable for the small sum of one shilling, exclusive of labour and the patent right, for the particulars of which we must refer to our advertising columns.

Our readers will, no doubt, perceive the immense advantages it offers to the building classes, and when we mention that it is used by Her Majesty's Board of Ordnance, and on some of the principal railroads in England and on the Continent, they will see that the most eminent of our engineers have been fully alive to its merits. It is also used by several noblemen and gentlemen on their estates.

As a preservative against the effects of dry-rot and decay in timber, it is perfect, and we believe it at present to be the cheapest process yet patented.

The second number of the *Archæological Magazine* will appear next month, and, according to the advertisements, will prove a rich treat to those who are desirous of having in their possession descriptions of the very beautiful churches with which the neighbourhood of Bristol abounds.

FINE ARTS COMMISSION.

The following notices have been issued by the Secretary to the Royal Commission of Fine Arts, under date of July 28th. We have printed some passages in italics, for the purpose of neutralizing the effect of certain remarks which fell, and, as we humbly conceive, quite gratuitously, from the lips of Lord Brougham in his place in Parliament on one evening of last week:—

Her Majesty's Commissioners having, in the notice issued by them in April, 1842, announced their intention of adopting means to enable them to decide on the qualifications of candidates *for employment in fresco painting*; having thereupon invited artists to send in cartoons as specimens of their practice in design and composition, and being of opinion that the exhibition of such cartoons, which has taken place, has afforded satisfactory evidence of the ability of many artists in these respects; in pursuance of the plan proposed as aforesaid, now give notice:—

1. That whereas it has been ascertained that frescoes of moderate dimensions can be conveniently executed on portable frames composed of laths or other materials, artists are invited to send specimens of such frescoes to be exhibited, for the purpose of assisting the commissioners in the selection of persons to be employed in the decoration of portions of the Palace at Westminster.

2. The works are to be sent in the course of the first week in June, 1844, to a place of exhibition hereafter to be appointed.

3. The number of specimens to be exhibited by each artist is limited to three. The size of the specimens is to be not less than three nor more than eight feet in their longest dimension. The figures or portions of figures, in at least one specimen by each exhibitor, are to be not less than the size of life. The subjects are left to the choice of the artists.

4. Each specimen is required to be composed of not less than two applications of the superficial mortar, so as to exhibit the skill of the artist in joining the work of two or more days.

5. Each exhibitor is at liberty to send a cartoon, as a specimen of his ability in design and composition, together with his specimen or specimens of fresco. The mode of execution, subjects, and dimensions of such cartoons are to be in accordance with the conditions specified on those points in the notice issued in April, 1842.

6. No ornamental frames to the cartoons will be admissible, but each specimen in fresco may be surrounded by a flat frame or border, adorned with painted arabesques, which may be executed by the artist himself or under his direction, and either in fresco or in any other method.

7. The competition hereby invited has for its object the execution of frescoes for the decoration of the Palace at Westminster. But whereas paintings executed in other methods may be free from a shining surface, and may, therefore, be considered by various artists to be fit for the decoration of walls, the Commissioners invite such artists to exhibit specimens of the methods in question, under the conditions before expressed, except that with regard to such specimens the dimensions are left to the choice of the exhibitors.

8. The claims of candidates for *employment in oil painting*, and in other departments of the art besides historical painting, will be duly considered.

9. The invitation to send works for the proposed exhibition is confined to British artists, including foreigners who may have resided ten years or upwards in the United Kingdom.

10. Artists who propose to exhibit are requested to signify their intention on or before the 15th of March, 1844, to the secretary, who is empowered to give such further explanations as may be required relative to the terms of this and of the other notices issued by the commissioners.

Her Majesty's Commissioners hereby give notice:—

1. That whereas arabesque paintings and heraldic decorations for the enrichment of panels, friezes, &c., in colour and gold, will be required for the Palace at Westminster, artists and others are invited to send designs for such decorations, for the purpose of assisting the commissioners in the selection of persons to be employed.

2. The designs are to be sent in the course of the first week in March, 1844, to a place of exhibition hereafter to be appointed.

3. The designs may be executed in water-colours, in tempera, in oil, or in encaustic. The dimensions are left to the choice of the exhibitors.

4. The invitation to send designs for the proposed exhibition is confined to British subjects, including foreigners who may have resided ten years or upwards in the United Kingdom.

5. Artists and others who propose to exhibit are required to signify their intention to the Secretary on or before the 1st of January, 1844.

Her Majesty's Commissioners hereby give notice:—

1. That whereas ornamental metal-work for screens, railings, gates, &c., will be required in the Palace at Westminster, artists and others are invited to send designs for such works, with specimens, suitable to the style of the building, for the purpose of assisting the commissioners in the selection of persons to be employed.

2. The designs and specimens are to be sent in the course of the first week in March, 1844, to a place of exhibition hereafter to be appointed.

3. The materials and dimensions are left to the choice of the exhibitors.

4. The invitation to send designs and specimens for the proposed exhibition is confined to British subjects, including foreigners who may have resided ten years or upwards in the United Kingdom.

5. Artists and others who propose to exhibit are required to signify their intention to the Secretary on or before the 1st of January, 1844.

Her Majesty's Commissioners hereby give notice:—

1. That whereas ornamental pavements will be required for the halls and corridors of the Palace at Westminster, artists and others are invited to send designs for such pavements, with specimens, suitable to the style of the building, for the purpose of assisting the commissioners in the selection of persons to be employed.

2. The designs and specimens are to be sent in the course of the first week in March, 1844, to a place of exhibition hereafter to be appointed.

3. The specimens are not to exceed six feet in the longest dimension. The materials are left to the choice of the exhibitors.

4. The invitation to send designs for the proposed exhibition is confined to British subjects, including foreigners who may have resided ten years or upwards in the United Kingdom.

5. Artists and others who propose to exhibit are required to signify their intention to the Secretary, or before the 1st of January, 1844.

ON THE IMPORTANCE OF THE STUDY OF ECCLESIASTICAL DESIGN.

MR. EDITOR.—Permit me to state that I hope you will not be deterred from your purpose of giving such information as will be advantageous to those classes of persons who may be, in some way or other, connected with building matters; and as regards churches, your correspondent, who has objected to the information you have placed before the public upon those important edifices, I am sure he will soon cease to object when he is made acquainted that our ancient churches are the only buildings which contain the true principles of design. Such valuable information will be admitted by all lovers of art and science to be of the greatest importance to every one who follows the building craft; for upon those principles it will be seen that design in every branch of art must be based, if success in it is to be obtained. For one simple reason are churches the best works of art to refer for information on design—and which is this, the subject being the worship of God, and for which churches are erected, is in itself unity, admitting of no contradiction; consequently, vain and disordered imaginations have but seldom been suffered to be added to them, and where they unfortunately have been, are easily detected, and will be seen by every one as soon as they become acquainted with the principles of ecclesiastical design. Churches, therefore, must be considered as the only works of art which contain that information, and which will, when well understood, serve for the foundation of all other works of art, as well as for the whole range of the building craft.

I trust, ere long, to see the principles of design firmly established in the mind of every builder—at least I will do my utmost to promulgate them among those of our mechanics who are entirely ignorant of them, and who ought not to remain one moment longer unacquainted upon so important a subject.

I am, Mr. Editor, your obedient servant,

GEORGE R. LEWIS.

61, Upper Norton-street, Aug. 1, 1843.

A marble column, with an inscription, has been erected on the Hill of Colonus, near the Academy at Athens, to the memory of the great classical scholar, Otfrid Müller. An observatory is in the course of erection, and will soon be completed, on the Hill of the Nymphs, in the same city. It is cruciform, built of materials dug on the spot, and stands so high that it is visible from the Piræus. Freiherr von Lina, a Viennese gentleman, has contributed 60,000 drachmas towards the work. A beautiful colossal statue, in good preservation, has been found in the plain of Marathon, and deposited in the Museum at Athens. It is Egyptian in style, and is supposed to be either an Antinous or an Apollo.

To any of our SUBSCRIBERS who are in possession of copies of Nos. 3, 4, and 8, in an unsoiled state, and who do not require them for binding up, we shall be happy to return the full sum of THREEPENCE in exchange for such Nos., they being now entirely out of print.

THE BUILDER,

NO. XXVII.

SATURDAY, AUGUST 12, 1848.

Four destructive fires took place in this metropolis within the twenty-four hours included between Saturday and Sunday morning last, and a fifth was recorded on Monday morning. The loss to the Insurance offices is of a serious nature, and ruinous to the individuals whose property was involved in the fires. Our ears have been literally stunned with the frequency and appalling nature of these reports. Liverpool and Manchester have been almost proscribed as to protection,—by the fire-offices acting on the defensive, and raising their premiums; the fire-offices have been shaken, literally shaken—one has given way—the premiums in London are being advanced; and knowing what we do of the inevitable consequence of the constant drain on the fire-insurance funds, we are enabled to predict as for a certainty, that other serious and mischievous effects must follow; public and private involvement, and a good deal of public and private ruin will be the certain consequence of any longer delay of measures of security and of fire prevention.

Yes, fire prevention, not fire cure, must be the principle, and it must be acted upon promptly and speedily.

We are no alarmists, but, on the contrary, we speak in full confidence, as having a clear view of the danger, and as clear a view of the remedy. That danger, however, there is, and danger of an extreme kind, imminent, perilous, awful; we are warranted in using the strongest terms—there is, we repeat it, an awful danger impending over us, and it is necessary to convince ourselves of it before we can be induced to apply seriously in search of, or to consider the remedy.

Last Sunday morning, before one fire was out, the alarm was raised in another quarter, and a draft of engines and half-exhausted men was sent from the former fire to suppress the latter; had there been three or four fires all at the same time—a not improbable contingency, and added to these, a deficiency in the supply of water—and these fires, or but one of them, in a crowded rotten quarter of the city—among inflammable materials and buildings—we ask, in such a contingency what security have we against a second “Fire of London?” Do we rely, or dare we rely, upon the efficiency of our engines, or our fire-brigade? Do we plume ourselves upon the supply of water from the Thames, or from sources of higher site? Are our buildings so constructed, our streets so wide and well-disposed, the vigilance and care of our people, such as to give warranty of greater security than on former occasions, or in other countries and districts? Is this coal-consuming, smoke-dried, and gas-stoved city less at hazard than in times of niggard or necessitous economy in the matter of firing and lighting? Is the “touch-wood” of our older fabrics, or the lath and plaster quartering partitions of our newest ones, a reliance?

Is the modern manufacture of Manchester and Glasgow, the “tinder” of cottons and muslins, to be set against or be held superior to the linens and “huckabacks” of a century and a half back? In fine, is the crowded and accumulated London of this day, with its constant record of fires, and this sketched out summary of risks, in a position to claim immunity over the lesser London of 1666? Say rather, is it not in all or most respects at the greater hazard—and say whether the late terrific instance of the conflagration of a neighbouring city—with all these “messenger” or portent fires of our own—say whether these are not to be regarded as warnings—as the dread symptoms of a lurking danger, which, if not averted by timely remedial measures, will work its ravages on a scale that shall at once mock at our folly, our blindness, our deafness, our dullness, our heedlessness, and at all former records of devastation, whether of fire or flood.

It is now but little more than a twelvemonth since Hamburg was gutted out by a four days’ fire, and look how it was circumstanced to compete against or withstand such a catastrophe. Lying at its feet, and coursing along its very streets, are the waters of the Elbe; above, and yet within the city one might say, at least within the suburbs, is a perfect lake of waters, those of the greater and the lesser Alsters, the overflow from which joins with the canal streets that alternate as it were with those for carriage traffic. Fires had had their frequency, sufficiently so to awaken the vigilance of the inhabitants, and inspire them to take all the precaution of their “watch and ward,” their fire engines, and well-appointed fire police. The whole town was assessed, as it were, to a “fire fund,” out of which previous sufferers had received their due compensation; all curative, and, as they considered, all the necessary preventive measures and policies were in action. They had every confidence in the well-trained and hitherto successful fire-suppression force, and when on Palm Sunday morning (we think it was) of last year, or about the midnight of Saturday, a fire broke out in some slop or rag shop of a little “Wapping” or “Field lane” of Hamburg, when it spread from the house of its origin to two or three houses, and even at 10 o’clock in the day, when it had well-nigh embraced a whole street, people passed to and fro to church, and pursued their usual avocations, thinking much of the “large fire,” but nothing of the insufficiency of their powers to arrest it. We need not dwell upon the sequel, the calamitous sequel; it is summed up in this, that in four days the heart of the city was a blazing ruin, and ruined were hundreds and thousands of its inhabitants. The “fire fund” was bankrupt, and the sympathies and generousities of Europe were hard, though voluntarily and nobly, taxed, to make good the pecuniary deprivations of the sorely afflicted people of that once apparently secure and well-favoured city.

There was something said at the time among our neighbours across the channel of a resolution to put Paris in a state of defence against such an emergency, from which, while the sensations which the Hamburg fire had excited were fresh, it was thought she was not more than ordinarily secure; but that fitful or wakeful anxiety appears now to have passed off—to be renewed again only upon a second warning, if such should not knock at and knock down their own doors. Here in England it hardly seemed to excite a thought of any jeopardy in which we ourselves might stand.

We looked on in a sort of gaping awe and wonderment, paid and pitied our full quota; cared little and thought less about the cause, and least of all dreamed, nor do we yet dream of the cause or consequence of the like to ourselves. But we take upon us to aver that never people in the world have or have had more right to read the lesson as one specially indited for our warning and instruction. Where Hamburg had one element of danger we have at least two. Where Hamburg now has her gain to reap, to extract good out of gaunt adversity, we have the adversity much of our own choosing—we have the turning of the tables, and all for profit, if we so elect.

We have had great talk of a new Metropolitan Building Act, and are well familiarized with the precaution of stout party-walls. Fortunately, the Act is deferred for a session; we hope that it may embrace something more, and that in the interval no greater cause may arise to enlighten us on the subject of farther fire-preventive regulations. We throw in our mite of counsel meanwhile, importuning nevertheless in the same breath, that a good look-out be kept during the ensuing winter upon the irremediable and irremovable causes of risk, causes at least which we must endure for a time. Let double watch be instituted, and extraordinary precautions—we are sure it will pay—and along with them, let the following plan, or some such plan, for such object, be taken in hand, matured, and prosecuted.

To think of rebuilding London on a fire-proof plan would be an absurdity, but we think it may be shewn how largely or how nearly we may approximate to some such plan without stepping beyond the bounds of a practicable and intelligible purpose. Let fire-proof blocks, or compartments of buildings, be set up at intervals in certain streets, and the danger may be greatly diminished, and gradually all but removed. What we mean by a “fire-proof block,” is a house, say at first every tenth house in a street, and ultimately every fifth house, built upon an approved fire-proof model, which will interpose itself to the spread or communication of fire to houses on its opposite sides. If every fifth house were of this class, and provided with a large cistern of water at the top, the four intervening houses would be under the play of hose or water-pipes from the cisterns, and might be inundated without the aid of engines or the labour of firemen. As to the supply of water, we shall speak presently.

At first we would suggest to begin in the more dangerous and crowded districts of London. A commission should be instituted, whose province it would be to search into and report upon such districts, and to mark out the sites of the “fire-proof blocks.” In all cases of rebuilding, the proprietors or builders would be required, as at present, to give notice to the district surveyor of their intention, and the surveyor should apprise the commissioners, who, having powers, would confer with the proprietor or builder, and arrange whether such house and such an opportunity were to be used as an occasion for erecting a fire-proof one, awarding compensation or providing the means for the extras in a fire-proof construction. Buildings are taken down every day, as thousands more ought to be, or be indicted, which a judicious arrangement would adapt to favour this plan; there could be no tyranny in it—no case should be, nor in a properly-constituted commission could be, improperly forced forward—the public safety, however, would even justify a little apparent

interference with the plans of private individuals—it does so now in innumerable instances—but we question whether the being required to build a fire-proof house, aided by the counsel and the well-matured plans of a commission, would not be in all cases a gain to the owner; his house would be preferred by many tenants and for many businesses, and his insurance premium would be proportionately, that is very much lessened, if not done away with.

We are afraid to be tedious, though the subject is of vast importance; but we will not dwell longer upon house erections farther than to say that our belief is that the ratio of houses built in this fashion and under such auspices would not differ much from the number ordinarily in progress. It is therefore only to substitute iron roofs, girders, and rafters, slate or stone stairs, timber impregnated with Payne's, or any other semi fire-proof solution, iron laths or strips for plastering upon, and we should say iron ceiling and stoothing ribs, fire-proof plasters and cements. These are the principal things that occur to be named in this general outline; and the great cistern, a cistern roof or cover to the whole house, might also be of iron.

But now as to the supply of water.

If London had a proper and sufficient supply for the ordinary wants of its inhabitants, we might be disposed to hesitate in the consideration of any plan involving the scheme of a new provision; but London is confessedly very far deficient in the provision of water.

While New York has an arrangement of 25 gallons of water *per diem* for every head of its inhabitants, and could maintain this supply were the population to increase from 400,000 to two millions;—whilst Philadelphia has a supply of 21 gallons *per head per diem*, the rate at which the principal European cities (among which London ranks) are supplied, varies, we believe, from 6 gallons *per diem* to a maximum of 13 gallons only! here is a great and a humiliating, perhaps we may add an alarming, disparity. We need not dwell on the necessity and the benefits of a liberal supply of wholesome and salubrious water.

Whence, however, and how is this supply of water to be obtained? We may at this point recapitulate the facts connected with the doings of the *New Yorkists*, the Americans, in this way. We have already, in No. 2 and No. 25, given accounts of the famed Croton river aqueduct, which supplies the city of New York in the liberal measure we have adverted to. This aqueduct is about forty-eight miles in its entire length; it runs through and on the side of mountains and crosses rivers; the tunnel which conveys it is, we believe, an elliptical one, 9 feet high and 7 feet wide, deeply or stoutly encased in earth, to protect the water from the frost, which it does effectually. The Croton river, which is the source, runs copiously out of a gorge or throat of the mountains, and finds, or rather did find, the lower level which led to the sea, where it emptied itself at a point of some two feet higher than at New York. It was necessary, therefore, to dam the river up at its head, near the gorge already spoken of, and this was done to throw back the waters so as to form a lake or grand reservoir of seven hundred acres! The reservoir is said to be very deep, but at any rate there is secured a supply in the driest summer of the 700 acres by 9 feet, the depth of the tunnel. Besides this, there is another reservoir near the city of 36 acres, dug out of the earth and rock to hold 150 millions of gallons of water. It is divided into two com-

partments for the convenience of cleaning out or repairs, as is also the distributing or smaller reservoir of four acres and 30 millions of gallons, from whence branches 200 miles of iron main pipes, dispersing all over the city.

The reservoirs are ornamental and very attractive; three fountains, throwing up to a great height, play in different parts of the city; hydrants or spout pipes are constantly running in numerous places in the city for the supply of the poor; and the most liberal disposition has been observed in the whole management of this stupendous undertaking.

And how was all this managed and concerted, at what cost, and in what time? A public conclave and vote of the citizens first decreed that the work should be undertaken; and in three years and seven months from the date of the decree, the fountain played in the park. The whole cost was fourteen million of dollars, or about three million pounds sterling!

Instantly the rate of insurances fell; so much so, that it is computed to go far to meet the amount of interest on the capital expended in the work. The rate of supply to a full-sized three-storied house of twenty-five feet front and thirty-six feet deep, occupied by one family, without boarders, is about two pounds per annum.

And now, let us ask, can nothing of the kind be accomplished for London—for this mighty and imperial metropolis, which numbers in amount four or five times the population of New York? Is there no Tring, nor Berkhamstead, nor Boxmoor, fruitful in waters, where springs and fountains may be congregated to form one grand reservoir, and, with a distance of less than thirty miles of duct, be brought to Hampstead or Highgate to a second reservoir, again to fall into a third about Islington, and thence, coursing liberally through the streets, rise to the heights of the aforementioned cisterns of the house-tops, and supply artificial fountains, and the constant runnings of the public spouts? Cannot security, cannot salubrity be purchased for London; and along with them immunity from fires, and greatly diminished rates of fire assurance be compassed? Will not public and private weal be thus promoted? Will not stimulus be thus given to our iron manufactures, employment for the labourer and artificer be found, and capital be disseminated, not to perish, but to fertilize, to fructify? Might not the arts of design be practised in this respect with equal credit to our countrymen and equal avail to the aspect of the country as they were in those grand works of the ancient Romans—their aqueducts? The London reservoirs might be appropriate structures of masonry instead of outrages on nature, attempts to grow stunted and sickly trees and plants on an unfriendly soil.

And now we are prepared to shew that by a diversion of part of the surplus capital of the Insurance offices, and a union with the Water Companies, whose mains and supply pipes might for the most part, if not wholly, remain, and be used, and the addition of a fair amount of public stock, the whole of this may be accomplished. We will also venture to say, that a more important or pressing undertaking cannot occupy the attention of a government or a commission deputed by it. A few more fires, and the destruction of life and property, would tell reproachfully after this warning; let us hope that such will not be the case. Smoke-consuming Commissions or Commissions for forming new streets fall into insignificance in comparison with the paramount and superior

functions of one appointed to provide for security from fire, and the proper supply of water in the Metropolis.

In conclusion, we must deliver ourselves of one remaining remark as to the advantages of a supply of water in the manner we advocate—the desideratum with us has long been that the wood pavements should be kept clean washed. This can only be effected by an abundant supply of water; let the work be performed early in a morning, either by a brush-machine or by men, sweeping all away down the kennels and the common sewers, and we should hear no more of the slippery and greasy nature of wood pavements; the salubrity and pleasantness of the streets would also be thereby greatly improved. One thing, however, above all the details, must not be lost sight of; a "second fire of London" ought to be averted by every human provision and precaution. We look back on the sad catalogue of life and property lately consigned to the destruction of unexpected and unaccounted-for fires—who knows what, if we are apathetic, may result next?

BUILDING SOCIETIES.

An advertisement in our last number, headed "Every man his own Landlord," has attracted particular attention. The society from which it emanates merits the notice sought by that means, as being the first to avow its purport, independently of the specious apparatus of a society for building purposes. Here is an association calling itself the "Provident," and inviting members to join a "savings' fund," for the purpose of ultimately becoming their own landlords, by the purchase of premises suited to their occupation. Now this is intelligible language, and men inferior to none in public reputation and private worth join in putting it forth. We have previously had occasion to mention the willing adherence of monied men to these societies, and the connection seems to be brought about in the simplest possible manner. The capitalist, in reply to an invitation of this description, says, "Prove to me that you have a sufficient number of contributors to lessen my advances by some thirty or forty per cent. upon your valuation of property to be purchased, and I am ready to furnish the remainder." It must, however, be evident to every inquiring mind, that the utmost realization of advantage from these societies, as at present constituted, is confined to the difference between five per cent. the usually acknowledged value of money when secure from diminution and risk, and the return expected where capital has been invested in buildings, which may be assumed to be ten per cent., and paid by the tenant; now, if he can borrow money at the former rate of interest to buy out the latter, he is a gainer to that extent. To put a case: a house, for which the tenant had been paying 30*l.* per annum, is purchased with 300*l.*, borrowed at five per cent.; this leaves a redemption fund, that in twenty years will, independently of interest, cancel the mortgage, by the mere operation of the difference in the return expected from capital according to the nature of the investment; it is also clear that if the members are allowed only to make purchases in a ratio agreeing with a pre-calculated scheme, the mortgages will be sufficiently secured. The short case stated is, however, one in which there is no reference to *biddings for preference*; the bidder above five per cent. for an advance, trenches for every shilling upon the remaining five per cent., which constitutes his sole advantage in the transaction, and if some statements are to be credited, many persons will eventually find themselves in a worse position as landlords than as tenants. At the termination of associations, enrolled under the Building Societies' Acts (which, as we recollect, limit their operations to ten years), those who have proceeded upon the plan of encouraging biddings, will find that there remain many unsatisfied mortgages, depending in number and amount upon the *improvidence* of the mortgagers. The society at large will have realized certain profits, represented, not by money in hand, but by incumbrances upon property purchased at a price beyond its value.

PATENT STUCCO PAINT AND PATENT
STUCCO PAINT CEMENT.

ALTHOUGH we are somewhat late in the discussion which has been raised upon the merits of the above materials, and although almost every portion of the public press has had its say and spent its encomiums upon them, yet we feel that our opinion will not be the less authoritative and welcome. Several have already spoken upon the subject whose opinions, like our own, may be said to be professional, such, for instance, as the *Civil Engineer and Architects' Journal*, the *Art Union*, the *Railway Magazine*, and the *Railway Times*, and without depreciating the judgment in such matters of the non-professional journals, we propose to take our stand in the rank of the others, and to speak "from the shop."

We might sum up all we have to say in a line—and in these words—"This is one of the most important inventions of its class in these days." It is a PAINT, and it is a CEMENT. As a paint it is cheap, durable, highly protective of the material it covers, pleasant in working and application (unlike gritty and harsh substances), its colour highly agreeable, and it finishes without gloss. As regards cost, it may be said to average 4d. or 5d. per yard superficial, when laid on for the first coat, and about 3d. per yard for each succeeding coat. There being no white lead in its composition, it gives out no deleterious exhalations or odour in drying—and as the oil cannot evaporate, but is held in intimate and indissoluble union with the other materials, there can be no decay, neither in the paint nor in the cement, an objection which oil mastic is well known to be open to. It requires no dryers nor turpentine. It will be seen, therefore, that for outside work, and inside alike, and we may say upon almost all substances, it can be applied.

Now as to the cement. It may strike our readers as it struck us, that this is an entire novelty—that one composition should be applicable both as a paint and a cement; and, moreover, that both should be presented in a fluid state; but it is not altogether a novelty, though we must borrow our parallel from a widely different source. Every plasterer will recognize in lime putty and lime wash or whitening the similitude; lime putty is the humble representative of the "patent stucco paint cement," and lime whitening that of the "patent stucco paint;" like lime putty, smooth, agreeable to work and to handle. This cement is packed up in casks and forwarded for use; it requires to be mixed up with sand, as the former, to make a stucco, and will take a larger or a smaller proportion of sand, according to the quality thereof. Good, sharp, clean sand may be added in the proportion of one part to one of the prepared cement; the method of applying is the same as that for any other stucco, and it will adhere with equal tenacity to glass, iron, slate, wood, old plaster, or Roman cement. Like stucco, it requires to be dried more than Roman cement, but just so much more as to constitute one of its chief advantages in giving the workman more time to command over it; but when once set, it is complete STONE CASING, hard, impervious to wet and damp, and of a beautiful texture and colour; one coat of its own paint, so to speak, and which it will take in twenty-four hours after being laid on, is sufficient for it. Buildings are run in it, casts and embellishments produced, in the same way as in ordinals; inside or outside of a building alike applicable, and it has stood the test of the severest trials in exposed marine situations; porous bricks, lime-stones, and ill-dressed masonry or brick-work will receive with this material that finish which the beauty and comfort of every house requires.

For bedding slates, tiles, and general roofing, it will be found doubly valuable, holding the materials in perfect bond, and interposing a complete water-proof casing.

For exportation or removal, and for keeping stores, it is conspicuously pre-eminent over Roman cement, inasmuch as it does not crumble by age.

As much we are enabled to say of it, and as satisfactory ground of careful and ripe consideration. Like the old builders of London, we are cautious in risking their reputation on

untried matters, but who are now uniting in the best approval—the use of these materials—we have trod in safe footsteps. We conclude with one exhortation to the plasterers; let them consider that they are dealing with a new commodity, and learn to manage and to master it; as they had to do with Roman and other cements; it will then work them lasting credit and advantage.

The price of stuccoing in this material may

be taken at 2s. to 2s. 6d. per superficial yard.

We are aware of a practice in many districts where hard materials, and what we may term, unkind in setting with ordinary limes and cements, are set in white lead. Penrhyn Castle, built by Mr. Hopper, we believe was principally so, to protect the joints from the drift of rain, which lime fails in many instances to do. This cement will be of singular merit in such cases.

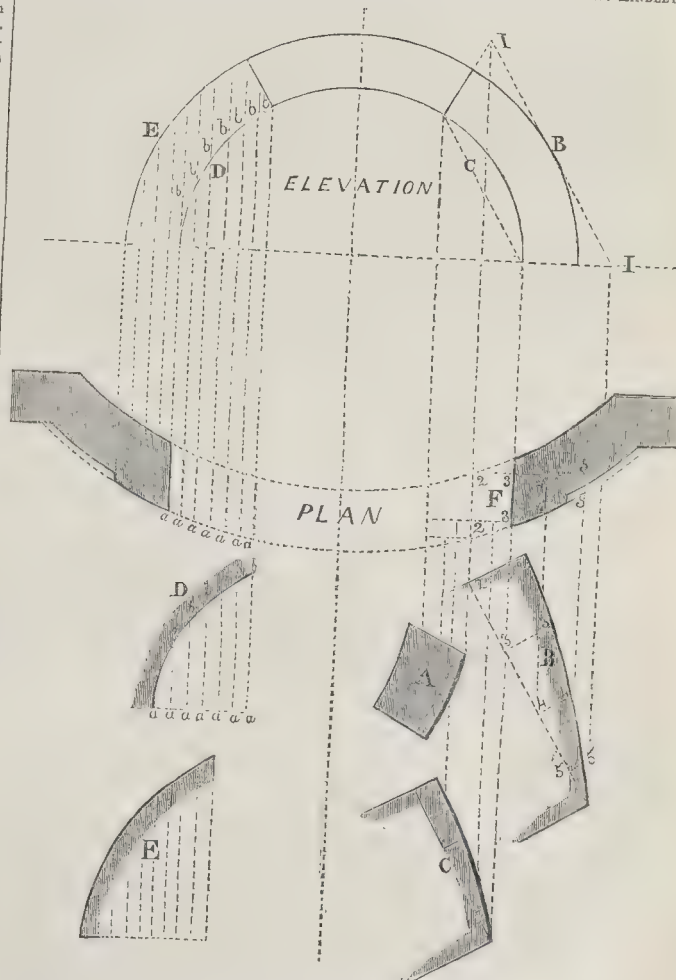
MASONRY.
"CIRCULAR ON CIRCULAR WORK."

TO THE EDITOR.

SIR,—I send you a simple and economical method of working in stone the head of a circular-headed window in a circular wall, termed by masons "circular upon circular." As what I have sent, and what, by your leave, I intend sending, have never before been published, I trust they

will be acceptable to such of your readers who feel interested in working what is generally considered difficult part of masonry, by methods at once simple and easy of attainment.

Being one of the "unwashed," I am incompetent to give a scientific or mathematical explanation to my diagram, but trust that I have laid it down in a manner sufficiently plain to be understood by any one who may think it worthy of a little study. Leicester, July 29, 1843. W. LINDLEY.



Stone Window Head. Circular on Circular.

- A. Mould for top bed of springer and bed of key stone.
- B. Section of wall on line B on elevation.
- C. Section of wall on line C on elevation.
- D. Piece of sheet-lead to scribe curve of soffit of springer at D on elevation.
- E. Piece of sheet-lead to scribe curve of outer edge at E on elevation.
- The figures on B, on plan at F, and on elevation at B, correspond with each other.
- A and C are produced by ordinates, by the same method as B.
- The letters a a a a a a and b b b b b b at D, correspond with the same on plan and on elevation.
- F. F is produced by the same method.

N.B. It is not necessary to confine the head to three stones; this method will work it in five or seven, or more, by bringing ordinates down from every stone for the getting of the sections or moulds.

[In this place we wish to take notice of an error in the engraving of Mr. Lindley's former communication, in Number 23. The line on the left, crossing the second archstone from the springing, is superfluous; the line up the centre should have been a dotted one. a, a, on the elevation should have been d, d; and one b on the face mould should have been a.]

ON VARNISHING AND THE PREPARATION OF DIFFERENT VARNISHES.

It was long a desideratum to find some certain and easy method of depriving shell-lac of its colouring matter, or, at all events, to render it sufficiently colourless for the use of artists. In vol. xiv. of the "Transactions of the Society of Arts," two such processes are recorded; the first, by Mr. Field, is as follows:—Six ounces of shell-lac, coarsely powdered, are to be dissolved by gentle heat in a pint of spirit of wine; to this is to be added a bleaching liquor, made by dissolving purified carbonate of potash in water, and then impregnating it with chlorine gas till the solution becomes slightly coloured. Of this bleaching liquor add one or two ounces to the spirituous solution of lac, and stir the whole well together; effervescence ensues, and when this ceases, add more of the bleaching liquor, and thus proceed till the colour of the mixture has become pale. A second bleaching liquid is now to be used, made by diluting muriatic acid with three times its bulk of water, and dropping into it pulverized red-lead, till the last added portions do not become white. Of this acid bleaching liquor, small quantities at a time are to be added to the half-bleached lac solution, allowing the effervescence, which takes place on each addition, to cease, before a fresh portion is poured in. This is to be continued till the lac, now white, separates from the liquor. The supernatant fluid is now to be poured away, and the lac is to be well washed in repeated waters, and, finally, wrung as dry as possible in a cloth.

The lac obtained by the foregoing process is to be dissolved in a pint of alcohol, more or less, according to the required strength of the varnish, and after standing for some time in a gentle heat, the clear liquor, which is the varnish, is to be poured off from the sediment. White-lac varnish thus prepared, and used in a temperature of not less than 60°, dries in a few minutes, and is not afterwards liable to chill or bloom.

The second process is by Mr. Luning:—Dissolve five ounces of shell-lac in one quart of rectified spirits of wine; boil for a few minutes with ten ounces of well burnt and recently-heated animal charcoal, when a small quantity of the solution should be drawn off and filtered; if not colourless, a little more charcoal must be added. When all colour is removed, press the liquor through silk, as linen absorbs more varnish, and afterwards filter it through fine blotting-paper. In cases where the wax contained in gum-lac would be objectionable, filter cold; if the wax be not injurious, filter while hot.

There seems to be little or no difference in these two colourless lac-varnishes, except that the last is much less troublesome to prepare, whilst it is pronounced by competent judges to be equally efficient.

From the chemical analysis of lac by Mr. Hatcher, it appears that 100 parts of shell-lac consist of 90.9 resin, 1 wax, 2.8 gluten, and 0.5 extract. Cold alcohol will take up 81 parts of the resin, and leave the wax and gluten untouched; it would, therefore, probably be an improvement on either of the above processes, to make the first solution of the shell-lac in cold, instead of hot or boiling alcohol.

When wood or any other porous material is to be varnished, it requires to be coated with some substance which will cause it to *bear out*; the pores should be completely filled, and much time and may thus be completely filled, and much time and varnish saved. For mahogany and some other woods, boiled linseed-oil may be used, particularly if it be desirable to heighten the colour. Thin size, made from common glue or from isinglass, the glare of eggs, gum-water, or gum tragacanth, are occasionally employed, the object in view being to prevent the absorption of the varnish by an interposed coat of some substance which is not soluble in alcohol. When linseed oil is used, it ought to be applied very sparingly, and a day or two should be allowed for it to harden, previously to varnishing.

For ordinary work, a brush, known in the trade as a *sash-tool*, answers extremely well, provided it be of a suitable size, as the varnish, if not too thick, will flow and spread itself evenly, although the hairs of the brush may not be fine. When the varnish is thin, and the articles to be varnished are of the finer kind, or the surface considerable, the flat camel's hair brushes are to be preferred. In general, three or four applications will be found requisite; and when the wood is very porous, or the varnish to be rubbed down and polished, double the number may be necessary; but this depends so much on the character of the materials, that no certain rule can be prescribed. In dry weather, the spirit evaporates so rapidly, that the coats may follow each other at an interval of a few minutes only; yet it is important to observe, that the last be perfectly hard before another is laid on. It sometimes happens, that the varnish assumes an opaque white appearance

during the process, losing all brilliancy. This is occasioned by moisture in the atmosphere, and indicates that a close room and a fire are absolutely essential, and without such precautions it will be useless to persevere.

It will be perceived, that many of the preceding remarks apply to spirit varnishes in general, as they all possess certain properties in common, and, therefore, require a similar mode of treatment. The mode of polishing, and some other particulars, we shall now briefly describe, and in general terms, reserving a more extended notice for a future paper.

To rub down, or Prepare the Varnished Surface for Polishing.—For common work, shell-lac varnish does not require to be rubbed down and polished, except where the surface is to be made very even. For rubbing down, pumice-stone, reduced to a very fine powder, is commonly used. Four or five coats of varnish, at least, must be laid on, and allowed to become perfectly hard; a piece of woollen rag is then made wet, and a portion of the powder put on it; this is then rubbed carefully and equally over every part of the varnished surface, until it assumes a perfectly even and smooth appearance. Considerable judgment and attention is requisite to avoid rubbing through at some parts, before others are rendered smooth, particularly if there be any sharp edges or projecting mouldings. Should this accident happen, the entire process must be repeated; practice, however, and taking care that a sufficient body of varnish be given to the surface, to ensure the requisite thickness of resin, will generally enable us to avoid a failure. A very convenient mode of using the cloth is, to wrap it round a cork, that is, supposing we are at work upon a plane surface; but the same method may be adopted in rubbing down mouldings, by merely cutting the cork to fit the shape of the moulding.

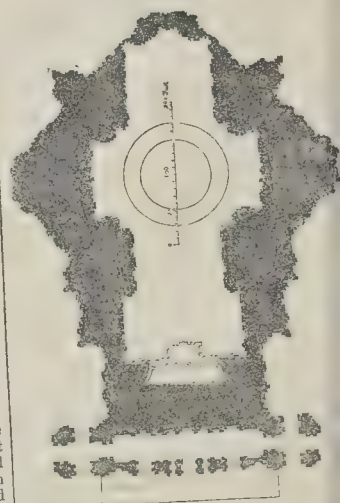
To Polish the Varnish.—Supposing the surface to be well prepared by the pumicestone powder, it is very easily polished. This is effected by fine rotten-stone, used exactly in the same way as the pumicestone, excepting that sweet oil is employed instead of water. The oil may be removed from the surface by a soft linen rag, and some dry rotten-stone; and if a little is then rubbed on by the palm of the hand, it will produce the highest degree of polish.—*Penny Mechanic.*

NATIONAL MONUMENTS.

On the evening of Monday last a vote was taken for 1,500*l.* to be expended in defraying the cost of monuments to the memory of Sir Sidney Smith, Lord Exmouth, and Admiral de Saumarez. The member for Lambeth, Mr. Hawes, expressed his opinion that men distinguished in literature and science were equally entitled with the defenders of their country to enduring testimonials of national gratitude, and he suggested to the prime minister that the subject might be advantageously taken up by the Fine Arts Commissioners. Sir Robert Peel answered that the government would be prepared to consider the question of erecting statues to such men as Newton and Darcy, but must be first satisfied as to the place where the statues could be put; to erect them out of doors would necessitate the use of a most costly material, bronze; and there was this objection to placing them in an ecclesiastical edifice, that the public would not necessarily have free access to them, and so the great public object fail of being attained. The propriety of referring the matter to the Fine Arts Commission he could not determine until after consideration. Mr. Vernon Smith proposed that the commission should be instructed to inquire whether some part of the new Houses of Parliament could not be set aside for the reception of such statues; at all events, if Westminster-hall was to form an access to them, such statues might be placed therein. Mr. Hume hoped that the statues of our naval heroes would be removed from "the prisons in which they are now locked up," from Westminster-hall and St. Paul's, where they could not be seen without the payment of an admission fee; and alluded to the fact that from the want of a suitable building Thordalsen's statue of Byron had been lying at the Custom-house for the last ten years. Mr. Monckton Milnes stated that there were difficulties in the way of opening St. Paul's and Westminster Abbey gratuitously, and thought that there was a class of monuments much better calculated for other buildings than for a Christian church; he should be glad, therefore, if the suggestion of Mr. Barry, as to the admission of such into Westminster-hall, were to meet with attention. The vote was then agreed to.

This discussion relieves us from the task of commenting on the letter of Mr. Westmacott to the Rev. H. Milman, which we transferred from the *Athenæum* to the columns of a recent number. All the principles laid down by Mr. Westmacott—a distinct building for monuments purely commemorative, the removal of such monuments from ecclesiastical edifices, the exclusion from those structures of monuments not conceived in a spirit of piety, humility, and the subordination of all temporal matters to the sense of religion—were affirmed, as, indeed, they could not well be repudiated. The choice of some place whither the old monuments shall be removed, and wherein for the future national memorials should be erected, remains. Westminster-hall would undoubtedly be a fit place, but so also would the vestibules of the two Houses of Parliament, and the larger corridors through which the public would be passing and repassing; there is no reason why all should be crowded together on one spot, why there should be a sort of Walhalla. The main point is that such monuments, as they must be under cover, be erected in some place to which the public not only has free access, but which it has some incentive to visit. The monuments should be brought prominently before the public eye, and not be merely open to the inspection of those who have time and curiosity for visiting them. Westminster-hall and the whole range of public galleries in the Houses of Parliament are places to which, from motives of business as well as curiosity, men will resort during a great portion of the year. In them, that is, in every portion of them, testimonials of national gratitude to the benefactors of the country might be placed. Nor would it be difficult to fix on some principles of classification, that should connect the several statues with the traditions or the actual business of the place in which the spectator might behold them.

We trust that Sir Robert Peel will refer the matter to the Fine Arts Commission, a body with which the public is well pleased. It requires very slender powers of imagination to perceive that the subject is, collaterally at least, within the scope of its functions.



COMPARATIVE PLANS OF ST. PETER'S ROME, AND ST. PAUL'S, LONDON.

The black represents the ground-plan of St. Peter's Church at Rome, and the white part contained within it, that of St. Paul's London. The outline is accurately defined each. The smaller circle shows the size of the space under the dome of St. Paul's, namely, 100 feet in the clear. The larger circle, in like manner, gives that of St. Peter's, 145 feet. The piers supporting the dome of St. Peter's measure in the angle 80 feet, those of St. Paul's are under 40 feet. This diagram and description will convey at a glance the relative magnitude and comparative forms of the two buildings.

THE BUILDERS OF LEAMINGTON.

TO THE EDITOR.

SIR,—I was forcibly struck with your remarks last week respecting the builders of the famed town of Leamington, and am sorry they are too true, and not as regards Leamington only, but of almost every town in England more or less. I remember calling upon a timber merchant in Hull a few years ago, when he made a remark to the same effect. He spoke of Leamington as well as other places, and he said "A few years back the builders were a highly respectable class of people, but now we are almost afraid to deal with them."

Now, Sir, things ought not to be in this condition. I am well satisfied they are not deficient in either moral principle or moral courage; a more laborious class of men cannot be found; they have not merely to stand behind their counters to supply their customers, but their moral and physical capacities are tried to the uttermost. But, Sir, there is a cause, and that, with your permission, I will endeavour to explain, and point out a few remedies.

You are well aware, Sir, the builders in general are men brought out of the ranks, as there are few parents of affluence who apprentice their sons to the trades of a carpenter, bricklayer, or mason, they being too laborious and too much exposed to the inclemency of the weather; and as these are the branches from whence the builders spring, it follows as a matter of course they have but limited means to commence business with, but in general something far better, industry and enterprise; with these they set sail, and encounter and overcome many a storm, and if they were willing to stand upon these resources within themselves, they would seldom fail; but over-anxious to make haste and get rich, too many have listened to some money-lending concern, they have taken hold of a false capital, launched out further than they ought to have done, and in many cases where they have been just on the turning point, a whisper has gone abroad, such a person is in difficulties, and down he has gone.

Another, perhaps a greater evil, has been the great competition which has existed of late years. The over-anxious desire in individuals has been to carry on a large trade, and, Sir, every one must be aware, if carried to excess, of the consequences that will follow. If, for instance, as is frequently the case, six persons compete for a job, the highest will be say 2,000*l.*, and the lowest 1,500*l.* How can these things be? there must be something wrong, and in how many cases have such broken down before their jobs have been complete, themselves Gazetted, and their families in want, whilst good and useful members to society have been lost and died in despair.

In order to avoid these calamities, it would be well for every young man commencing business to let his steps be slow and sure; if temptation presents itself, ponder the matter well over. If, for instance, a gentleman has a piece of ground suitable for building purposes, and is willing to let it on building leases, and advance a certain amount of capital, let him take care how he makes his bargain; take plenty of time to cover the ground, and not pay a farthing ground-rent until it is covered; the mere ground itself is scarcely worth anything, and therefore why ought it to be paid for?

I almost every day see a similar case. A gentleman had a piece of ground of this description, which he let out for five pair of villas, to be erected thereon at a ground-rent, I believe, of 80*l.* per annum, to commence at first: three pair were built and covered in, and the others commenced; the gentleman advanced about 2,000*l.*, and there they stand, and have been some years, the builder a bankrupt, and the gentleman minus interests, ground-rent, and, I am afraid, capital too, if he does not soon finish them himself, or give them somebody else to finish. Now, Sir, I think with proper precaution all this may be avoided.

As regards competition, I have no objection to it if it be carried on on honourable principles; I think it right for a gentleman to know what a building will cost, and to get it done in the best manner, and I think it stimulates the builder to make the best of his bargain, only let it be done on right principles: first ascertain the exact quantities of labour and material required, then go to the best markets to purchase them, and then put on a price that will pay for them; I know one man can in many instances work lower than another, either by his superior knowledge or other causes, and he will have the advantage of them; let him, and let all others be honourably stimulated to overtake him, and we should have very few stopping in the midst of a job, and gentlemen have to pay double for their works being completed. If you think this worthy a place in THE BUILDER, you will oblige by the insertion.

Your humble servant and well-wisher,
Richmond, Aug. 8, 1843, J. P. H.

POMPEIAN PAPER-HANGINGS.

TO THE EDITOR.

SIR,—THE BUILDER has, from the commencement, been my companion at the tea-table on the Saturday evenings of publication; and in the last number I read the correspondence of the professional gentlemen, "Peregrine, B.A.A.D.," as relating to the "excellence" of the paper-hangings, which he describes as the faithful representations of the "Pompeian" and "Herculanean" decorations.

Relying on your impartiality, I beg to submit a few remarks on the subject of the note of your correspondent. "Peregrine" tells us that he saw them in the manufactory, and, I think, that it is much to be regretted that he did not see them in some suit of rooms in which they had been used; then, I believe, he would not have given an opinion so opposed to almost every person who had written on the subject of architecture as applied to domestic purposes. The workman who makes the description of papers to which he alludes, seldom or never sees the rooms for which they are intended, and if he were perfectly informed in this, it would not be of the least advantage, because the process of printing is invariable: he cannot reverse the shade—neither can he diminish nor enlarge the pattern to suit the compartments, so that the rooms, when they are said to be completed, constitute a piece of inconsistency and patchwork. The only method by which decorative paper-hangings can be executed with correctness is by working according to the preliminary of having the plan and elevations of the apartments for which they are intended; otherwise they must, of necessity, be nothing superior to base counterfeits of the originals.

Now there are paper-hangings made, to a very great extent, on the principle which I have mentioned; perhaps "Peregrine" would like to see and judge for himself: therefore, I beg to refer him to the works of Mr. Norwood, Messrs. Archer and Taverner; I might mention several others, but I think these sufficient; and I have no doubt he will consider himself amply remunerated, after inspection, for the perambulation which he might take for that purpose.

Mr. Pugin's remarks are, I think, well worth attention here; in speaking of paper-hangings, he says, "those papers which are shaded are defective in principle; for as a paper is hung round a room, the ornament must frequently be shadowed on the light side." Again, "flock-papers are admirable substitutes for the ancient hangings; but then they must consist of patterns without shadow."

Respecting flock-papers, I will here take the liberty to say, that at an early opportunity, and having your permission, I will explain the method which I use for flocking ceilings or walls. The whole space may be covered with ease, or it may be introduced with great advantage in ornamental representations of large dimensions, as the unsightly appearance of seam or join is entirely avoided.

I am, Mr. Editor, your most obedient servant,
JOHN BARR.

INSTITUTE OF THE FINE ARTS.

A GENERAL meeting and *conversazione* of the members and friends of the above institute was held on Sunday evening at Willis's Rooms, St. James's, and was numerously and highly respectably attended. In the course of the evening Mr. Wyse, M.P., delivered a short but able address, explanatory of the objects of the institution, which is to unite, by intellectual and social means, the interests of artists, and to attempt to establish a free and liberal intercourse between the patrons, the lovers of art, and its professors. Mr. Wyse declared his entire approval of the design, which, indeed, the honourable gentleman has been hitherto chiefly instrumental in carrying out, and avowed his intention of continuing to co-operate with the institution by every means in his power. He impressed upon artists the benefits to be derived from union, and exhorted all to lay aside prejudices and exclusive partialities. At the conclusion of the address, which was received with the warmest sympathy by all present, a very clever and learned paper by Mr. E. V. Ripplingill, upon "the causes and circumstances which favour and oppose the progress of art," was read, and elicited much approbation. The company entertained themselves with the various objects of art and vertu which were profusely spread about the rooms, and many of which were highly interesting and curious.

PASSING THOUGHTS.

I.

It would be an interesting subject, if well carried out, to note the praises which have been bestowed upon our art, not only by historians, antiquarians, and others, but even by poets, a fact which proves how highly honourable every branch of the profession is, and how esteemed their labours are. Milton, without doubt, had the very soul of an artist in him. Thomson is allowed to have been the best informed upon the arts of all our poets. Pope's lines on Sir J. Vanbrugh evince that he knew something about it:—

Lie heavy on him earth, for he
Laid many a heavy weight on thee.

Somerville in the "Chase" describes the situation, extent, and arrangement of a kennel

Let no Corinthian pillar prop the dome
A vain expense, on charitable deeds
Better disposed, to clothe the tatter'd wretch,
Who shrinks beneath the blast, to feed the poor,
Pinched with afflictive want: for use, not state,
Gracefully plain, let each apartment rise.

It is rather a "feather in the cap" of the profession, that Chaucer, the father of English poetry, was also a clerk of works of all the royal palaces, with a salary of two shillings a day; his poetry, therefore, will be found to smack heartily of architecture. His descriptions of castles are always gorgeous:—

For every gate of fine gold,
A thousand fans air turning,
And of a suite were all the towers,
Subtilly caseden after floures;
Each way a small turret pile.

—Chaucer's "Dreme."

Shakespeare, Gray, Bentham, Scott, and all our poets of any note, have all been indebted to architecture for many of their descriptions, and this predilection of theirs fully bears out our respected Professor's assertion that "The art might be termed the epitome of civilization, the first fruit of social order and combination, of every discovery in science, and of every conception in beauty."

II.

The two following epitaphs, one on an architect, the other on a builder, may possibly serve to amuse some portion of your readers. They are singular on account of their quaintness, and may be interesting because they appertain to the "shop."

A SPEAKING STONE.

Reason may chance to blame,
But did it know
Those ashes here doth lie
Which brought the stones
That hide the steeple's shame,
It would affirm
There were no reason why
Stones should not speak
Before their Builder die,
For here John Warren
Sleeps among the dead,
Who with the church
His own life finished.

Anno Domini 1608,
December 17th.

It may be necessary here to remark that this epitaph is in St. Mary's Church, at Cambridge, the tower of which church was not built for more than fifty years after the other part of the church, and which explains the meaning of the line "That hide the steeple's shame."

The following is upon an architect of New-castle: he built the Guildhall and Exchange, and also Gateshead Church, in which churchyard he lies buried.

Here lies Robert Trollope,
Who made you stones roll up;
When death took his soul up,
His body filled this hole up.

J. L. C.

At a recent meeting of the committee charged to superintend the completion of the Cathedral of Cologne, Archbishop de Geisel stated that he had received a letter from the King of Bavaria, announcing that he had directed his representative at the Germanic Diet to present a proposition to the other members, calling on each to engage to pay some certain sum every year until the edifice was completely finished. Should this proposition, as he hoped, be acceded to, the king undertook to contribute 10,000 florins a-year from his privy purse during his lifetime, and he had no doubt that his successor would continue the same contribution.



MARKET CROSS, SOMERTON.

A FEW weeks back, we presented our readers with a view of that bold and somewhat singular structure, the Church of Somerton; we this week bring forward the ancient Market Cross, and a group of companion buildings, with which it is so happily associated. Strange to

say, that in all the itineraries into which we have searched, we can find no account of this interesting relic. Is it that Somersetshire is so rich in those of a superior class as to deny to the antiquary and the archaeologist leisure for a passing review of this? Crosses and

churches of matchless beauty and elegance, we know the country abounds in; in fact it may be termed, if not the "classic land" of English art, that of its congregated excellencies; and we do not think this specimen of the market cross the least worthy of note and illustration.

HISTORICAL MEMORANDA RESPECTING BRICKS AND BRICKLAYING.

BY JAMES WYLLSON, HON. SEC. B.A.A.D.

THE BRICKLAYERS of London are, by a charter granted in 1568, a corporate company, consisting of a master, two wardens, twenty assistants, and seventy-eight livery. Their art is that of erecting (with mortar or cement as a necessary auxiliary) edifices, or minor works of a similar nature, with bricks, which are artificial stones, whose figure is a rectangular parallelepiped of long and flat proportions, uniform in shape and dimensions; their size is regulated in its limits by the duty which has been imposed from time to time by Act of Parliament since the first levy in 1784. The impost at the present time is five shillings for British, and ten shillings for foreign per mille, payable by the maker, on such bricks as do not exceed 10 inches in length, by 5 wide and 3 thick: on other sorts it is 7s. 6d. and 15s. The size mentioned is that of the mould inside, and consequently of the bricks when newly made; that being their condition when they come under the cognizance of the excise officers, whose duty it is to take accurate account of the quantities previous to their being burnt. Their dimensions, after that operation, are about 9 in. by $4\frac{1}{2}$ by $2\frac{1}{2}$, varying a little according to the materials of which they are composed; the magnitude of those manufactured in the neighbourhood of London being generally a fraction less, particularly in the length, the shrinkage being most in the greatest dimension.

On reference to the sacred records, we find that the use of brick has arisen in very primeval times; the city of Babel, the earliest in our ancient history, having been built of it. If, however, we set aside the testimony offered by these writings, the pyramid of unburnt brick, which modern travellers describe as

still existing at Sakhara, and occupying an area of upwards of 30,000 square feet, affords a sufficient mass of evidence in support of its high antiquity. Turning to the favoured cities of Athens and Rome, we trace that even in the Pentelican temples of the former, the application of this homely material to interior work was not rejected; while among the proud remains of the latter, external and even carved works still present themselves; as is also the case to a much greater extent at Pompeii, where the facilities for building in stone were of an inferior order.

The similarity between these ornamental works at Rome, and the fine old Italian specimens of moulded brickwork which are extant in England, naturally suggests the idea that it is to Italy we are indebted for the degree of excellence which it attained in this country; and probably the inference is fair and correct; and it is curious that when we seek the origin of the use of brick, in its more ordinary form, in our island, we are carried back to a period at which no other conclusion seems tenable, than that we owed its first introduction to the same source; for it is in the scattered remains of the Roman boundary walls that our earliest examples are found; and although there is a shade of probability that the inhabitants had, prior to the inroads of that people, something of a rude description bearing an analogy to brickwork, yet its utter absence among the well-scanned remnants of past ages must discountenance any hypothesis that would confer on it aught of a higher character than mere perishable clod-work; such as that in which the peasant of Ireland and mountaineer of Scotland construct their huts and hovels in the present day.

Although so much of the rudiments of art has been transmitted to us from the ancient Egyptians, it is generally thought that there is not evidence to justify the assumption that

their knowledge in this branch extended to the important operation of burning; and the circumstances of those magnificent yet mournful memorials which now tell the tale of their once wondrous greatness, being almost all of granite or other stone, sufficiently accounts for their not excelling in a manufacture for which they had not extreme occasion. If they ever did possess that art, however, certain it is that now there is no vestige of it visible, either in the mighty monuments of the past, or the mean and short-lived fabrics of the present.

The ancient Babylonian and Persian, as well as Roman remains, exhibit both sun-baked and kiln-burnt bricks, the former being in the east, where rain is unfrequent, and they undergo the action of a very powerful solar heat, found to be not only sufficient for general purposes, but even of a ringing hardness; respecting those in Greece, we are uncertain whether they were burnt or merely dried, but the presumption, on considering the nature of its relations, is in favour of the former.

The Babylonian bricks are objects of curiosity and interest, on account of the Chaldean characters which are inscribed on them; those of the burnt description are of good quality, varying in form, size, and colour, some being of long proportions, about a foot in length, and three to four inches thick, others about a foot and a half square and of similar thickness: their hues are similar to the red and yellow, so familiar here; they are usually built with coarse lime or with bitumen, but sometimes only with clay, and the work is bonded together by layers of reeds, which in Babylon are frequently found introduced to every course, but in other parts to about every sixth or eighth; according to Herodotus, the Grecian historian, they were placed to every third course.

The Persian sun-dried bricks of modern times are described as being made of tempered

earth and finely chopped straw, in moulds about 8 inches by 6 by 2½; those of the furnace-baked sort, of two parts earth and one of cinders, well incorporated, and cast in moulds somewhat larger than the above, to provide for about seventy hours' baking.

The Greek bricks, as described by Vitruvius, were of three sorts, called *Pentadoron*, *Tetradoron*, and *Didoron*; the two first were square, and as their names imply, measured, the former five, and the latter four palms on the side; the *Didoron* were oblong, being two palms in breadth, and four in length, that is, a foot by a half a foot; to each of these they made half bricks, which gave them the choice of a greater variety of thicknesses for their walls than they should otherwise have had; the same writer states that the Greeks used the *Pentadoron* for public and the *Tetradoron* for private works; but on the use to which they applied the *Didoron* he is silent, as he also is respecting the thicknesses of their bricks; and it therefore seems reasonable to imagine that as the *Didoron* corresponds with the half *Tetradoron* in length and width, it must have been different in its depth: the bricks made by the ancients generally, were very thin.

The Romans had several sizes of bricks:—Vitruvius mentions, that they had the *Didoron* of the Greeks, and Pliny says, that those chiefly used were a foot and a half long, and a foot broad; while, according to Alberti's observations, they have in some of their buildings, particularly in arch-work, bricks two feet square; besides which he mentions a kind used in pavements and borders that are about 6 inches by 3, and an inch thick, being similar to the Dutch clinkers. *Tavella* are also mentioned by writers and described as being 7×3½; they had also had a sort called *Bipeda*, which were two Roman feet in length; and Quatremere de Quincy describes three sizes that he found among their ancient buildings; the largest 22 inches square by 21 or 22 lines thick; the next 16½ inches square and from 18 to 20 lines thick; and the smallest 7½ inches square by 1½ inch thick. In addition to the quadrangular bricks here enumerated, Alberti directs attention to a right-angled triangular kind, still to be seen in the walls of Rome, more especially in the Aurelian portion, and four of which, he informs us, were made from one brick a foot square, and an inch and a half thick (corresponding in breadth to the *Tetradoron* of the Greeks), by cutting it twice across diagonally before burning; and that the practice being to lay them with the right-angle inwards, the work seemed, externally, to consist of the square bricks from which they were formed; and De Quincy says, that the small bricks above mentioned were halved diagonally, and used in the facing of rubble walls, the work being bonded by courses of the large square bricks at every four feet in height. These three-cornered bricks suggest the idea of building walls with a system of triangular facings and quadrangular fillings (if such is not what Alberti describes), in which the bond would be secured in the usual way by breaking the vertical joints in the face; in Palladio's time, bricks were termed *Quadrrels*, and with regard to their sizes, he says they may be larger or smaller according to the nature of the purpose for which they are intended.

In a description in the *Archæologia*, of one of the most extensive Roman villas discovered in Great Britain, there are, a hearth formed of bricks about 7 inches square; a mosaic pavement, bordered by three rows of black and red tiles, 6 inches square, laid chequer-wise, bounded next the wall by a row of bricks 15½ by 11 inches; and piers of the præfrurnum, 2 feet 9 high and 7½ inches square, consisting of eighteen layers of bricks, with a larger one 10½ square at top and bottom.

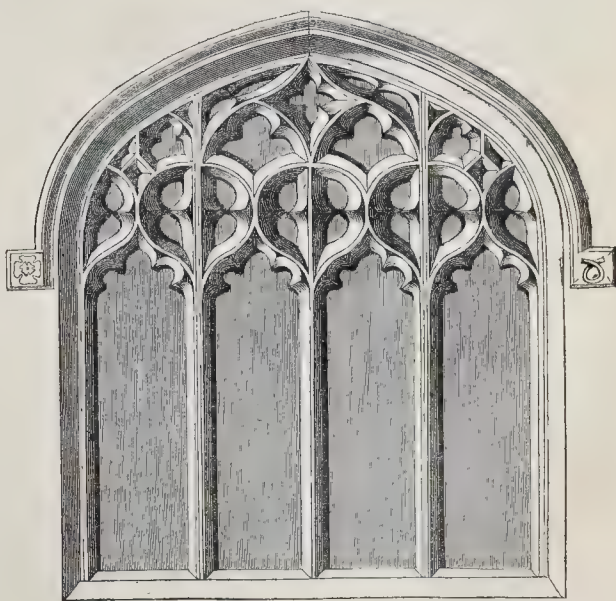
Vitruvius has handed down to us his professional impressions on the subject of brick-making, and which will be found not to differ materially from the principles and practice of our own period. Treating of *unburnt bricks*, he says, that sandy, stony, or gravelly loam, should not be employed, because the straw that is put in the bricks would not combine well; they would be heavy, also very liable to swell, and disintegrate and dissolve on being much wetted; they ought to be made either of a red, a chalky white, or a coarse-grit, sandy earth, as these are pliable and unite well, and being light, are handled with facility in building.

They should not be made in summer, because when dried in the intense heat of that season, they are parched outside, and, apparently, thoroughly dried, while the heart is but imperfectly so; and if used in that condition, their subsequent shrinkage causes unsightly fractures in the incrustation or plastering, as well as serious defects in the walls themselves; they ought, therefore, to be made either in the spring or autumn, when they dry more equally; but, he adds, to insure their being sufficiently seasoned, it is best not to use them before they have been made two years; and, indeed, at Utica, the law permits none to be used within five. This writer informs us that at Pitome in Asia, Calentum in the farther Spain, and also at Marseilles in Gaul, there were bricks made of a pumiceous earth, which would swim if thrown into water, being light and porous in their texture, replete with air, and impervious to wet. Alberti states that the ancients mixed marble with the red earth of which they made their bricks; and it appears that in order they might be burnt the better, they made holes in the larger sorts when moulding them.

On turning our attention to the introduction and progress of the art in this country, we find, as already stated, that the earliest examples are in the ancient Roman walls, in which it appears in the form of arches and bonding to rag and rubble stone-work, courses being laid through, averaging four or five in number, at intervals of about three or four feet in height. The size of these bricks is mentioned by Stowe as being 17½ by 11½ inches, and 1½ in. thick. The Saxons and Normans both practised it (under the name of *Tigel*, whence our word *Tile*), and although it seems that they availed themselves largely of the Roman bricks, yet it also appears that they manufactured them, and in their later remains, even of varied and moulded forms, as in the abbey church at St. Alban's and the Priory of St. Botolph, at Colchester. But it was not until early in the fourteenth century that they were made in England similar to the present or Flemish mode, that is, oblong in form, and thick in proportion compared to the tile-like brick of the ancients; and at that period they were of different sizes, some being 12 by 6 by 3, others 10 by 5 by 2. The name of bricks belongs to the early part of the fifteenth century, at which time their price was about 6s. per thousand; up to this time they were only used after a fashion similar to that of the Romans, combined with flint and rag stone-work, in bonding tiers, piers at intervals in the solid walls, with lozenge interlacings of dark headers

among the black even-dressed flint-work between, such being the general appearance of the castellated buildings of that period; and it was not until three-fourths of the century had gone by that the first houses entirely constructed of brick were erected. In the Tudor times very fanciful yet pleasing forms of moulded-work were introduced pertaining to the style of architecture that arose and reigned during that period; and which, after declining for some time and being superseded by the Romano-Italian style of Inigo Jones, in the outset of the Stuart dynasty, gave way to the forms and details of a more severe and classic school. It is said to have been Sir Richard Crispe, the friend of Charles the Fifth, who conceived the mode of making bricks according to the present practice, and we may date the perfection of the system of combination called English bond to that period. In 1605, a law was passed enjoining that all buildings should thenceforth be of stone or brick, and which was enforced with a fluctuating rigour up to that memorable era in the history of London, when an insatiable element convinced its citizens of the unquestionable expediency of such an enactment. Then the "wooden walls" disappeared, and the geological position of the Great Metropolis denying it the advantages of stone, the use of brick from that time universally obtained.

About the reign of William and Mary, was imported to this country, along with other Dutch fashions, the mode of building distinguished by the name of Flemish Bond, and which soon, and indeed almost ever since, bore the bell, by reason of its plausible exterior. We are now, however, more sensible of its counterbalancing inferiority as a bond, and what with the spreading use of compo, and the fact that the difference between it and the English bond is only discernible at a small distance from the work, together with a germinating disposition to return to the fashions of our forefathers, it is likely to drop into desuetude. Unfortunately, at the same time, it is to be feared, that the practice of stuccoing above alluded to, while it is attended with manifest advantages, in reference to the facilities it offers for architectural design, and its beneficial agency in preserving the walls from the vicissitudes of the weather, will favour a tendency to carelessness on the part of bricklayers, both in regard to materials and workmanship, which the vigilance of the superintendent may not always detect; indeed it is scarcely extravagant to suppose that were the practice to become universal, a regular principle of bond would soon cease to exist.



WINDOW IN SOUTH AISLE, THORNBURY CHURCH, GLOUCESTERSHIRE.

VISIT OF THE QUEEN TO THE NEW HOUSES OF PARLIAMENT.

On Saturday, July 29th, at half-past one o'clock, the Queen, Prince Albert, and a select suite, arrived in New Palace-yard, in two plain carriages, for the purpose of visiting the new Houses of Parliament, and which are now in a state of rapid progression. The royal party were joined at the gate of the works by their Royal Highnesses the Prince and Princess Augusta of Saxo Coburg Gotha, and his Serene Highness Prince Leopold, who had but just left the exhibition of cartoons. No preparations had been made to receive the royal visitors, although they were expected. On Friday his Royal Highness Prince Albert honoured Mr. Barry, the architect, with an interview, and informed that gentleman of her Majesty's intention, but at the same time begged it to be distinctly understood that, as the visit would be private, the labour of the workmen should not be suspended, or in any way interfered with, and these instructions were implicitly obeyed. The Queen and her suite were received in the Speaker's court by Mr. Barry, the architect, and Mr. Grissell, who with his partner, Mr. Peto, are the contractors. The royal party were first conducted through the Speaker's court to the river terrace. The splendid view that this noble terrace affords was not lost to the royal party; her Majesty especially remarked upon it. The Queen's attention was next directed by Mr. Barry to the river frontage, the whole of which is so rich in architectural embellishments. Her Majesty, as indeed did the entire party, greatly admired the heraldic sculpture. From the terrace the Queen, Prince, and suite were conducted to the sculpture and model rooms. Here there were many objects that occupied her Majesty's attention. A model of the new House of Lords was shown to her Majesty, with which she was so much pleased that the royal wish was expressed that duplicates of the ornamental parts might be taken in plaster and forwarded to the palace. The Queen also inspected the various descriptions of stone of which the new houses are built. The royal party proceeded from the sculpture and model rooms to the south and north wings, where the statues of the Saxon kings and queens, in niches, occupied the royal attention for a considerable time. From the south wing the Queen and suite were escorted to the Victoria Tower, and thence through the cloisters and crypt of St. Stephen's to the present House of Commons, and the exceedingly plain appearance of the interior caused her Majesty to remark that it was wholly unbecoming the high purposes to which it was appropriated. The House of Lords was next visited; and then Dr. Reid's Experimental Room. Dr. Reid was in attendance, and minutely explained to the Queen and suite the process proposed to be adopted in the ventilation and warming of the new Houses of Parliament. The Queen, previous to leaving the works, was pleased to express her high approbation of the present appearance of the new Houses of Parliament, and acknowledged in flattering terms the attentions of Mr. Barry, and Mr. Grissell, the contractor. This was the Queen's first visit to the house, and it occupied about an hour and a half. Her Majesty appeared in excellent health.

Literature.

Tales of the Colonies; or, the Adventures of an Emigrant. Edited by a late COLONIAL MAGISTRATE. In three volumes. London: Saunders and Otley, 1843.

This work has the merit, now, indeed, unusual, of novelty; novelty in matter, novelty in treatment. Of all the countries which the British merchant visits, the adventurer has explored, there are none concerning which it is so difficult to obtain faithworthy information, from books or from men, as the two penal colonies of Australia. Like the convicts, to whose enforced labour they owe so much, these settlements appear to be transported beyond the care or curiosity of civilized communities. Neither French travellers, who regard the antipodes as the legitimate heritage of France, without, however, troubling themselves to make out the title; nor German tourists, who love to expend labour and enquiry on any thing which the rest of the world may concur in neglecting; nor Russian emissaries, whose impertinence is as surprising as their ubiquity, condescend to trouble themselves with the social condition of a people destined, peradventure, one day to assure peace to the world by countervailing the inordinate power of the American Union. That the theme would not have proved barren there is in the work before us ample proof. It

describes, indeed, the adventures of an agricultural settler only, and this at a period that in relation to the growth of a new country must be considered remote; nevertheless, it is the most interesting and most instructive work in its class that has appeared since Mr. Catlin first startled thinking men with an account of all that remains—we should, unfortunately, say remained—of the red man in North America. Not, unlike the work of Mr. Catlin is it in other respects; in the nervous simplicity of style, and the internal evidence which it leaves of its own usefulness.

The book professes to set forth the recollections of a man who left England, where he had been a sort of half-farmer near London, soon after the termination of the late war, and proceeded to Van Diemen's Land in hope of bettering his fortune. It details the adventures which might have befallen any one so circumstanced, from the time when he set out to look for land which he might reclaim, down to the commencement of a period which, it is evident to the reader, must end in prosperity. Herein we read of settlers, convicts, aboriginal savages, and those far worse than savages, the bushrangers, for with each class does the emigrant come in contact; of climate and soil, of pasture, wood and river, and of the living things, ministering unto man, with which they abound. On these subjects, however, it is not our purpose to dwell; there is a chapter in the form of a letter to a friend in England, who is supposed to ask counsel respecting the prudence of emigrating, that has far greater practical value. From this chapter we lay some extracts before the reader.

REASONS FOR EMIGRATING.

"As to your inquiries about the prudence of emigration, and of bringing your family to this colony, I will reply to them as well as I can, and at least you may be certain that I would not wilfully mislead you. But I may, perhaps, be imbued with the feeling which one acquires in this place, and I suppose it is the same in all colonies; I mean, the desire which one conceives of inducing others to come out. This feeling, I think, is often prompted by the consideration that all new-comers help to keep up the price of stock and to increase the value of land; for the more inhabitants there are in a country, the more valuable stock and land must necessarily become. I don't know how far such a feeling may possess me in writing to you this letter; but I trust that I am actuated by a better motive; by the sincere desire of preventing you from gradually eating up your remaining capital in England, and of assisting you to realise an independence in this part of the globe for yourself and your family. Mind, I do not advise any one to quit an established country, in which all the arts of civilization and refinement are in full operation, and to change an old country for a new one, if his means will allow him to remain on the soil where he was born, with a fair prospect of settling his children well in life; for that is the main point after all. It seems to me that, voluntarily to remove to a new colony is like putting yourself back in the age of the world for some hundreds of years, by relinquishing the point of civilization and progress reached by the old country. I regard emigration merely as a question of necessity; and taking for granted that such a necessity has arisen in your case, according to the expressions in your letter, I will give you my reasons for advising you not to waste your time and money by useless delay. The great inducement for your leaving England for this colony is the certainty of gaining an independence here for your family, which it seems is a very uncertain matter at home. Perfect ease is out of the question in this, as well as in every other country; but a country life may be passed here very pleasantly, and every day society is getting better. You can easily imagine that there cannot be a very numerous society in a country where, of necessity, settlers must live widely apart, in order to have room for the breed of the sheep and cattle; but the colonists here are of a good class, and as they are all of an active and adventurous turn of mind—as their coming here proves—they are always pleasant companions, full of thoughts and inventions, to which their position incessantly incites them."

BREEDING OF SHEEP.

"I don't think a tillage farm the best pursuit to engage in if you have capital enough to buy stock. Sheep and cattle increase of themselves with little trouble and with little expense; and, as the land they graze over costs nothing to bring into pasture, the profits are proportionably great. I grow as much wheat as I want for my own use, and I sell the rest to those round about, to new settlers and others who do not grow wheat, or not enough for their own consumption. But cattle and sheep are the best things to invest your money in; both very

profitable, but I think sheep the best of the two, because they are the easiest to manage, and their wool is sure to be a valuable and saleable commodity, in the event of the increase of the flocks and herds on the island causing meat to be too cheap to make it worth while to breed them for the carcase.

"I have made a calculation of the probable increase of a flock of five hundred ewes, which may be useful to you and perhaps to others who may think of emigrating to these colonies; but you must observe that this calculation of increase is made on the supposition that the sheep are allowed to increase; for if the emigrant is obliged to eat his breeding stock, the result would be, of course, very different. In order to arrive at the largest possible increase, it is necessary that the emigrant should possess sufficient capital to support himself in the interim; for if he eats his flocks, he will be in the same condition as the farmer who is obliged to eat his seed-wheat; he can have no crop; and every ewe, and, indeed, by every weather that the grazier eats he destroys the compound-interest profit which would otherwise accrue to him—for he might exchange his wether for a breeding ewe—from the increase in a geometrical ratio of the breeding animal. The sheep-farmer ought to be a sort of stoic for some years: he must be content to live in a humble cottage instead of a large house; and he must eat and drink frugally; carefully avoiding the seductive expenses of the town, and the many temptations to lead him from his grand object. I must confess that I have never seen such a resolution completely carried out; but my calculation of the possible increase of sheep is beyond a question an accurate statement of what might be done by any one determined to do it.

"As to diseases of sheep, we have no such things here; of course, if the sheep are neglected to be sheared at the proper season, their coats will hang about them in rags, presenting a very unseemly appearance, and they will shew the usual symptoms of disease; but a little tobacco quickly sets them to rights; and with ordinary care there is no fear of losing a single sheep from disease in a dozen years. Among the great advantages attendant on the breeding of sheep is this freedom of disease. They are not touched by the fly; they never have the foot-rot; and are not affected with the scab, so common in England, except from neglect. No extra care is requisite in the lambing season; and every ewe is certain to produce three lambs in two years; and their wool is always a saleable article either here or in England."

There follow several pages filled with calculations as to the increase and produce of a flock of five hundred ewes in six years and a half. The result is thus stated:—

"At the end of the six and a half years' course, therefore, the account will stand thus:

OUTLAY.

" 500 ewes	£ 500
Expense of shepherds	2,360
Their incidental expenses	700
Merino rams	1,800
	£5,360

RECEIPTS.

" Sales of wool, clear of all expenses £ 5,730	
17,000 sheep, at 20s. per head	17,000
	£22,730

"With respect to my valuation of the 17,000 sheep, at 20s. per head, at the end of six and a half years, I may as well take that estimate as any other, for if, on the one hand, their value may be less from the increase of flocks on the island, on the other hand, their value may be greater from the increased influx of emigrants to these colonies, and very likely to new colonies on the western coast of the continental island, who will buy sheep from this colony. But supposing the emigrant were to disregard the increase of his flocks beyond the 17,000 which I have enumerated; supposing he were to kill his lambs as soon as they were born, he would still have the wool of 17,000 sheep to depend on, producing at least 5,000*l.* a year.

"These prospects appear very flattering, but the calculations are strictly correct. I am shewing what may be done with sufficient capital, and that capital not much; such a capital, indeed, as would not be sufficient to enable a man to enter into any extensive operations in farming or in merchandizing in the old country. The reason of these great advantages to be derived from sheep-farming in these colonies is obvious enough. You have the land for nothing; there is no house rent; no taxes; no rates; no pens wanted for the sheep, summer or winter the genial nature of the climate allowing them to lie out in the open air during the whole year; there is no artificial food necessary for winter keep; the sheep are subject to no diseases, and any ordinary person, whether used to sheep and

NEW METHOD OF CONSTRUCTING WHARF WALLS WITHOUT THE AID OF COFFRE DAMS.

farming or not, makes a passable shepherd in Van Diemen's Land. I might say something here on the importance of the Home Government encouraging, by all possible means, the establishment of extensive sheep farms in these colonies, inasmuch as every pound of wool exported from this colony gives rise to an equivalent value of manufacture at home; for we are British to the back-bone in our tastes, our habits, and our allegiance, and are desirous of remaining so as long as you will let us, and not play tricks with us, as you did with the American colonies, which you have lost."

The writer gives a long and very comprehensive list of the articles which a settler should take out with him. It is too long for insertion; the remarks, however, that follow it are worthy of attention.

"I don't pretend to give you an exact list of all the articles that it would be proper or advantageous for you to bring out with you; that must depend on your means and your particular views; but the articles which I have mentioned will give you a general idea of what is wanted, and will serve to suggest other things. For instance, if your means are sufficient to place you during the first year in a position, which other emigrants of less capital cannot attain for several or for many years; if you have capital to spare to build a good house at once, instead of waiting for some years before you can compass that desirable object, then, in such case, bring out with you all the furniture—the chairs, and tables, and sofas, and curtains, of a commodious and well-furnished house. By the bye, do not neglect to bring a couple of commodious tents, which you may pick up cheap in London second-hand. You may live delightfully in a tent for at least six months of the year; but take care they are double tents, to defend you from the rain. I read in the London newspapers of various projects of frame-houses; but I do not advise you to think of that expedient. The best house to build is a log house for a temporary habitation, and a stone house for a permanent one. Having said thus much about your preparations for emigrating, I will give you a little advice as to your passage on board ship; but first I must say a word about servants. Don't think of bringing out any servant either for domestic or for field purposes, in the expectation that they will remain with you—unless you give them the same high wages which are obtained by good free servants in the colony. Some have brought out ploughmen and sawyers, blacksmiths and carpenters, in the hope of making a sort of profit by their labour, at the low rate of English wages, to compensate for the speculation of bringing them out; and to ensure their services they have bound them to their service by regular legal indentures. But what has been almost invariably the result? As soon as they have arrived in the colony, and have ascertained the rate of wages, so far above the rate for which they bound themselves, they have become discontented, and have refused to work. I remember in one case at which I was present, when the master brought an indentured servant before a bench of magistrates for breach of his covenant, the refractory servant was committed to prison for a month, for refusing to work. But how did that help his master? Pating the man in prison was all very well as a vindication of the law, but of what use was the imprisonment to the master, or to anybody else? The man would not work a bit the more for it; and as to the example, it was totally useless in preventing other such servants from being affected by the same discontent—a discontent, I should say, almost unavoidable under the circumstances. As to female servants, they are so much in request, that if they are at all marriageable, you must not expect to keep them long, and if they are pretty or young, they are snapped up in a moment. The best thing you can do is to select some old crone, not past work, who is very ugly, and even then you must not count on keeping her for certain; or else bring out a married couple on whom you can depend, and make it worth their while to stay with you, and look after your property."

This work, unfortunately, does not contain any information touching the condition of the artisan in the colony, or the probable change of fortune to which an emigrant craftsman may look forward. We trust that ere long some work will appear that will enlighten us on that most interesting subject. It is, however, worthy of all confidence in matters that relate to emigration with a view to agriculture, and this no matter to which of the Australian settlements the emigrant may desire to proceed. Indeed, so rapidly has society been developed in the more ancient dependencies,—it is more true of Adelaide and Leschenhault, than of Sydney and Van Diemen's Land. Whether it be taken up for purposes of amusement or instruction, it will be found valuable by those who shall peruse it.

TO THE EDITOR.

SIR,—I have read with much satisfaction your observations on the Iron trade, and in furtherance, send you a suggestion for promoting relief.

The City have laid down lines for embanking the Thames, the subjoined sketch admits of the most economical, and at the same time most permanent means of effecting the same. To afford prompt relief, many thousand tons might be prepared,

(although not required for years) as it would undergo little or no depreciation.

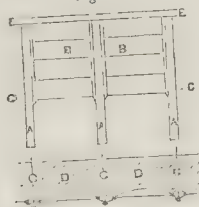
Your obedient servant,

ROBERT SIBLEY.

39, Great Ormond Street,
24th July, 1843.

P.S. Your language is better fitted for public perusal, or I would have enlarged on the subject.

Fig. 1.



For Shallow Water.

REFERENCE.

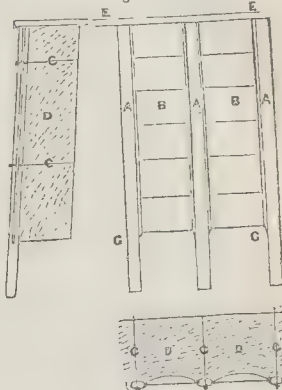
- A. A. Cast iron piles.
- B. B. Cast iron plates.
- C. C. Wrought iron ties.
- D. D. Concrete.
- E. E. Granite Cap stone.
- G. G. Ground line.

Fig. 1. Piles and plates 1 in. metal.
Fig. 2. Piles and plates 1½ in. metal.

1st Example.—Island Lead Works, Limehouse.

2nd Example.—Fenning's Wharf, London Bridge.

Fig. 2.



For Deep Water.

THE CURVES OF FANCY EQUATED.
TO THE EDITOR.

SIR,—For some time past I have been engaged in no less a task than the formation of a new science, to which I have given a plain English name, "The curves of fancy equated." To invent a new science and christen it without the sanction or assistance of any learned society, may be considered rather presumptuous in me. However, as these learned bodies seldom or never undertake such tasks, I cannot any how be considered an intruder. I never heard of a learned society christening a curve, except the British Association for the Advancement of Science. I witnessed the ceremony, but did not stand as sponsor; that honour devolved upon some of the leading paid members of the society.

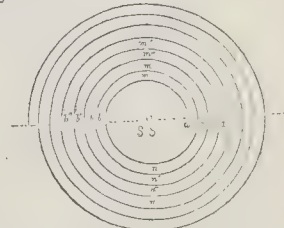
The design of this new science is to give equations to curves formed, or rather sketched, by fancy. Formerly, we could trace curves, find their lengths, areas enclosed, singular points, orders of contact, &c., from their equations, or determine the equations of certain curves or surfaces formed by known laws or under given restrictions. What we have just named may, at first sight, appear to involve that which we have termed "The curves of fancy equated," from a little reflection, the difference will readily be seen: for example, suppose we sketch, or roughly form, a trace like that in the margin, and require an equation that will represent such a curve either partially or generally. This is the object of "The curves of fancy equated," which I think will readily be admitted to be entirely new. It may be necessary to note, as I intend to publish this subject piecemeal, I expect a few jumpers-up-behind, whom I shall leave to be chastised by your editorial whip.

In the course of my investigations, I was obliged to have recourse to approximate forms in the first instance; these were chiefly composed of segments of circles approaching those of curvature at particular points. From the simplicity of their construction, many of them may be of use to the ornamental builder; I therefore send this portion of my labours for insertion in your valuable paper, which has filled up that which might not be improperly termed a chasm in our world of periodical publications.

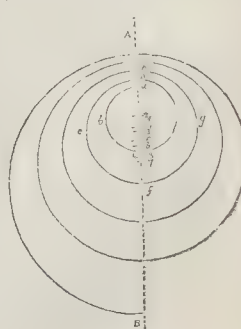
It may be necessary to add for the information of those not much skilled in the investigation of curves and their properties, that approximate forms composed of circular arcs do not exactly correspond, except at certain points, with the true curves which they represent; in fact, the smallest portion of one curve cannot be said to form part of another, how-

ever closely they may appear to coincide, except they be identically equal.—I am, Sir, your obedient servant,
OLIVER BYRNE, Mathematician,
Author of "The Doctrine of Proportion," &c.

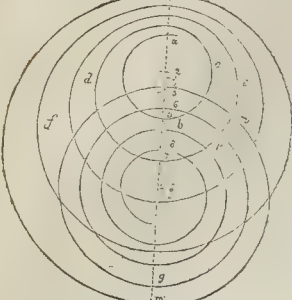
PROBLEM I.—From two centres to describe a spiral.—Join ss , and produce it both ways. With s as a centre, describe the semicircle amb , then with any other point a , describe the semicircle bna ; again, with s as centre, describe the semicircle ana' ; with a again as centre, describe the semicircle $b'na'$, and so on by alternately changing the centres s, a , the spiral $ambna'nb'na'$, &c. may be traced.



PROBLEM II.—To describe a spiral of eccentric appearance.—Draw the line AB . With the point marked 1, as centre, describe semicircle abc ; then with 2, as centre, describe semicircle cde ; with 3, as centre, describe semicircle def ; with 4, as centre, describe fgh ; and so on with 5, 6, 7, and as centres the spiral $abcdefgh$, &c. may be described with any amount of eccentric appearance required.



PROBLEM III.—To describe a compound spiral.
 —The compound spiral described in figure, Problem III., is constructed by Problems I. & II. The part *a b c d e*, &c., till we arrive at *m*, is made by Problem II.; the part *m n q p*, &c., is made by Problem I. By judicious combinations of Problems I. and II., many curious spirals may be formed.



THE CARTOONS.

TO THE EDITOR.

SIR,—I read with the greatest pleasure, in your last number, the very judicious article devoted to the cartoons; and most truly do I sympathize with the liberal views therein expressed, especially with regard to the earnest appeal in favour of the gratuitous admission of the poorer classes within the sanctuary of the fine arts; and if I venture to address you the following remarks, it is less for the sake of offering any opinion on the present exhibition, than in hopes that a few general reflections on the subject may give a hint in time to the ruling powers, against the opening of a similar exhibition next June, according to the prospectus given in your journal. Now, I certainly viewed with interest, and, for the most part, with real gratification, the exhibition of the cartoons at Westminster-hall. Myself an enthusiastic admirer of the fine arts, nobody can appreciate more than I do the noble impulse which the British government has thus given to the worship of artistic genius—that second Rome with the scanty pittance of bread which saves her degenerate sons from famine and misery. But I could have wished that the competition which England has opened to the modern Michael Angelos, had been conducted with a greater spirit of impartiality; and that above all a committee should not have taken upon themselves, contrary to all precedents amongst other nations, to award the prizes before a public exhibition had taken place. To the public alone belonged the right of pointing out to the committee the candidates for its favour, through the medium of the press—its only efficient organ. What earthly interest can we—poor despised public—take in an exhibition where our judgment is not solicited, but where we are merely called upon to approve a ready-made decision, in which we have had no voice? In the name of common sense, is this a proper manner of conducting such a competition in a free nation, and one who is desirous of throwing off those prejudices which foreigners justly censure? Reason answers loudly: No!

It would be foreign to my purpose to enter into a critical examination of the designs that have won the prizes. Several of the works thus distinguished are possessed of real merit, as, for instance (No. 64) Caesar's First Invasion of Britain, by Mr. Edward Armitage, which is a noble effort in the historical line, while others, on the contrary, such as the lifeless St. Augustine of Mr. Horsley (No. 100), or Eleanor, saving the life of her husband by sucking the poison from the wound in his arm, by Mr. Severn, (No. 111), are any thing but satisfactory; in this last-mentioned cartoon in particular, there are un pardonable defects in the drawing—the attitude of Eleanor being scarcely even intelligible, and Edward's head being lamentably out of proportion with the rest of his body, &c. &c.

Besides, is it not an act of heinous injustice to exhibit on the topmost row, and in a bad light, those works which would require a nearer view to be exhibited? Three cartoons in particular suggested these reflections. (No. 112) Thomas à Becket, Archbishop of Canterbury, forbidding sentence to be read against him; (No. 21) Margaret of Anjou and her Son robbed by a party of bandits, and (No. 42) Eve looking at her own image in a stream. This last composition, really worthy of Milton's "Paradise Lost," is entirely a dead letter as far as the public is concerned. By the help of a powerful opera glass alone were we enabled to catch a glimpse of the finish and delicacy of the design, which might

have been visible to the naked eye were it not for the invidious height at which it is placed.

To obviate these evils, Mr. Editor, why should we not at once adopt the plan pursued on the Continent with regard to the paintings of each year's exhibition? Namely, about the middle of the time that the exhibition lasts, the gallery is closed for a few days, and the pictures undergo a complete change of places. Some are brought into the broad glare of daylight, while others which had been highly favoured in the first instance, are in turn thrust into some dark corner, to stand by their own merits as best they may. Public opinion thus forcibly becomes founded at least on justice, and I have not the slightest doubt that, were such a plan pursued at Westminster-hall, very many of the designs hitherto disregarded would rise in public favour in proportion as others would inevitably sink. It appears to me that this would be but an act of justice which ought to be claimed from the "powers that be," not only for the sake of the exhibition, but for the honour of the country who, by setting the example of such a competition, has *ipso facto* shown itself deserving of the whitest of whitest marks in the history of the regeneration of the fine arts.

I remain, Sir, one of your constant readers,
 A NON-CANDIDATE.
 7th August.

Legislation.

A Bill (as amended by the Committee) to amend the Acts for carrying on Public Works in Ireland.—[N.B.—The Clause marked (A) was added by the Committee.]—The preamble recites "An act for the extension and promotion of public works in Ireland," 1 & 2 Will. 4, c. 33, and the several acts 6 & 7 Will. 4, c. 108; 1 Vict. c. 21; 1 & 2 Vict. c. 88; 2 & 3 Vict. c. 50, which amend and extend the same; that great benefits have been derived from loans under these several acts:

That it is expedient that such loans, together with the several powers of the Commissioners of Public Works in Ireland, should be continued:

That it is expedient to discontinue all further issues of exchequer bills made out under the first-recited act, or any of the acts amending the same, and to put an end to all operations with regard to such exchequer bills required by the said act, except such as may be necessary for paying off the outstanding bills, and for applying the repayments on account of loans made with such exchequer bills to make good the sums issued from the consolidated fund to pay the interest and principal on those bills:

That it is expedient to make advances of money out of the consolidated fund for the purposes of loans toward public works in Ireland, instead of the issues of exchequer bills hitherto adopted, which are found inconvenient:

And that the sums annually receivable, in repayment of existing loans heretofore made by the Commissioners of Public Works in Ireland, amount, and will amount for some years to come, to a sum which would be sufficient to furnish to a considerable extent means for making the requisite advances.

Section 1 enacts, That from and after such period as may be in that behalf determined upon by the Commissioners of her Majesty's Treasury, all further issues of exchequer bills under the said first-recited act, or any of the acts amending the same, shall be discontinued; and as soon as notice of such determination shall have been given to the commissioners appointed or to be appointed for the execution of the said first-recited act, they shall cause the same to be published in the *Dublin Gazette*, but this notice shall not be construed to be a notice within the provisions of the first-recited act for terminating the powers of the commissioners appointed or to be appointed for the execution thereof; and, notwithstanding the discontinuance of further issues of exchequer bills, the said Commissioners of her Majesty's Treasury shall have all the powers by any of the said acts given for the purpose of paying off the interest and principal due on such exchequer bills.

Section 2 enacts, That as soon as such notice shall have been given to the said Commissioners of Public Works, they, or some person employed by them for that purpose, shall wind up and close the accounts of all outstanding loans or advances, under the authority of any of the said acts, up to the day on which such discontinuance of exchequer bills may take place.

Section 3 enacts, That all repayments shall be carried to the account of the consolidated fund.

Section 4 enacts, That the Commissioners of Public Works for the time being under the said first-recited act shall be commissioners for the execution of this act.

Section 5 enacts, that the said Commissioners of her Majesty's Treasury, by warrant under the hands of any three or more of them, may direct from time to time that out of the sum, not exceeding three

hundred and sixty thousand pounds per annum, which by 5 & 6 Vict. c. 9, they are authorized to charge on the consolidated fund of the United Kingdom of Great Britain and Ireland, and which they are authorized to direct to be paid to the account of the Commissioners for the Reduction of the National Debt during the term of five years next ensuing the fifth day of April one thousand eight hundred and forty-two, by quarterly instalments or issues, not exceeding ninety thousand pounds per quarter, as aforesaid, there shall issue and be paid unto the said Commissioners for the Reduction of the National Debt during the remainder of the said term of five years, a sum not exceeding fifteen thousand pounds per quarter, to be at the disposal of the said Commissioners of Public Works, as hereinafter mentioned, such quarterly instalments or issues to become due on the fifth day of January, the fifth day of April, the fifth day of July, and the tenth day of October in each year, the first instalment thereof to become due and payable on the first of the said quarterly days of payment which shall happen next after the passing of this act.

Section 6 enacts, That for the purpose of receiving the said quarterly instalments, the said Commissioners for the Reduction of the National Debt shall cause a separate account to be opened with them at the Bank of England.

Section 7 enacts, That it shall be lawful for the said Commissioners of Public Works to receive application for any loan or loans, and, with the approval of the Commissioners of her Majesty's Treasury, to make such loans upon such and the like securities, and for such and the like purposes, and upon such and the like terms, as are specified by the said recited acts for the extension and promotion of public works in Ireland, or any of them, or as may be authorized by the Commissioners of her Majesty's Treasury.

Section 8 enacts, That when the said Commissioners of her Majesty's Treasury shall have sanctioned any loan under this act, or any of the above recited acts, and the said Commissioners of Public Works shall have ascertained that any sum of money is required to be issued on account of such loan, they shall forthwith certify the amount of such issue to the Commissioners for the Reduction of the National Debt for the time being; and in every such certificate, the loan in part of which such issue is required, and the party or parties to whom such issue is intended to be made, shall be stated; and upon every such certificate being produced to the Officer of the said Commissioners for the Reduction of the National Debt, the Comptroller-general, or Assistant Comptroller, or chief clerk acting under the last-named commissioners, shall upon the back of such certificate indorse and sign an order for payment of the sum mentioned in such certificate to the Governor and Company of the Bank of England, to be by them placed to the account of the Governor and Company of the Bank of Ireland, for the separate account and credit of the Paymaster of Civil Services in Ireland, on account of the Public Works Loan Fund for Ireland, to be by him paid over on the warrants of the said Commissioners of Public Works: Provided always, That approval of such issue by the Commissioners of her Majesty's Treasury shall appear on such certificate, under the hand of one of their secretaries, and that the amount of such issue shall not exceed the sum for the time being standing in the names of the said Commissioners for the Reduction of the National Debt, subject to the disposal of the said Commissioners of Public Works.

Section 9 provides the mode of making transfer. Section 10 directs the Commissioners for the Reduction of National Debt to furnish annual account of fund for audit.

Section 11 directs the Governor and Company of the Bank of Ireland to open an account with the Paymaster of the Civil Services of Ireland, under the title of "the Paymaster of the Civil Services, on account of the repayment of loans for public works;" and monies which shall from time to time be repaid in respect of loans made under this act, or in respect of the interest thereof, shall be carried to the credit of this account.

Section 12 directs that the receipt of Paymaster, on being duly entered, shall be a proper discharge.

Section 13 orders all sums paid into the bank of Ireland to the account of the Paymaster of the Civil Services, to be carried to and made part of the consolidated fund.

Section 14 enacts, That all the enactments contained in the said recited acts relating to public works in Ireland, or any of them, in relation to any advances of exchequer bills, or money made or to be made under the said recited acts, or any of them, or for the recovery or repayment of such advances shall, except as is herein otherwise provided, extend to all loans of money to be made under the authority of this act, and to all things done or directed to be done by the said Commissioners of Her Majesty's Treasury, or the said Commissioners of Public Works, or their Secretary for the time being,

or any other persons or bodies corporate under the authority of the said recited acts or this act, or any of them, and the recovery and repayment of such loans, in such or the like manner as if they had been particularly and severally re-enacted in the body of this act, except so far only as the same is amended or altered by any of the said acts or by this act.

Section 15 enacts, That in case the said Commissioners of Public Works shall, under the authority of any of the said recited acts or this act, make any sale or other absolute disposition of any public works, interest, property or effects comprised in any mortgage, assignment or other charge already executed or hereafter to be executed under the provisions of any of the said recited acts or this act, it shall be lawful for them, with the consent of the Commissioners of Her Majesty's Treasury, out of the clear monies thereby produced, after payment of the expenses of preparing for and making such sale or other disposition, so far as such clear monies will extend, to deduct and retain all the principal monies for the time being remaining due or secured upon such mortgage, assignment or charge, notwithstanding the whole of such principal money, or any instalment thereof, may not, according to the terms of such mortgage, assignment or charge, have become actually due and payable, together with all interest (if any) for the time being accrued due on such principal monies.

Section 16, Clause (A.), contains powers for re-collecting loans to Trustees of Turnpike Roads extended to loans under 45 Geo. 3, c. 43.

Section 17 recites 1 and 2 Vict. c. 83, which makes it lawful for the Commissioners of Her Majesty's Treasury to appropriate out of the sum of five hundred thousand pounds in exchequer bills, authorized to be advanced under the authority of the said act, any sum or sums in exchequer bills, not exceeding fifty thousand pounds in the whole, for the promotion and extension of public works in Ireland, to be applied by the commissioners appointed under the authority of the said first-recited act; and 2 and 3 Vict. c. 50, whereby, after reciting that the said sum or sums so authorized by 1 and 2 Vict. c. 83, to be appropriated for the promotion and extension of public works in Ireland should be made applicable to the purposes of the acts therein mentioned, it is enacted, that in case any such appropriation should be or have been made, it should be lawful to apply the exchequer bills so appropriated to the purposes of all or any of the acts therein recited, and to make advances thereout accordingly, either by way of loan or by way of grant, or partly by way of loan and partly by way of grant, pursuant to the provisions of the acts therein recited and the said act respectively. That it was deemed expedient by the Commissioners of Her Majesty's Treasury, and was intended that one-half of the said sum of fifty thousand pounds should be applied in loans, and one-half in grants; but nevertheless, the sum of forty-six thousand pounds, part thereof, has been inadvertently issued in the way of loans, and only the remaining four thousand pounds in the way of grants. That it is expedient that the sum of twenty-one thousand pounds should be repaid to the fund to be issued in the way of grant; and enacts, That it shall be lawful for the Commissioners of Her Majesty's Treasury to order that, out of such monies as at or after the passing of this act may be in the exchequer, or as may be hereafter paid into the Bank of England to the credit of Her Majesty's Exchequer in repayment of loans made for public works in Ireland, any sum or sums of money, not exceeding the sum of twenty-one thousand pounds, may be set apart and appropriated for grants by the said Commissioners of Public Works, with the approval of the said Commissioners of Her Majesty's Treasury, in such and the same manner as the said sum of twenty-one thousand pounds might have been used and applied for grants if the same had not been inadvertently applied for the purposes of loans.

Section 18 is the construction clause.

Scientific and Literary Societies' Exemption from Rates Act (passed) c. 36.—This act enacts, that after the first of October, 1843, no person or persons shall be assessed or rated, or liable to be assessed or rated, or liable to pay to any county, borough, parochial, or other local rates or cesses, in respect of any land, houses, or buildings, or parts of houses, or buildings, belonging to any society instituted for purposes of science, literature, or the fine arts exclusively, either as tenant or as owner, and occupied by it, for the transaction of its business, and for carrying into effect its purposes, provided that such society shall be supported wholly or in part by annual voluntary contributions, and shall not, and by its laws may not, make any dividend, gift, division, or bonus in money unto or between its members, and provided also, that such society shall obtain the certificate of the barrister-at-law or lord advocate as hereinafter mentioned. Scientific societies, &c., before taking benefit of this act are to

cause three copies of their rules of management to be submitted to the barrister or person appointed to certify the rules of friendly societies, or lord advocate in Scotland, who shall certify them if entitled. One certified copy to be returned to the society; one to be retained by the barrister; and the other transmitted to the clerk of the peace of confirmation at the session, and to be there deposited. When rules of any society are altered so as to affect or relate to the property or constitution of such society, the alterations are to be so certified within one calendar month after the alteration, and to be filed at the sessions as aforesaid, and society to be entitled meantime to benefit of act as if no such alteration had been made; but where barrister refuses to certify, society not to have benefit of the act from the time that such rules shall have come into operation. Fee to barrister not to exceed one guinea, either for certifying rules or alterations; the fee, with the expense of transmitting the rules to the barrister, to be borne by the society. If barrister refuse to certify rules, quarter sessions, &c. may order them to be filed notwithstanding. Persons assessed to rates from which any such society shall be exempted by this act may appeal to the quarter sessions, &c. on giving the notice prescribed by the act, and the court may adjudge the appeal with costs to the successful party.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1478).—Windows—House—Due Assessment—What is.

A party appearing in 1840 to have twenty-two windows is liable to be charged for the same, although he had been assessed for eighteen only since 1834, by error of the surveyor: nor is he entitled to open windows free of duty, not having been so duly assessed in 1834. (48 Geo. 3, c. 55, sch. (A.) and 4 & 5 Will. 4, c. 54, s. 7.)

At a meeting of the commissioners acting in execution of the several acts relating to land and assessed taxes, held at the court-house, Marylebone-lane, on Tuesday, the 1st day of September, 1840, and by adjournment at the same place, on Tuesday, the 1st day of December, 1840; Mr. Samuel Belton, of Bryanston-street, in the said division, appealed against the assessment upon him for 1840, for twenty-two windows in his house, No. 21, Bryanston-street, being an increase from eighteen windows which were charged in the previous year. (48 Geo. 3, c. 55, sch. A.)

The appellant did not adduce any evidence to shew that there were not twenty-two windows in his house; but his son, Richard Belton, who attended in consequence of his father's illness, stated upon oath that one of the windows had been made and opened since 1834, and claimed on behalf of his father to be exempted from such one window, under the act of 4 & 5 Will. 4, c. 54, s. 7.

It appeared from the assessment for the year ending on the 5th day of April, 1835, which was produced, that the appellant was therein assessed in respect of his said dwelling-house for eighteen windows, such assessment having been made out, signed, and sworn to by the assessors duly appointed, examined by the crown surveyor, and signed, sealed, and allowed by the commissioners.

The superintending surveyor objected to the appellant being relieved from duty for the window in question, contending that as it appeared he was charged for only eighteen windows in 1834, and as he had now twenty-two windows, of which only one was stated to have been opened since 1834, he could not therefore have been duly assessed for the year ending 5th April, 1835, so as to entitle him to make or open any additional window free of duty under the meaning of the act above referred to.

The commissioners considering that even if there were twenty-one windows in the house in 1834, the appellant was not in any way instrumental in making the assessment upon himself, since no return of the number of windows is called for from the parties chargeable with the duty thereon; and being of opinion (as the assessment had been made upon him in 1834, in the proper and legal mode pointed out by the acts of parliament relative to assessed taxes) that he was duly assessed within the intention of the act before-mentioned, so as to entitle him to make and open any additional window free of duty, relieved him for one window, reducing the charge upon him to the duty for twenty-one windows.

But the superintending surveyor not being satisfied with their decision, required that the case should be stated for the opinion of the judges, which is hereby done accordingly.

THOMAS FIELDER, } Commissioners.
JOSEPH SIMPKIN, }

18th May, 1841.—We are of opinion that the determination of the Commissioners is wrong.

J. PATTERSON. T. COLTMAN. W. WIGHTMAN.
—Justice of the Peace.

LIST OF ENGLISH PATENTS.

(From the Repertory of Patent Inventions.)

John Duncan, of Lombard-street, gentleman, for improvements in the casting and construction of types for printing.—Sealed June 26, 1843. (Six months.) Communication.

Charles Townsend Christian, of St. Martin's-place, St. Martin's-lane, East India Army Agent, for improvements in the construction of steam-engines.—Sealed June 27, 1843. (Six months.) Communication.

Richard Waller, of Bradford, coach builder, for improvements in locomotive carriages, and in steam-boilers and engines.—Sealed June 27, 1843. (Six months.)

John Thomas Betts, of Battersea, gentleman, for improvements in covering and stopping the tops of boxes, jars, pots, and other vessels.—Sealed June 27, 1843.—(Six months.) Communication.

Edward Johnson, of Nelson-square, Blackfriars-road, surgeon, for improvements in apparatus for bathing.—Sealed June 27, 1843. (Six months.)

Alexander Parkes, of Birmingham, artist, for improvements in preparing solutions of certain vegetable and animal matters, applicable to preserving wood and other substances, and for other uses.—Sealed June 27, 1843. (Six months.)

Charles Kent, of Liverpool, manufacturing chemist, for an improved lamp for the combustion of naphtha, turpentine, and other resinous oils.—Sealed June 30, 1843. (Six months.)

Charles Tetley, of Bradford, Yorkshire, gentleman, for certain improvement or improvements in the construction of boilers, otherwise generators, for producing steam.—Sealed June 30, 1843. (Six months.)

James Lancaster Lucena, of Garden-court, Middle Temple, London, barrister-at-law, for certain improvements in steam-engines and in machinery for propelling vessels, which improvements were applicable to other purposes, being an extension of a patent for the term of five years, granted by his late Majesty King George the Fourth, to Elijah Galloway, of King-street, Southwark, engineer.—Sealed July 1, 1843.

James John Greer, of Woolwich, surgeon, for improvements in apparatus for securing or fixing standing rigging and chains, and other tackle.—Sealed July 1, 1843. (Six months.)

Charles Phillips, of Chipping Norton, Oxford, engineer, for improvements in apparatus or machinery for cutting corn, grass, or such like standing or growing crops, and in apparatus or machinery for cutting vegetable substances as food for cattle.—Sealed July 3, 1843. (Six months.)

Thomas Wedlake, of Hornchurch, Essex, machinist, for improvements in machinery for making hay, which improvements are applicable to other agricultural purposes.—Sealed July 3, 1843. (Six months.)

James Verity, of Leicester-street, Regent-street, boot and shoe maker, for improvements in the heels and soles of boots and shoes.—Sealed July 3, 1843. (Six months.)

James Hartley, of Wear Glass Works, Sunderland, glass manufacturer, for improvements in the manufacture of glass.—Sealed July 6, 1843. (Six months.)

James Boydell, jun., of Oak Farm Works, near Dudley, Stafford, iron master, for improvements in the manufacture of metallic roofs and joists, and improvements in joining sheets or plates of metal for various purposes.—Sealed July 6, 1843. (Six months.)

Florimond Delcroix, jun., of Norfolk-street, Strand, merchant, for improvements in furnaces for locomotive and other engines, and in the apparatus used for regulating the escape of steam and the passage of air in chimneys or furnaces.—Sealed July 6, 1843. (Six months.) Communication.

James Neville, of Walworth, civil engineer, for certain improvements in the form and manufacture of horse-shoes.—Sealed July 6, 1843. (Six months.)

John Wright and Richard Wright, both of Richmond, Yorkshire, boot and shoe makers, for certain improvements in boots and shoes, and other like coverings for the feet.—Sealed July 6, 1843. (Six months.)

Joseph Cooke Grant, of Stamford, ironmonger, for improvements in the construction of harrows.—Sealed July 6, 1843. (Six months.)

John Woodhouse Day, of Wellfield Castle, Eden, Durham, land agent, for certain improvements in apparatus to facilitate the loading of vessels with coal, culm, or cinders.—Sealed July 6, 1843. (Six months.)

(To be continued.)

TO THE EDITOR.

SIR,—If you should think these few exercises worthy a place in your Journal, they are at your service; though they be easy, they have the merit of originality.
I am, Sir,
Belfast, July 16,
ARCHITECTS.

Two given circles intersect one another. It is required to describe two equal circles touching one another, and having their circumferences bisected by each of the given circles.

A hollow cylinder whose external diameter is equal to its height is 2261.952 inches in solid content, the thickness is 2 inches; required the length and internal diameter.

To show a regular method of laying off the panels or coffers in the interior of a dome, whether spheroidal or ellipsoidal.

Divide a straight line into two parts, that their rectangle may be equal to the square of their difference.

TO THE EDITOR.

SIR,—I was conversing a few days since with a brother on the desirableness of a society for the protection and benefit of clerks in architects' offices, when very opportunely the announcement of the "British Association of Architectural Draughtsmen" appeared. There is a minor, though *not* the *smallest*, benefit arising from such societies, the improvement of the miserable remuneration which the greater part of our class are obliged to submit to. Surely it is not right that the professional man who has established a good connection, should get one or two thousand per cent. profit on the labour of his assistants, which is generally, or at least very often, the case.

May I request information as to whether the number of members in the before-named Association is complete? or how the admission of new members is regulated?

Wishing good health and long life to you (and our) magazine, I remain, Sir, yours very truly,
AN ARCHITECTURAL DRAUGHTSMAN.

18th July, 1843.

TO THE EDITOR.

SIR,—Though it is desirable that parties with small incomes should have decent houses, with as few windows as possible, yet still the majority of builders generally follow the old plan of placing two attenuated windows in rooms, the size of which could be better lighted and as well ventilated by one of fair and legal proportions. What purpose it is to serve I know not, except that it avoids the outlay which the architect would receive for new designs and for the exercise of improved taste and ingenuity. The French laugh at us for our monotony and for our want of invention, and truly we are open to their ridicule, as we follow the beaten track without regarding the varying circumstances of the times.

Yours, very truly,
ENCAUSTIC.

Miscellaneous.

THE POWER OF OIL TO ALLAY THE VIOLENCE OF WAVES.—The existence of this property in oil has been so often asserted, that a commission was lately appointed by the Royal Institute of the Pays Bas to make experiments on the subject:—"The commission assembled at Zandvoort, on the shore of the North Sea. Some of them proceeded a short distance from the shore, in order to pour the oil upon the water, and observe the results; the others remaining on land, and not knowing either at what moment or how many times the oil was poured out, were to keep their eyes fixed on the waves, which rolled from the boat towards the shore; by these means their opinion, exempt from all influence, might be considered as so much the more impartial. The wind was south-west, and of moderate force; the quantity of oil poured out at four different times, namely, at 43, 45, 50, and 54 minutes past nine o'clock, amounted to 15 litres (upwards of 3 imperial gallons); the tide was flowing, and would not reach its full height till 21 minutes past eleven o'clock. The commissioners who remained on the shore not having remarked any effect which could be ascribed to the effusion of the oil, and the same thing being the case with those engaged in pouring it, we might already consider the question, if oil poured at a little distance from our piers could protect them from the fury of the waves, as answered in the negative. Nevertheless, the commissioners thought it incumbent upon them to make a second trial at a somewhat greater distance from the shore. Two of them were rowed beyond the rocks, and then cast anchor. The distance was calculated by the boatmen at 300 yards; the sounding line indicated a depth of about three yards; and the waves were rolling considerably. More than the half of 15 litres of oil was poured out in the space of five minutes (from 15 to 10 minutes before twelve o'clock), and the commissioners did not observe the slightest effect in rela-

tion to the object of their mission. They saw the oil swimming on the surface of the water, partly united in spots of an irregular form, partly extended and forming a pellicle, and partly mingling with the foam of the waves, and sharing in their oscillatory movements. When returning to the shore, at the moment of passing the rocks, the commissioners caused the rest of the oil to be poured on the water, and they can testify that it had no effect in diminishing the motion of the waves, for they were many times abundantly sprinkled with the spray. It is unnecessary to add, that those who remained on land had remarked nothing at all which could be attributed to the effusion of the oil. After all that has been said and written on this subject, the commissioners are astonished at the negative result of their experiments, and, limiting themselves to the account of them, they add no observations. They believe themselves, however, authorized to assert as their personal opinion, that the idea of protecting our piers by means of oil is not a happy one."
Athenæum.

MACHINE FOR RAISING AND LOWERING MINERS.—The Royal Cornwall Polytechnic Society have awarded to the adventurers of the Tresavean mine a premium of 500l. offered by the society for the most efficient machine for raising and lowering miners. The following account is given in the *Mining Journal* of an experiment lately made with it. J. D. Gilbert, Esq., and several other gentlemen descended into the mine to the depth of 280 fathoms by the machine, which is the full depth to which it is carried. They then proceeded to the bottom of the mine, which was reached by 20 fathoms of ladders, and 11 fathoms of rope, making the extraordinary depth of 1866 feet from the surface. Thus an opportunity was afforded of testing the advantages of the "man engine" over the usual means of ascent and descent. It appears that in time and wages a saving to the adventurers of a very considerable sum will be effected; thus this machine, which was first adopted through pure motives of humanity, appears likely to prove a source of pecuniary profit to the adventurers. It may be satisfactory to state, that the machine for raising and lowering men to this depth (280 fathoms) effects it in about twenty minutes, whereas by the ladders, upwards of an hour was consumed, and the men greatly exhausted, and now, without the slightest fatigue, they are landed near their work, or brought to the surface.

ARTESIAN WELLS.—The greatest of these interesting works yet existing in Aberdeen has just been successfully completed, at the tape-works of Messrs. Milne, Low, and Co., at Woolmanhill. The bore is 8 inches in diameter, and 250 feet 9 inches deep. It required nearly 11 months' working to complete the excavation. The temperature of the water at the bottom of the well, when completed, was found to be within a fraction of 50° Fahrenheit; and the average temperature of the locality, deduced from twenty-three years' observation, by the late George Innis, F.R.S., is 47° 1'; hence, nearly 3° of increase appear as the effects of central heat. The supply of water obtained is excellent in quality, and sufficient in quantity for all the purposes of the works.—*Aberdeen Herald.*

WINDSOR CASTLE.—A royal residence nobler and grander than this Castle there cannot be in all the universe. The peculiar architecture, the massive walls, the mighty towers, spacious doorways, and majestic avenues, the grandeur of its compass, the extent of its courts, even the blueish grey hue of the building, and finally, the elevated site of the palace, cannot fail to impress the spectator with a feeling not only pleasurable, but imposing.—*From the Travelling Diary of a German Naturalist.*

NEW STEAM SHIP BENTINCK.—This splendid vessel is now moored off Blackwall, she is of 2,000 tons burden, 520 horse power, has accommodation for 110 passengers in 20 single, 22 double, and 12 family cabins. Light and ventilation has been particularly attended to in the cabins, the lowest ones being fitted up with Lang's patent posts, and the sides and doors throughout being principally Venetian; there are hot, cold, and shower baths, and a bath-room on deck, on a most luxurious scale.

RODDA'S PATENT METHOD OF CONSUMING SMOKE.—Among the numerous patents lately obtained for consuming smoke, there are none that can vie in simplicity with that of M. Rodda. The method adopted is, to partition off a portion of the back of a furnace with fire bricks, so that when the coal has been coked in the fore part, it is thrust into the binder division, and the smoke from the freshly supplied coal being compelled to pass over the incandescent coked fuel, is consumed. The principal merit is the simplicity, consisting merely of a few fire bricks which may be placed in any furnace without expensive alteration.

The iron and coal trade in Scotland never was so bad as at present; the prices are ruinously low, and half the furnaces in Lanarkshire will very soon be thrown out of blast.

STATE OF THE IRON TRADE.—The crash in the iron districts has at length begun; the banks are going, and with them the remaining accommodation which served to sustain the almost desperate energies of the masters. Works are being stopped, furnaces blown out, and every one knows the consequence; thousands of workmen are unemployed, and starvation threatening them and their families. A general decrease in the demand for iron goods, betokens also the general distress. God knows what is to be the end of it.

CAST-IRON BUILDINGS IN CHINA.—The Missionary Gutzlaff writes, that he has discovered a pagoda, near the town of Tsing Kiang Fou, in the province of Kiang Wam, which is entirely composed of cast iron. It is covered with bas-reliefs and inscriptions, which shew that they are as old as the dynasty of Tang, which was upon the throne as far back as from the fifth to the tenth century of the Christian era. It is in the shape of an octagonal pyramid, forty feet high, and eight feet diameter at the base; it has seven stories; the Missionary represents it as being strikingly elegant and surpassing any thing of the kind he had ever seen in China. What are we to say to this?

THE BRITISH IRON COMPANY is to be formed anew, with a capital of £400,000, one-half of which is to pay off the old shareholders. 6,380 shares are said to be subscribed for already, notwithstanding the depressed condition of the iron trade. The shares are £20 each.

A new method of preserving iron-work from rust has been communicated by M. Paymen to the French Institute. It consists in plunging the pieces of metal to be preserved in a mixture of one part concentrated solution of impure soda (soda of commerce) and three parts water. Pieces of iron left three months in this liquid, lost neither weight nor polish, whilst similar pieces immersed for five days in simple water were covered with rust.

HEALTH OF TOWNS COMMISSION.—Dr. Lyon Playfair, who has been appointed a commissioner for inquiring into the present state of the health of large towns and populous districts in England and Wales, is expected in Manchester to conduct his inquiries.

TO CLEAN MARBLE, SIENNA, JASPER, PORPHYRY, AND SCAGGIOLA.—Mix up a quantity of the strongest soap lees with quick lime to the consistency of milk, and lay it on the stone, &c. for 24 hours, clean it afterwards with soap and water, and it will appear like new.

THE TEMPLE CHURCH is again closed for two months, for further beautifications. The marble pillars are to be polished in a superior manner, and the entire wood-work is to be stained dark and polished. The pulpit will also be finished, as well as the new seats for the choristers. There is also a building in progress attached to the church, for the choir.

WELLS' CATHEDRAL.—The Dean and Chapter of Wells have just concluded arrangements for the immediate and thorough repair of this beautiful edifice at an expense of about 70,000l.

THE SMOKE NUISANCE.—The Committee of the House of Commons, on the health of towns, of which Mr. Mackinnon is chairman, has been much occupied with this subject.

A SAWYERS' ANNIVERSARY was held in Lancaster last week, when a large party of sawyers and their wives dined and enjoyed themselves in excellent style. The "Lancashire witches" of the fraternity came in for their deserved honours, the healths of the wives of the sawyers being drank with great enthusiasm.

SWEEPING ORTHOGRAPHY.—At a chimney-sweeper's shed, in the neighbourhood of Westminster, is a board stuck up with the following inscription chalked upon it. "W—C—Sweeper—knows all sortes of smokey flews and chimbleys at any houses. N. B. Fires put out by pater machien."

INCOMBUSTIBLE THATCH.—It has been proved by repeated experiments that straw, saturated with a solution of lime, or common whitewash, is incombustible.

It is said that Benjamin Gaskell, Esq., of Thorne House, is about to lay out nearly ten acres of land, near the village of Thornes (Yorkshire), not far from the Church, as a public cemetery.

A chimney is in course of erection at Woolwich Dockyard as a vent for the whole of the smoke from the different flues in the yard. It is to be 30 feet higher than the Monument.

New churches at Llanlleched and Llanddenioleau are being now erected.

An improvement in our ship-building has been patented by Mr. Fairbairn, which consists in preparing the plates with a turned-up edge or flange, and so joining them together by rivets through the two flanges, as to leave the work smooth and flush outside, for greater strength a T bar is united and rivetted with the joining.

To any of our SUBSCRIBERS who are in possession of copies of Nos. 3, 4, and 8, in an unsoiled state, and who do not require them for binding up, we shall be happy to return the full sum of THREEPENCE in exchange for such Nos., they being now entirely out of print.

THE BUILDER,

NO. XXVIII.

SATURDAY, AUGUST 19, 1843.

BUILDERS' DRAWING SCHOOL.

Now that the season is approaching for men to yield themselves the more cheerfully to the labours of study, that the long nights of winter and the severities of the weather incline them to seek in-door occupations, we may calculate upon a probability of carrying out the object to which we have been invited, and for which we have in some anxiety laboured, namely, the formation of the Builders' Drawing School. In this, as in all other matters, much requires to be done in "*feeling the way*," as it is termed, in preparing the public mind, and bringing together the elements or agents by which the work is to be effected; and looking at our very recent entrance into existence, and the comparatively partial or limited circle in which we have yet attained to move, it cannot be expected that we could do much, however resolute and energetic in purpose we might be; besides which, the builders have yet so little of united purpose, and require so much, that the task of uniting them is one unvarying phase of labour. Nevertheless, we have effected our purpose in part, and from the advanced position we have gained, we proceed to lay down plans for farther progress.

We think we see our way to the accomplishment of great ends by steady and safe experiments. What is wanted in a Builders' Drawing School of the present day, is a provision for a full course of tuition in the constructive, decorative, and a third department, which we may call that of general design; the first and second pertain to the workshop, but the first more than the second; the second being in fact allied equally to the first and third departments.

The general workman requires to be initiated, and as far as possible well grounded in the art and science of construction, the decorator must be acquainted with the principles of construction theoretically, if not practically, and it will be all the better for him if he know it practically; the general designer, who is indeed the architect, should be well grounded in a knowledge of the two preceding, and since no building, with any pretensions to fitness, can be reared without the union of all the three agents, the constructor, the decorator, and the designer, so no school of building art can be complete without the supervision and union of these three,—and it has been our anxious desire to see the way to such a union.

In the first place we tried to turn to this account the Institution so lately formed under the auspices of Government, known as the Somerset House School of Design. We saw thousands of pounds of the public money voted for the purpose implied in the title of the Institution, and knowing as we do that no efficient progress can be made in such purpose without reference to constructive science, that, in fact, without a basis of practical working, the whole affair must be a bauble and a play-

thing, filling men's heads with fancies and vagaries, and overspreading the land with the superficialities of art;—knowing this, we proposed that *THE BASIS*, a Builders' School of Design, should be annexed to it; but the encouragement we met with was very small, was, in fact, any thing but encouragement from the right quarter. We have no right to dispute the judgment of the presiding parties over that institution; they may be, and sitting many of them together, in all likelihood are, far more competent to decide correctly on such a matter than ourselves; we therefore bow to their decision.

It would be hard, however, if, after the rejection of this our proposition, whether from the motive that they prefer such matters to originate with themselves, or a still less worthy motive which their twofold influence of personal station and public money and authority may give them, they should, upon our having started and brought into existence the practical institution we contemplate in obedience to the call of our CRAFT, it would be hard, we say, that they should step in and adopt a plan which their present rejection drives us to consider, and lay down the means of accomplishing. But we must proceed regardless of this fear. Martyrs there must be in every cause, and if we should be added to the number, so that a public good is effected, based upon a large amount of private happiness, we care little.

What adds to our determination is this. We find that the Somerset House School of Design stands very much in the position of the dog in the fable—not willingly or wittingly we are inclined to grant—but it is not eating the hay itself, nor does it allow others to eat it. It is injuring every private drawing establishment in the metropolis, and yet not supplying that which those establishments did or can supply—the *forced cheap system*; the "*protection system*" which it proceeds upon gives it an advantage which may be and we fear is abused. It is not alone facility and gifts to the learner that it is, or ought to dispense; but we contend it should do so by the teacher, instead of which it is inflicting injury on the latter, and not giving substantial good to the former.

No one will deny that something was wanted, no one denies that a builders' drawing school is wanted, a general school, and extension in numbers and usefulness of the smaller ones; but need we on this account lay down such a plan as will work ruin to those already established? By no means. If common funds are to be raised and applied, let them be for a common good, and, above all things, let those who have their interests locked up in, and dependent on a system or state of things previously established, be first considered in any change that may be likely to affect their interest.

In saying thus much, we have particular allusion to make to the case of Mr. Grayson, the conductor of an old-established and well-reputed builders' drawing school, in Bannerstreet, Finsbury; we select his particular case to elucidate others. Mr. Grayson conducts an establishment which was founded by his late father nearly sixty years back. The elder Mr. Grayson, with this gentleman and his brother, have had to do with the training of many of our principal builders and architects; the establishment has grown time-honoured and respectable; the selection of models, drawings, &c., is first-rate, and altogether, if we were to look about for a gentleman to rely upon in the extension of a scheme of builders' schools, we should say that Mr. Grayson and Mr. Grayson's interest, with others

in like manner situated, demand to be first consulted.

A new appointment in prejudice to his and their interests would be unjust, unless the required good could not be accomplished without such new appointment; and we say it would have been better if the Somerset House School had embraced a practical plan like a builders' drawing school, with such a gentleman as Mr. Grayson invited and appointed to superintend in his department, and properly compensated. His former meritorious labours and every circumstance demand this species of delicate and just consideration.

Well, this has not been done; but how are we to proceed? We are anxious to do so in every way that may avoid that of which we have to complain. The builders want no unfair sacrifices from any body; they look to their own proper pay, and cannot withhold it from another. A good school can be formed in numbers sufficient to remunerate Mr. Grayson, or any other gentleman best entitled to superintend it. The models and collections can be availed of and properly paid for; and it is upon this principle we would proceed, if the working builders will support us in our proposition.

We cannot occupy more time in the laying out our plan for the present, farther than to say, that we think most favourable opportunity is before us all if we now embrace it. In decoration, Mr. Lewis, whose excellent letters we have had in *THE BUILDER*, in conjunction with Mr. Barker, appears willing to take the lead; and we know where we can refer to for the chief architectural direction: what more then is wanted? Let the builders come forward prepared to support their leaders, and they will have the proud satisfaction of erecting their own house, and possessing their own well-earned patrimony.

THE PATENT STUCCO PAINT CEMENT, AND PATENT STUCCO PAINT.

TO THE EDITOR.

SIR,—In the notice given in your last number (page 323), of the "*Patent Stucco Paint Cement and Patent Stucco Paint*" manufactured by Messrs. Johns & Co., of Plymouth, you have inadvertently stated them to be one and the same material, and have led your readers to suppose that it may be used either as a paint or a cement, according as it is employed by the painter or the plasterer.

We are not surprised at this misapprehension on your part, for the facts of the materials being both embodied in one patent, the similarity of their appearance, and there being only a trifling difference in the titles conferred upon them by the patentees, have led to much doubt and confusion, and have caused us considerable trouble in explanation; and there can be no doubt but that the further propagation of the error through the medium of a journal circulating so extensively as yours does among all parties connected with or interested in building matters, will be of some disservice to us unless counteracted by an explanation through the same channel; and we therefore crave the indulgence of being allowed space in your columns to give a succinct account of the nature and properties of the two materials. We shall commence with—

THE STUCCO PAINT CEMENT.

This is the plasterer's article exclusively, and is sold in a *fluid state* or of the *consistence of paint* (hence its name). This paint cement or fluid stone, when mixed with sand in the proportion of from $\frac{1}{4}$ to 3 parts of sand to 1 part of the fluid, forms a stucco of a most extraordinary kind, of which the following are the leading characteristics:—

1st. It will adhere with a tenacity (hitherto unknown) to any surface whatever, whether of brick, tile, slate, wood, iron and all the metals, and even to glass.

2nd. It will form a perfect *casing of stone* to any building that is covered with it, by which the walls will be materially strengthened,

and such is its waterproof quality, that all wet or damp will be effectually excluded.

3rd. It is of a most elegant appearance, resembling the finest dressed stone, and any tint may be imparted to it by the colour of the sand selected for mixture with it; it may thus be made to imitate Granite, Portland, Bath, or Yorkshire stone, and that so closely that the most experienced mason could with difficulty detect it.

4th. It is not subject to discolouration, it never turns green, it is never known to crack or blister, the hardest frost has no effect upon it, it stands in no need of paint; but should at any time paint be applied to it, such is its non-absorbent property that one coat will bear out and finish.

5th. For repairing damaged stone and fractures, cracks, or perished portions in Roman cement, or any description of stucco or plaster, preparatory to painting, it is invaluable, for the places so repaired may be painted over immediately without the slightest chance of any stain afterwards appearing; and internal walls covered with this cement may be painted upon, or the most costly flock-paper hung upon them in twenty-four hours after the plasterer has finished.

6th. The unexampled success which, without any one exception, has attended the application of this cement in the most exposed parts of the sea coast, warrants the assertion that it is the only cement yet discovered which may be employed with confidence in marine situations, experience having proved that the worst weather that can assail it tends only to harden and improve it.

7th. As an article of export, one most decided advantage that this cement possesses is, that there is no perishable property in it which requires it to be used immediately, or soon after it is made. It, in fact, improves by age; it may, therefore, be exported to any part of the globe, to the hottest or the coldest climate, and the contents of a cask will be found as sound and as serviceable for building purposes five years after its arrival as on the day of its shipment.

8th. With regard to the cost of this material, the application of it is computed by the most careful calculations to be half the price of Roman cement, and will not exceed the average cost of mastic; but when its great advantages of permanency and its highly ornamental character are considered, it is infinitely cheaper than any cement ever introduced.

We come now to Messrs. Johns and Co.'s other invention,

"THE PATENT STUCCO PAINT."

This material embraces all the prominent advantages of the cement, with which patent it is incorporated; but it is so prepared as to form essentially an oil paint peculiarly adapted for painting over stucco or plaster surfaces. It is intended as a substitute for white lead, which is expensive; and for the common colouring-washes, which, although cheaper, have no durability.

This paint, from its composition, has a peculiar affinity for cement and stucco, and being of a highly water-proof character, is greatly preservative of any walls on which it may be applied. It requires only thinning with linseed oil for the brush, and without any addition of turpentine or driers. It is more durable than white lead, and in its application is about half the cost of that material. Any painter may use it. Its colour is that of pure stone, and has a most pleasing effect. Like its twin material, the cement, this paint has the decided advantage over every other in marine situations, and, as an interior paint for large public buildings, churches, hospitals, barracks, public schools, prisons, union workhouses, manufactories, railway stations, public markets, &c. &c., it will be found a most economical application, it being of an exceedingly clean and wholesome character, and particularly adapted for all wards, lobbies, and dormitories, as a disinfecting agent, and utterly destructive of the encroachment of vermin, and it is equally applicable to brick, iron, and wood work, and in any climate will remain good for years.

We have thus Sir, endeavoured, to give a plain account of these two materials, and in so doing we have carefully avoided saying one word of their qualifications and value to the

architect and builder, which we are not warranted in doing, by the mass of evidence now before us from practical men in every part of the kingdom, who have made trial of one or both of them, and have forwarded us, unsolicited, their unqualified approbation of their merits.

We apologize for occupying so much space in your valuable journal, at the same time we think you could hardly impart to your readers intelligence that may, in the end, prove more useful to them than the above.

We are, Sir, your very obedient servants,
MANN & CO.,
Sole Agents for the Patentees.
5, Maiden-lane, Queen-street, Cheapside,
London, 15th August, 1843.

LIGHTNING CONDUCTORS.

TO THE EDITOR.

SIR,—In your valuable Journal of the 15th ult., I perceive a communication from a correspondent signed "Φιλεκτρον."

The subject is one of vast importance, particularly to the architect and builder, viz. the effectual protection of buildings and property from the effects of discharges of atmospheric electricity.

Your correspondent wishes to "convince" us of the "utility" of the "lightning rod;" it should be known that it is admitted by those professing acquaintance with the science of electricity that a conductor of the proper dimensions, altitude, metal, &c., with due regard to situation, termination, and fixing, will protect not only the building to which it is fixed, but also those within a circle or horizontal distance of which the length of the conductor is the radius.

Again, speaking of the general unprotected state of "our village churches" from lightning, and the danger they are exposed to from this, the most formidable element of nature, he makes no "venture" or "assertion" when he says "that 9-10ths of our village churches are left without any safeguard from its fury." In fact, from personal observation, I am satisfied that the average number protected by proper conductors is as low, or lower, than 1 in 30; and in a number of churches but recently erected, there is neither any arrangement for their protection against a storm of this description, nor has it entered the mind (I should conceive) or engaged the attention of the party to whom the construction of the edifice has been committed. On the contrary, in some cases I could narrate, so little regard has been paid to what the probable effects of a discharge of the electric element upon it would be, that the metal, clamps, strings, &c., together with the vane, rod, or spindle, and other metal work (often unnecessarily and injudiciously applied), form facilities for the most destructive explosions.

Indeed, it is the subject of remark that architects, with but solitary exceptions, are wholly (or nearly so) unacquainted with the science of electricity, the facts connected with or laws that govern it; and until some catastrophe occur of a more serious nature and greater extent than those which have recently happened to impress upon their minds the importance of the subject, little or no attention will be paid to it by them.

But turning to the letter of "Φιλεκτρον"—it should be borne in mind that the use of a metallic conductor is not to attract the electric fluid, nor will it do so, though it is true that electricity has a greater affinity for metals than other ordinary bodies in that respect; but it is well understood (though I admit there is a popular notion that the contrary is the case) that an electric cloud, unless indeed hovering over or passing immediately in the vicinity, is but little affected by even a metallic body until it come almost in contact.

Allow me to remark, as regards the best material, form, proportions, &c., for lightning conductors, that—

1st. The metal now generally employed is copper, as it possesses several advantages over iron, amongst which are, that of its being a better conductor, possessing about five times the conducting power, and not being oxidized to any extent by the action of the atmosphere.

The first admits of a conductor of a decreased size or diameter being used, and the second, that of its being but little affected by exposure to the atmosphere upon its being necessary at any time to take it down, is worth three-fifths of its original value.

2nd. The form of a conductor for buildings may be that of the round rod, or any other that can expose a greater extent of surface in the same dimension without a sacrifice of strength or durability.

3rd. As to the size, if a copper rod be used, it should be $\frac{1}{2}$ of an inch in diameter; the upper extremity should stand some feet above the building and project freely into the air; it should terminate by ex-

posing three or more arms, or branches, each terminating upwards in the form of a leaf, the thinner edges of which to be tinned or gilt, the latter preferable; the conductor to be carried in as direct a line as possible to the ground, should be fastened close to the wall with copper staples, and terminate at its lower end a few feet below the surface of the ground, it having two branches projecting from it horizontally and carried in any convenient direction away from the building; where there is a drain or pool of water immediately in the vicinity, it is much better to connect it therewith.

If the building be a church having a metal vane, the conductor should commence at, and be attached to the collar of the spindle below the socket and continued down, taking into connection as much of the metal work as possible; the methods of attaching it therewith entirely depend on circumstances.

But here, Mr. Editor, I must terminate for the present, having already absorbed too much of your valuable space. In conclusion, I shall be glad if these remarks at all tend to produce the desired effect: at the same time let it be distinctly understood that my observation on and reference to the letter of your correspondent "Φιλεκτρον" emanate but with a view of preventing a misconception of facts.

I am, yours respectfully,
Regent-street, Aug. 8, 1843.

M. A.

BUILDING SOCIETIES.

TO THE EDITOR.

SIR,—The article in your last publication respecting these societies having reference more particularly to the "London and Westminster Provident Association and Savings' Fund," merits the acknowledgment of every admirer and well-wisher of that excellent association.

As I am well aware that the workings of these societies are complicated, and are at present the theme of conversation and inquiry among the readers of your valuable publication, I beg leave to trespass on your kindness in requesting the favour of your inserting the following short explanation of its object and operation, especially as in one respect you are slightly inaccurate in your statement regarding it, and am confident that you will furnish your readers, who are anxious for information, a further detailed account of them.

The members of that association contribute out of their savings a small monthly payment, which, as it accumulates, is lent out to enable them to purchase house property, generally producing about 10l. per cent., which the borrower liquidates by instalments, with about 4l. per cent. interest, and at the expiration of the society in about ten years, the property will become *gradually freed from all the charge upon it* at the least possible expense and inconvenience to the borrower, as by the favourable provisions of the Act of Parliament under which it is established, the necessity of reconveyance and stamps thereon has been abolished. The Act does not limit the society to ten years, but its termination takes place when the association can pay 120l. per share to those members who have not previously had their shares advanced to them; but in order to protect those members who have done so from loss by reason of a protracted duration of the association, in consequence of too great a portion of the non-borrowing members, an event very improbable, the rules provide that if it shall happen that there are not borrowers for the accumulated capital at such a bonus as the directors may think reasonable, it shall be ballotted for by those members who have not had their shares previously advanced. There will be no danger of the association being encumbered at its close with unpaid mortgages, as they will be returned to them in satisfaction of their shares.

To illustrate more clearly the beneficial working, suppose a member to occupy a house at a rental of 30l. a year, the purchase-money of which is 300l.; it is calculated that he will have to pay 42l. a year to the association, being 12l. a year more than he would have to pay his landlord, and he has thus, by prudent and judicious economy, become possessed of his house at the cost of 120l. (only three years' rent or purchase), which had it not been for such an association, perhaps he would not have been able to accomplish without encroaching upon his trade capital, or not having made the purchase, he would in thirteen years have paid his landlord the value of the house, without becoming the owner.

Surely, an association calculated to do so much good to the industrious tradesman is well entitled to the encouragement and support of all classes of the community.

A MEMBER.

There are, according to the statement of Mr. Cowlyne, a land surveyor, before Mr. Wilmot Horton's Emigration Committee, fifteen millions of profitably cultivatable acres of waste land in England, Ireland, and Scotland.

ALL SAINTS, LEAMINGTON.

We were in error in our last number in fixing the time for laying the foundation stone on the 12th of the present month, and we are indebted to a gentleman of Leamington for correcting us: it appears it is for the 12th of the next month. While we are on this subject, we may take occasion to remark, that we have received a coloured lithographic view of that church, shewn in the state in which it is proposed to complete it, according to the design of Mr. Jackson of Leamington, as stated in the paragraph inserted in number 25.

Mr. Jackson is naturally anxious for his due share of credit in the production of this design, and he forwards us an extract from the *Eccelesiologist*, which, if we had space, we would gladly reprint in our columns. The tenor of it is in accordance with our own opinions, and it is encommiastic; and sorry we are that any thing should have occurred (we know not what) to disappoint the hopes expressed in the concluding paragraph, which we transcribe.

"In congratulating Mr. Jackson upon his successful design, we are glad to express our confidence that he will be permitted to carry out his plans to the full extent, without limitation of funds, or the interference of unqualified committees."

Mr. Jackson's own words are—

"Having devoted many an anxious hour to the study of this subject, I beg to state that, admitting to the full extent the capability of Mr. Mitchell in carrying out the designs placed before him 'in scrupulous adherence to the formularies of the Camden Society (which, by the way, is rather an ambiguous phraseology),' I cannot consent to be deprived of whatever merit may be supposed to be attached to the design for the re-edification of this church."

Limitation of funds, we believe, there is none; nor a committee qualified or unqualified. We are not prepared to say where the wrong is, but, in our humble opinion, there is a great deal too much attention paid to "formularies of design," and too little to principles of right and justice. Could we see all the blots and stains, the worse than "churchyardens' whitewash"—the blackwash of unjust committees, or other directors—the lines of ugliness playing hideously in the otherwise fair forms of the styles we imitate; flaws in probity, notwithstanding the boasted soundness of materials,—many of our fairest structures would be at best but "whitened sepulchres." We might wish to know what considerate judgment, what righteous verdict, had disturbed the usual order of things as far as regards the architect of All Saints, Leamington, but we shall hear much more of wrathful remonstrance as to where a font should stand, or of its desecration to unworthy uses, than where an architect should stand, or of the violation by unjust hands of his genius. Give us justice to "God's IMAGE" first, and then to carved stone and the inferior vessels.

ERECTION OF CATACOMBS IN CONNECTION WITH ST. GEORGE'S CHAPEL AT WINDSOR.—In consequence of the extremely small, inconvenient, and crowded state of that portion of consecrated ground attached to the Royal Chapel of St. George, which is appropriated for the interment of the dead, the dean and canons have, for a long time past, contemplated the erection of catacombs, and have only waited to carry those intentions into effect until a favourable opportunity and site offered themselves. A short time since three houses, nearly opposite to the great western entrance to the chapel, were pulled down; and a good opening having thus been obtained, the authorities of the chapel immediately determined to have extensive vaults excavated on the open space of ground at the north-west corner of the chapel, and extending to within a few feet of the west door leading into the nave. The catacombs, which are nearly completed, will contain between 200 and 300 coffins, and consist of 18 recesses (nine on each side of an arched passage, up the centre, sixty-four feet long, seven feet high, and six feet wide), each of which will contain from ten to twelve coffins. Each catacomb is eight feet in length, and between six and seven feet wide, so as to contain the several coffins when laid side by side. When these eighteen recesses are filled, it is computed that the arched passage, along the centre of the vaults, will be capable of receiving from sixty to seventy additional coffins. These extensive catacombs, which are bricked throughout, and arched over with the same material, and thickly covered with compost and cement, to render them impervious to the wet, have been excellently executed by Mr. Ingletton, of Eton, the builder to the dean and canons.

Student's Column.

TO THE EDITOR.

SIR,—Enclosed I send you a sketch of Llanbadarn Church, near Aberystwith, Cardiganshire, built about the time Henry the First lost his only son, Prince William, by shipwreck, off the coast of France, dated 1117. The entrance is under a very handsome early-English arch, and until lately it was covered with white lime, but some lover of antiquity (I was told from Oxford), at his own expense, had it picked out, and restored it to its original beauty.

I regret I cannot furnish you with a drawing of it, nor with the beautiful perpendicular lancet window. The walls are very thick, and the lancet

lights small, as shewn on plan and elevation. Seeing your instructive and interesting work so rapidly increase in illustrations, and improve in matter generally, I confess I felt timid in fulfilling my promise.

And, moreover, perusing the letter of a Sheffield correspondent, in reference to fag-ends, &c. &c.; and when I came to consider that I had promised and let No. 21 make its appearance and not performed, I must say I felt ashamed of my procrastination. If it is worth a place, it is at your service, if not, reject it. I cannot close my letter without first thanking you for the many useful articles embodied in *THE BUILDER*, and your further promise of useful inventions.

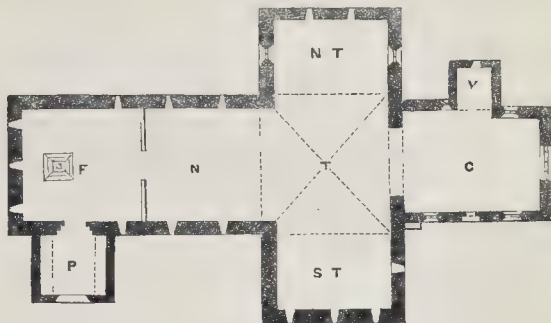
Believe me, Sir, a well-wisher to the work.

Bristol, July 2, 1843.

T. M. V



LLANBADARN CHURCH.



Ground Plan.

P. Porch.

F. Font.

S T and N T. Transoms.

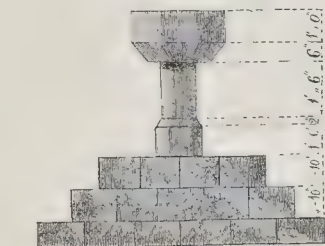
C. Chancel.

N. Nave.

T. Tower.

V. Vestry.

Scale 20 feet to an inch.



The Font.

[We have inserted the above to gratify our correspondent whose painstaking has been as great in our behalf and in that of the public as that of more practised hands. We have

another effort or two of a similar character, which we shall deal with in the same way, and accompany them by such remarks as the subject appears to call for, for the benefit of students and our readers generally.]

A M equal to I N, and M N parallel to A I. An the line A B is divided at the point I, A I is one part, and I B the other, K I being their elements.

By 13th P. 6th Bk. of the Elements.

A I : I H :: I H (K) : I B (I N)

Therefore A I × I N = I K².

Literature.

De l'Art en Allemagne, par (Of Art in Germany, by) HIPPOLYTE FORTOUL.—Paris, 1842. Jules Labitte.

[SECOND NOTICE.]

OUR former paper on the book of M. FORTOUL, terminated with his description of the Basilica of St. Boniface at Munich, with which he had intermingled some short and general notes on the Latin Basilica. The next chapter, which is not too long for insertion at length, is devoted to

THE GREEK BASILICA.

"Christian architecture passed with the government from the west to the east. The emperors who sojourned at Byzantium, cultivated it there at great cost. They raised rival basilicas to those of Rome. But the roofage of these buildings, which was still of wood, as in the days when the centumviri and the bankers of Rome vociferated within the precincts of the basilica, often took fire from lightning, or through the awkwardness of workmen employed in the repairs. When means were sought for preventing the recurrence of similar disasters, there presented themselves Greek artists, who proposed to substitute for this ruinous carpentry, so easily destroyed, those forms which had already been applied, in smaller proportions, to the temples and the thermae of Rome. They, it was, who suspended over the basilicas those bold cupolas of which the curves have impressed a peculiar character on the architecture. Some time afterwards Asia borrowed of Rome the lines of its arch, which, carved in a capricious taste, and adorned with an efflorescence luxuriant and altogether symbolical, founded a new order among the Arabs. But the cupola was not the sole element which the Greeks introduced into Christian architecture; the elevation of this new form rendered stronger supports necessary, and the Byzantine architects were compelled to substitute, in the important points of their church, massive pillars for those columns which would have been insufficient to support the dome. Thus was raised St. Sophia, the miracle of Oriental Catholicism. Soon afterwards the Venetians, called to Byzantium by the interests of commerce and by the Crusades, saw this Christian mosque, and returning to their isles, sought to reproduce the dazzling image in the basilica of St. Mark. Venice, then, which had admired the wonders of the east, became in her turn the object of admiration to Italy; and Padua, that was to be her slave, wishing to be her rival, copied the cupolas of St. Mark, and built those of St. Antony. Thus, step by step, the cupola traversed lands and seas, to reach even the gates of Florence and of Rome, where Brunelleschi and Michael Angelo were destined to give it the theausterities of Occidental taste, by placing it above those low and sombre naves which the middle age had bequeathed to the revival.

"Louis, King of Bavaria, being in Sicily with M. de Klenze, heard midnight mass at Palermo, in a church where the divers styles of Asiatic architecture are all mingled, after the fashion of the Saracens. The prince (for such he then was) was greatly struck by these unusual forms, the effect of which was augmented by the light of the tapers and the countless reflections from the gilding. When he became master, he could not rest until he had constructed in his own palace an Oriental church, which is called the Chapel of the Court, or All Saints Chapel. M. de Klenze, who was commissioned to erect this edifice, drew inspiration from the very types of Byzantine art, and I have some reason to believe that he intended specially to imitate the basilica of St. Mark, which is, among the nations of Christendom, the most perfect model of its kind.

"Take, then, from St. Mark its transverse nave, substitute a semi-cupola for the full cupola of the choir, diminish all the proportions in an analogous measure, suppress the external developments of the cupolas and the portal, replace the mosaics by painting, the marble by stucco, and you will have an idea of the plan which M. de Klenze has executed. But to judge of the impression which his chapel produces, it should be visited, as by me it was, every day and at every hour; the sun should be seen gliding from windows hidden in the background of the tribunes, and completely invisible to the spectator, who feels inclined to believe that the light comes from the sparkling surface of the walls. The pictures which M. Hess has traced on the innumerable vaultings of the cupolas and arches should be seen quickening into life under the rays of this extraordinary effulgence, and shining in the midst of the gold and the legends that surround them. In raising this church, M. de Klenze has derogated

from his habitual style, which, as we shall see, loves forms more general and more severe. He has, however, a particular predilection for it, and that I can well understand; he has already heard midnight mass in his Oriental chapel; all modest as he is, he could not help finding that under such circumstances his *chef d'œuvre* was admirable.

The next era in the succession of time, in the history of art and civilization, is known as the middle ages. Our author, for the purposes of his theme, distinguishes between the Italian and the Teutonic middle age. He begins with the former, and at the risk of being compelled to enlarge the space which we had allotted to the notice of M. Fortoul's work, we give entire the chapter devoted to

THE ITALIAN MIDDLE AGE.

M. Frederick Gärtner, who was born at Coblenz in 1792, and at this day is professor of architecture in the Academy of Munich, has the special mission to raise, in the Louis-street, monuments in imitation of those that were erected in Italy during the middle ages. In that place, then, and on that model, he has constructed the church of St. Louis. The influence of Oriental architecture is felt only in the internal cupolas of this edifice, and they are so much depressed, as scarcely to deserve the name. The square and massive pillars that sustain the vaults into which they merge, form chapels only, in the place where the Romans pierced their small naves, and the Byzantines their low aisles. For the rest, the two lateral chapels, neighbours to the choir, project externally, and give to the building the form of a Latin cross. The portal is composed of three stones; a portico adorned with slender columns frames the entrance; large niches, for which M. Schwanthaler has carved statues, surmount the porch; a carved rose blooms on the highest part, under the ridges of the gable. Two twin steeples flank each side of the façade, and raise their pyramidal points high above the acute-angled roof, which is covered with a carpeting of enamelled tiles.

"Assuredly it would be impossible to reproduce more faithfully the churches that were raised in Italy during the middle ages, not the large churches such as Buschetto, Arnolfo di Lapo, and Gambiaia built, awaiting the advent of Brunelleschi and Bramante, but the little churches that are to be found in inferior cities, and which, though blind and pell-mell collections of all the forms and all the rubbish at hand, composed nevertheless, thanks to the national taste of the country, if not pure works, at least monuments full of fancy and grace. You, my friends, must have often met such in your travels. The columns of the portal were taken from some ancient temple; the jambs of the niches from some Roman palace; the triangular cutting of the roof recalled the carpentry of the ancient basilicas; the Byzantine forms still prevailed in the pillars and the vaults; and German taste, too, showed itself in the design of the carved rose and the leafage that ran beneath the cornices. Doubtless, on beholding this curious and gross assemblage at the spot where the necessities of a barbarous age formed it, you have felt a sensation that was not disagreeable, and to which were associated recollections of all the great things of which it was composed. But, in this our age, when it is possible to enjoy in their purity the principal forms of human genius, the reconstruction of an amalgam which quaint simplicity of invention could alone save from censure, appears to me a fault which even the most exalted erudition could not justify.

"In the other works of M. Gärtner, though I have met the same style, I have recognized the marks of real talent. Lower down than the Church of St. Louis, in the street that has the same name, the seminary and the university enclose within a double horseshoe a vast space. Those buildings, which correspond, affect all the peculiarities of that style which Italy composed for itself under the triple influence of antiquity, of the East, and of Germany, at a time when the spire had already become for the races of the north the basis of a system at once more audacious and more united. The windows are formed of two small semicircular arches tending to the pointed, separated by a little column; those of the seminary, moreover, are enveloped by a semicircle which embraces and surmounts the two small lateral openings. These coquettings cause an astonishment that is not without pleasure. But what will you think when I tell you that the small columns which are the charm of this kind of architecture, and which, in Italy, were cut from Roman marbles, are made of bricks, like the rest of the structure?

"The Institute for the Blind, which faces the Church of St. Louis, is the first building in this quarter of the town that has been finished; it is already inhabited. I have often heard the sounds of a piano floating from the windows of this house, the inhabitants of which know no other art than music. Two portals, which adorn the extremities of this grand edifice, have received the form and

decorations of the Gothic steeple: curious approximation made, not without design, by a man of genius, of the Teutonic and Italian elements, which in point of fact are associated in more than one spot on the other side of the mountains.

"The Institute for the Blind has a foggy colour that suits its austere mass. But do you think that this colour has been given to it by stone? The edifice is of bricks from head to foot; and the seminary and the university are of bricks, as I have already mentioned. And the Basilica of St. Boniface? of bricks. And the chapel of the Court, and the residence of the king, new and old? of bricks in every case. Here, nevertheless, we are nearer to the mountains than we were at Ulm; the Alps, which may be seen from the terraces of the palace, and the summit of the Chinese tower in the English garden, are not further off than twenty leagues; but, besides that the rivers which come from this side are not navigable, Bavaria is no longer mistress of the quarries of the Tyrol; she lost them when she made her peace with Austria in 1814. This complete destitution of materials has contributed towards making me regard as the more marvellous that development which architecture has received at Munich. Forced to create every thing from nothing, it has used bricks like soft wax, and given them a thousand figures. Without speaking of Asia and Greece, we may observe that Italy, in ancient times and during the middle ages, has made use of this material, not only for the purpose of forming with rapidity a nucleus of masonry which was afterwards covered with substances more precious, but also for that of composing in *facades*, conjointly with the latter, or even without them, contrasts or entire lines from which the eye and the mind might derive equal satisfaction. Once in possession of this principle of architecture, which may be termed ceramic, the Romans, as well as their descendants, raised it to a complete art, and lavished on it, by variety of tones and elegance of forms, those ornaments which still decorate so charmingly the old palaces of Bologna and Sienna. At Munich, instead of adopting the brick with that simplicity to which taste does not refuse to lend ornaments, men have gone in quest of plasterings and preparations designed to induce the belief that the monuments of this city have been built with grand materials!

"All this hypocrisy of matter and of form excites sovereign displeasure. There is not an art to which sincerity is more necessary than it is to architecture. You have often recalled to my mind those palaces of Vicenza which Palladio has replaced by buildings more pompous and more learned, but of which, without doubt, he himself admired the elegance; buildings without dissimulation, like the times in which they were raised, that reveal by the happy disorder of their *façades*, not only all the artifices of the masonry, but the secret of their internal distribution. Yes, to translate the spirit by the form, the inward by the outward, that is the true principle of all the arts. How, then, can architecture, which comprehends them all, emancipate itself from this rule, which is common to all? If it has fallen so much in public esteem, it is precisely because it appears no longer to have any sentiment for the intimate and proper life of things, and that, abandoned to a vile combination of forms destitute of sense, it sets its chief merit in first disguising all the poetry and all the diversity of human life beneath large and uniform lines of windows, and afterwards effacing the very originality of the materials which it employs, by a thick shirting of plaster.

"M. Gärtner has himself felt all the improprieties of this lie; and, as if he wished to prove how much he detested it, he has left to the Library, which he has constructed above the church of St. Louis, the colour which the materials gave it. Over the bricks of which it is built, he has passed a cement of hydraulic lime, dipped in their hue, and destined to preserve, not to conceal them. Through the arched coronal which surmounts the windows he has allowed the naked bricks to penetrate, and their tints, more crude than that of the cement, form with it a graceful harmony. This is called here, dichromatic decoration. For the rest, the proportions of this edifice are altogether grand. Three high portals, approached by a double staircase, lead to the ground floor, in which will be deposited the archives of the kingdom and of the royal family. The two upper stories, which are of gigantic dimensions, will receive the library now deposited in the old college of the Jesuits, which, in books, rare manuscripts, and precious autographs, is one of the richest in Europe. This building has a true and decided men that pleases in the midst of the foppish masonry by which it is surrounded. He who beholds it will form a just and excellent idea of these brick palaces, admirably characterized, which the Scaligers in the fourteenth century caused to be constructed in their royal signory of Verona."

At another opportunity we shall complete this interesting contribution to the history of architecture.



LADY OWEN'S SCHOOL, ISLINGTON.

The traditional origin of this very excellent foundation runs:—that in the year of our Lord, 1610, or thereabout, as the Lady Alice Owen, the widow of a rich brewer of the city of London, was passing along the St. John-street Road, between Owen-street and the Angel at Islington, an arrow touched her head so carefully that she very narrowly escaped "braining." The old lady, thinking such close shooting dangerous, made instant vow that she would do some charitable act to Providence, as an acknowledgment for this kind intervention on her behalf; and she accordingly, in the year 1613, built a free school, and ten almshouses upon the scene of her adventure (then known as the Hermitage Fields) and at her death, bequeathed upwards of ten acres of ground, in trust, to the Worshipful Company of Brewers, as an endowment for

the maintenance of this charity; the said ten acres extending from the Old Red Lion, in the St. John-street Road, southward, to Rawstorne-street; and having a double frontage on Goswell-road and St. John-street. The original buildings erected by Lady Owen remain to this day, but they are both dilapidated and inconvenient; the school-house accommodating only fifty boys; and the funds of the charity having been, of late years, much increased, by the falling in of some leases, the Company determined upon rebuilding the school and almshouses.

The new building, just erected in Owen-street, is, in what is generally termed, the Elizabethan style, worked in red-brick, with Bath stone finishings. The architect is Mr. George Tattersall, of Parliament-street, the surveyor to the Brewers' Company, &c. The

elevation consists of a master's house, of seven rooms; with a school-room in the rear, capable of accommodating from eighty to one hundred boys. The plan and arrangement of the school-room are very complete; and the whole is fitted up in handsome keeping with the taste of the structure. The almshouses are to occupy the opposite site, in a corresponding style of architecture.

The almshouses are for poor old women, of the parishes of St. Mary, Islington, and St. James, Clerkenwell; and the school for poor boys of the same parishes; an equal number from each.

The above engraving is extracted from the "Literary World," which contains numerous engravings of the principal public buildings of the metropolis.

THE INSTITUTE OF THE FINE ARTS.

The following document has been issued by the honorary secretary to "the Institute of the Fine Arts."

ADDRESS OF THE COUNCIL.

"The grand object of the Institute of the Fine Arts is to unite, by intellectual and social means, the interests of artists, and to attempt to establish a free and liberal intercourse between the patrons, the lovers of art, and its professors.

"Considering the circumstances in which the interests of art are involved, the causes become apparent by which they are affected, and a course is clearly indicated by which the progress and welfare, both of art and artists, may be strengthened, sustained, and protected.

"In contemplating the nature and attributes of art, in looking back upon its history and the circumstances under which it has progressed and declined, in viewing the present state of society, and in considering the station and condition of the artist, together with the advantages it is necessary he should possess for the successful exercise of his art, it is fully apparent that many obstacles oppose his progress, which no attempts have been made to remove, and which it is conceived would yield to certain means, backed by honest endeavour and united effort.

"It will be the object of this society to study to define, to adopt, and to recommend these means.

"We observe, in looking to cause and effect, that the successful in art are those principally who are most favoured by circumstances; and although we are fully aware that these cannot confer genius upon aspirants, no evidence is wanting to prove that they are capable of checking its operation, of defeating its object, and of effecting its utter destruction.

"If we look at the progress of art, we shall see that, whilst it continued to struggle alone and unaided, it did nothing; after a while it attracted

attention, excited an interest, and, presently, those who until then had looked with coldness and indifference upon its condition began to warm in its favour, to listen, to learn, to study, to enjoy, and at last to feel an affectionate regard for its productions and its interests; and some even who had no relish for its beauties still found themselves capable of sympathizing with those they saw struggling in its cause, and thus an alliance was formed, which became the groundwork of its establishment, and the guarantee of its prosperity and success.

"It would be out of place to discuss the mode in which this alliance, this union of forces, has been found operating: but made up, as it is, of mutual sympathies, the interchange of intelligences, and a species of intertutition, it must, as a matter of course, have led to great and mutual advantages, and been productive of excellence in art on the one hand, and of the establishment and refinement of taste on the other.

"It is greatly to undervalue patronage to regard it only as the source from whence the painter draws the means of existence. To know art only through the medium of its productions, however important that knowledge may be, is still defective when compared with the acquirement which is only to be obtained by a free and liberal intercourse with its professors. Leonardi da Vinci, dying in the arms of Francis I., indicates something more than the cold relation of buyer and seller. If we refer to men who have stood forward in public observation and respect, who have been the benefactors of art and the arbiters of taste, we shall find them to have been such as did not disdain to become the allies of the artist,—to join in the spirit of his operations, to participate in his acquirements, to enter into his feelings and perceptions, to comprehend his motives, to learn his objects, and to know his means; to look with his perceptions, to feel with his sensations, and to think with his thoughts: whoever first learnt to think and feel, in the mode of the painter, first exercised the faculty of taste.

"There is every reason to believe, that it is this alli-

ance, in its various modifications and extent, the operation of which may be denominated the mutual faculty, which has lifted art from its first lowly condition, sustained and carried it to its greatest elevation, and which will, whenever more powerful influences meet and unite in friendly co-operation, be the means of advancing it to the highest point of excellence it is ever destined to attain."

SUMMARY OF THE LAWS OF THE INSTITUTE OF THE FINE ARTS.

"That it shall be formed to facilitate a general intercourse of the members of the profession and the friends of art; to effect which, suitable premises shall be taken as soon as the funds of the Institute shall permit.

"That the Institute shall be essentially an independent and deliberative body, and shall not originate or connect itself with any Exhibition or School of Instruction in Art.

"That the subscription shall be one guinea annually, payable in advance.

"That all artists, by profession, shall be eligible as members.

"That men eminent in station and acquirement, in literature, science, or art, wherever resident, shall be eligible as honorary members.

"That the council be empowered, in special cases, to elect honorary members, free from the usual subscription.

"That a committee, consisting of twelve members, shall be appointed annually, whose business it shall be to correspond with artists and literary and scientific men, and lay the result of their communications before the council, at the quarterly meetings. Members, honorary members, or free honorary members, shall be equally eligible to be elected upon this committee.

"It is proposed to hold six general meetings annually, at which papers illustrative of the objects of the society will be read, and to which members,

honorary members, free honorary members, and correspondents, are invited to contribute.

"It is also the intention of the society to publish, at convenient times, a journal of its transactions."

We have read this document with the greatest attention more than once, and are utterly unable to glean therefrom any definite notion of the object which this association has in view, or the means, beyond the receipt of subscriptions, by which it proposes to operate. If the real good of art be contemplated, the object is praiseworthy and deserving of support; but until the scheme shall be clearly and explicitly defined, it would be absurd in us, as public writers, to do more than announce the name of the association, and do our best to give circulation to the announcement which it has made.

ON PREPARING PLASTER FOR THE USE OF MARBLE MASONS, &c.

TO THE EDITOR.

SIR,—As marble and stone masons frequently experience considerable trouble in putting together the component parts of chimney-pieces, tablets, and other work of the kind, in consequence of a great deal of the plaster now in general use being liable to blow or expand, and therefore lifting some parts of the work from its bed and forcing other parts out of their intended positions, causing great inconvenience to the mason, and preventing him from turning out his work in a sound and secure manner, it may be useful to many of your readers to know how to prepare this useful material in such a manner as to prevent these effects taking place.

Plaster in its raw state, I believe, contains a great quantity of acid, which should be totally dispelled before the workman can, with certainty and confidence, make use of it to the end of turning out his job in a sound and perfect state. Baking in a common oven is not sufficient for this, as the steam which rises as the plaster becomes heated, instead of being allowed to escape, descends to whence it rose and is again imbibed by the plaster, and causes it, when used, to set quick, to blow, and to become soft by giving again. If prepared in the following manner, many years' experience has taught me that all this may be avoided, and that plaster thus prepared will give the person who uses it more time by setting slowly; it will not expand, and will be much harder when set than any plaster baked in an oven.

After grinding to a powder in its raw state, sift it through a fine sieve, put it in an iron pot over a brisk fire, and stir it well about with an iron ladle or other suitable implement until it ceases bubbling and falls to a solid mass, something like a body of wet sand; let it cool, and it will be fit for use; the fire must be kept up brisk until the operation is finished.

I am, Sir, yours obediently,
ONE OF THE CRAFT.
Leicester, August 13th, 1843.

LECTURES ON ARCHITECTURE AND ANTIQUITIES.

V.—Continuation of Lecture I. SACRED ARCHITECTURE.

WHEN David was peaceably settled on his throne, "and the Lord had given him rest round about from all his enemies," (2 Samuel vii. 1), he wished to shew at once his gratitude and devotion, by erecting a temple worthy of his maker. "See now," he said to the prophet Nathan, "I dwell in an house of cedar, but the ark of God dwelleth within curtains." (v. 2.) But the pious intention was not to be carried into effect by himself, and the honour of building the temple was reserved for his son Solomon, who was a man of peace; whereas David had "shed much blood upon the earth." (1 Chron. xxii. 8.) Although not permitted to achieve the glorious task himself, he made early provision for his successor to carry it out. "And David said, Solomon, my son, is young and tender, and the house that is to be built for the Lord must be exceeding magnificent of fame and of glory throughout all countries; I will, therefore, now make preparation for it." (v. 5.) In this undertaking, David derived great assistance from the friendship of Hiram, King of Tyre, who floated all the timber which was cut down in Lebanon, from Tyre to Joppa, whence it was conveyed across the land to Jerusalem. The letters and agreement for wages are highly interesting as recorded in the Books of Kings and Chronicles. The conquests of David, (see in particular, 1 Chron. ch. xviii.), enabled him to set apart for the great work, abundance of materials in all the metals, and especially in brass, which was accounted, says Josephus, "more precious than gold." (Antiq. B. xi. ch. v.

s. 2.) Many nations courted his friendship by valuable gifts, and others paid him large tribute. Some idea of the preparations may be formed when we are told that 30,000 men were appointed to cut the timber, 70,000 strangers to carry the burdens, and 80,000 to cut the stones; and over all these were 3,300 overseers, probably superior workmen and draughtsmen. The stones were all shaped and fitted together before the commencement of the building, so that no sound was heard of any tools during the progress. The temple was built on that spot whereon David erected an altar, even at the threshing-floor of Ornan, the Jebusite (2 Sam. xxiv. 18), the identical place where the great founder of the race had offered up his son Isaac. It is almost impossible to give an accurate idea of a building of which nothing remains but a written description. It has, however, been attempted, and Villalpanda, a Spanish jesuit, who is celebrated for his commentary on Ezekiel, and for a topography of Jerusalem, wrote a dissertation in which he insists that the theory and practice of permanent architecture commenced with the building of Solomon's Temple, and that the orders, which he says are falsely attributed to the Greeks, came into existence with it. He also endeavours to shew, that the proportions assigned by Vitruvius to the different orders, agree exactly with the description given of the temple. This opinion, that the temple at Jerusalem was the type of Grecian architecture, has had a powerful advocate in our own day, in an architect to whom no one can refuse the recognition of great learning and an intimate acquaintance with the architecture of the Greeks, viz. the late Professor Wilkins, who in the first part (and it is to be feared the last) of his "Prolusiones Architectonicæ," has put forth as his opinion, that the pro-

portions of Solomon's Temple, and those of one of the temples at Pæstum, coincide in so extraordinary a degree, as to justify the belief that the projectors of the latter adopted the former as their model. In the work alluded to, Mr. Wilkins gives an elevation of the front of Solomon's Temple, in a pure Doric design, with a complete entablature, pediment, and fluted columns. But there seems more reason to rely upon the opinion entertained by many that the style of the Jewish temple was borrowed from the Egyptians. In the first place, the principal architect was a Tyrian, of the same name with Hiram, King of Tyre, and Lucian says that the Phenicians built in the Egyptian manner, and that this manner was imitated in the temple appears (we think) from the whole arrangement of the structure. The lofty porch answers to the propylæa or mûles in front of Egyptian temples; the courts, with the chambers around, are also similar in each; the Holy of Holies, placed at the extreme end, and approached through successive apartments, accords with the situation of the sanctuary in Egyptian buildings: but if there is coincidence in the plan, there is still more in the details. The two brazen pillars made by Hiram, which were so remarkable for beauty of design and workmanship as to be distinguished by name, *Jachin* and *Booz* (1 Kings vii. 21), correspond with the proportions of Egyptian columns; they were only four-and-a-half times so high as their diameter. The "lily-work," which is spoken of as the ornament of these columns, can hardly be any other than the lotus of the Egyptians, and of which we see no trace in a Doric capital. The position of these pillars is very much to our purpose; they were set up in front of the porch, one on each hand; and there is hardly a temple of any note in Egypt, without obelisks or



VIEW OF THE ENTRANCE TO LUXOR, UPPER EGYPT.

pillars, occupying a similar position. It may be added, also, that Solomon's connection with the Egyptians, as well by commerce as by marriage, favours the idea that he not only imitated their style, but that he likewise engaged their assistance, more particularly in the preparation of the masonry, in which they were extremely skilful, as their works to this day testify. And it is probable that the Mosaic command, "Thou shalt not make to thyself any graven image," prevented the Jews from ever attaining to any great excellence in sculpture, even when they exercised the art for laudable purposes. The building of the temple took place about ten centuries before the Christian era, whereas half that date is as much as

can be with truth ascribed to the earliest specimen of the Doric, the most ancient of the Greek orders. Lord Aberdeen ascribes the date of 437 B. C. to the Parthenon. The age of the Egyptian temples is lost in the remotest antiquity; some were probably erected sixteen or eighteen centuries before Christ. The whole of the Scriptural account of the Temple is calculated to convey an impression of great splendour. Josephus observes, "Now, the whole structure of the Temple was made with great skill, of polished stones, and those laid together so very harmoniously and smoothly, that there appeared to the spectators no sign of any hammer, or other instrument of architecture, but as if, without any use of them, the entire materials had naturally united

themselves together, that the agreement of one part with another seemed rather to have been natural than to have arisen from the force of tools upon them." (Ant. B. viii. ch. iii. s. 2.) I imagine that Ezekiel, in his vision in the 25th year of the Captivity, describes the temple, which was destroyed by the King of Babylon, in the most exact manner, to console the Jews under their calamity, and to assure them that it should be rebuilt, and also to serve as a model or guide when they should return from their captivity; thus we find that the description in his dream accords both with Solomon's Temple which was destroyed, and with that which was afterwards raised by Zerubbabel, under the auspices of Cyrus, as described by the Prophet Ezra. The Phenicians rendered the same assistance on the occasion of the restoration of the temple which they had given at its foundation. Josephus says, "The Sidonians also were very ready and willing to bring the cedar trees from Libanus, to bind them together, and to make a united fleet of them, and to bring them to the port of Joppa." (Ant. B. xi. ch. iv.) The furniture and accessories to the Temple of Solomon were designed in a style suitable to the glorious structure in which they were placed. The value of these materials, and the costly nature of their workmanship, would appear incredible, had we not an account in Scripture of the surpassing wealth and splendour of the wise King of Israel, who, we are told, "made silver and gold at Jerusalem as plentiful as stones, and cedar trees made he as the sycamore trees that are in the vale for abundance." (2 Chron. i. 15.) Some idea may be formed of Solomon's wealth from the fact that his ships annually brought him from Ophir, the modern India, a sum in gold amounting to about 3½ millions sterling. (Jos. Ant. B. viii. ch. 5. and 2 Chron. i. 15.)

Solomon was indeed a royal builder, for in addition to the temple, he built two palaces for himself and one for his queen, and when he fell from the worship of his fathers, and turned after strange gods, he built temples for them. Josephus describes some of these royal palaces as truly splendid buildings. Four hundred and seventy years after the building of the temple it was destroyed by the command of Nebuchadnezzar, King of Babylon, when all its precious ornaments were carried away by the conqueror to enrich his own capital; he also burnt the palaces, and overthrew the city to the very foundations, and took the King Zedekiah and the inhabitants of Jerusalem into captivity.

"The temple that Solomon built to his name,
Now lives but in history's story;
Extinguished long since is its altar's bright flame,
And vanished each glimpse of its glory."
B. BARTON.

Thus were the magnificent structures which Solomon built with such cost, upon which was lavished all that art could invent and wealth procure, levelled with the ground, in fulfilment of the predictions that were uttered by the prophets, and in accordance with the divine threatening given to Solomon even at the very dedication: "If ye turn away and go and serve other gods, and worship them, this house which I have sanctified for my name will I cast out of my sight, and will make it to be a proverb and a byword among all nations. And this house which is high shall be an astonishment to every one that passeth by, so that he shall say, Why hath the Lord done this unto this land and unto this house?" (2 Chron. vii. 19, 20, 21.) The answer to this question is to be found in the history of the Kings of Jerusalem, who gave themselves up to the idolatrous practices of the neighbouring nations, and were, of course, imitated by their own subjects in the worship of false gods. In Jeremiah (xi. 13) it is said, "According to the number of thy cities were thy gods, O Judah, and according to the number of the streets of Jerusalem have ye set up altars to that shameful thing, even altars to burn incense unto Baal." Some of the Kings, not content with building temples and altars for the gods of the Phenicians on every high place, carried their impiety so far as to erect altars even in the temple itself, as did Manasseh, who "built altars for all the host of heaven in the two courts of the house of the Lord." (2 Chron. xxxiii. 5.)

The temple which was rebuilt by the Jews, on their return out of captivity, as recorded by Ezra (iii. 12), appears to have remained in nearly the same state, though suffering occasional spoliation during the wars of the Maccabees, until the time of Herod, who deserves to be classed with Solomon among royal builders, and who wished to restore the temple to its pristine magnificence. His motive is given by Josephus, in a speech which Herod made to the people, wherein he observed that their fathers when they returned from Babylon built the temple, but that it wanted sixty cubits of the height of the one built by Solomon, and that they had not the opportunity to follow the original model of that pious edifice, but that since he was now their governor, and well regarded by the Romans, and had great riches and large revenues,

he wished to correct the imperfection, and to render the temple as complete as he was able, as a thankful return for the blessings he had received from God in giving him the kingdom. (Ant. B. xv. ch. xi. s. 1.) "So Herod took away the old foundations, and laid others, and erected the temple upon them; now the temple was built of stones that were white (marble?) and strong, and each of their length was twenty-five cubits, their height was eight, and their breadth about twelve." (s. 3.) The vast size of these stones excited the wonder of all who beheld them; and we find recorded in the 13th chapter of St. Mark's Gospel (and also in St. Luke xxi. 5-6, "goodly stones and gifts"), that one of our Saviour's disciples said unto him, as they were going out of the temple, "Master, see what manner of stones and what buildings are here!" It was in answer to this remark that our Saviour delivered his prophetic reply, "See'st thou these great buildings? there shall not be left one stone upon another that shall not be thrown down." (v. 2.) The magnitude of these stones might well raise the astonishment of the spectator, for they must have been at the least forty-three feet nine inches long, fourteen feet high, and twenty-one feet broad. By the description of Herod's temple, it would appear that it completely rivalled, even if it did not excel, that of Solomon; of one cloister it is said (Ant. B. xv. ch. xi. s. 5) that "it deserved to be better mentioned than any cloister under the sun, for its elevation above the valley was so great, that if any one looked down from the battlements, he would be giddy, whilst his sight could not reach to such an immense depth." Will not this description of the precipitous elevation of the temple above the vale throw some light on the scriptural account of the temptation, when Satan carried our Saviour and set him on a pinnacle of the temple (St. Matt. iv. 5), and bade him cast himself thence? Perhaps we should read *parapet* or *battlement* for *pinnacle*. The length of the Roman siege and the labour it cost Titus to take Jerusalem are proofs of the great strength of the place; indeed, from its position, and the admirable manner in which it was fortified (having no less than three encircling walls), it might have defied all his efforts, and resisted his utmost force, had he not been assisted by the factions which divided the unhappy Jews, who, instead of uniting in one common cause against the enemy before their city, were destroying each other with the most ungovernable fury within its walls, thus blindly rushing on to their own destruction, and themselves hastening the fulfilment of the prediction uttered against them by Him whom they had rejected, and whose blood they had so awfully imprecated upon themselves and upon their children. (St. Matt. xxvii. 25.)

The complete destruction of the temple was accomplished when Tiberius Rufus, who was left in command of the Roman army at Jerusalem after its capture, actually ploughed up the foundations of the temple, thus bringing to pass the words of the prophet Micah, uttered seven centuries before: "Therefore shall Zion for your sake be ploughed as a field, and Jerusalem shall become heaps, and the mountain of the house as the high places of the forest." (Micah iii. 12.) And alluded to by Jeremiah (xxvi. 18). Josephus states that Moses foretold not only the building of the temple, but its destruction also, and subsequent restoration. None of the known Scripture copies record this fact. (Ant. B. vii. ch. iv., and B. iv. ch. viii.)

In the magnificent and glowing descriptions of the prophets we find many of their splendid images derived from architectural terms. They abound in particular in the lofty and majestic compositions of the three great inspired writers, Isaiah, Jeremiah, and Ezekiel; and in the vision which was vouchsafed to St. John in the Isle of Patmos, he describes the new Jerusalem as built in the most gorgeous manner, with its streets of gold, its gates of single pearls, and its walls of precious stones. (Rev. xxi.) Many passages are to be found in the New Testament in which are employed images of the like nature, chiefly by our Saviour himself, which possess peculiar force and beauty. With one metaphor of this kind we will close our subject. When our Lord alluded to the difficulty which they who *trusted* in riches should experience in entering Heaven, He said, "It is easier for a camel to go through the eye of a needle." (Matt. xix. 24.) This passage has given rise to much learned discussion, but to those who would substitute *camel* (*καμήλο*) for *camel* (*καμήλος*) as the true reading, it is humbly suggested that they seek to destroy the great force of the passage by this change. In the first place, it is a proverb at this very day in Persia, when speaking of an impossibility, to use the identical words, and in India the word "elephant" is placed in a like phrase for "camel." As an Eastern well-known form of speech, therefore, it might be respected. But its peculiar strength goes even further. There was at Jerusalem a narrow entrance or gateway which faced the open country, and which was called "the

needle's eye;" it was so low that those who rode upon camels or any beast of burden had to dismount in order to enter. In the present walls of the city such low and narrow entrances are still visible to prevent the Arab horseman riding in at full speed. If we merely change the article, the real meaning will at once appear, "It is easier for a camel to go through *the* needle's eye."

We have now brought to a conclusion the account, as far as possible, of sacred architecture during forty centuries, and of all that has been described, hardly a remnant is left. A few broken walls here and there mark the site of some ancient Israelitish city, but the memorials of the patriarchs are gone, and the Land of Promise is in the hands of the Infidel. To obtain possession of the Holy Sepulchre was the object of the early Christian crusaders, who lavished the blood of millions of men, and tens of millions of treasure, to effect their purpose, in those celebrated expeditions undertaken to wrest the Holy City from the grasp of the Saracen, and in those tremendous conflicts in which the whole strength of the champions of the cross and of the crescent was displayed. The latter still reigns in the ascendant, and its emblem floats over the walls of Jerusalem; but the despised and exiled children of Israel still fondly look forward to the time when, in the stead of the hated crescent, they shall behold the proud standard of the lion of the tribe of Judah;

"When he who fixed, shall break his people's chain,
And Zion be the loved, the crowned of God again;"

CHOLY.

and, restored to their ancient fatherland, their Sion will once more lift up her head from the dust, and their temple become again the delight of the whole earth, "the holy and beautiful house," as in the days of Solomon.

G. R. F.

BRITISH ASSOCIATION OF ARCHITECTURAL DRAUGHTSMEN.

TO THE EDITOR.

SIR,—Will you permit me to inform your correspondent, the "Architectural Draughtsman," that while the Draughtsmen's Association is confined to approved members of the profession, it is not limited in point of number; also, that I shall be happy to enter into communication with him about his joining, should he be desirous of doing so.

On the subject of his remark respecting the remuneration afforded to draughtsmen, I believe much might be said; but as one object of this association is to improve the relations existing between architects and assistants, the opposite of the trades union spirit, which a contemporary journal once, without any grounds, but *efficient* bad taste imputed to it, I conceive it would not be attended with advantage to enter upon it. I shall be happy to explain any particulars, and meet the views of those disposed to avail themselves of the advantages of belonging to our body, who may communicate with me, or visit at any of the meetings for that purpose.

I remain, Sir, very obediently yours,
JAMES WYLLSON, Hon. Sec., B.A.A.D.
28, Southampton-street, Strand.

RESTORATION OF YORK MINSTER.—We are happy to state that the restoration of this noble edifice is proceeding in the most satisfactory manner. The ceiling of the nave is completed, and the scaffolding has been removed, thus presenting to view this stupendous undertaking. The carved bosses and ribs are executed in the first style, and we may add that they are exact copies of the original, having been worked by Mr. Wolstenholme from drawings which Mr. Brown, artist, had taken before the fire, and placed at the disposal of the dean and chapter. The walls of the nave have been cleaned, and harmonized well with the new ceiling. The wall at the west end, including the stone work around the great doors and the great west window, has been restored with a most faithful accuracy. The small figures which abound in the richly carved stone work of this part of the building, have all been restored with a faithfulness and accuracy which is astonishing. The masons are now engaged in reinstating the compartments on each side the nave. The shafts and base of the pillars separating the nave from the aisles have been all restored, the damaged stone being entirely cut out and renewed. The paving of the floor remains among the work yet to be done, but we believe we are justified in holding out the expectation that the whole will be completed by the spring assizes of next year. The workmen are also busily engaged in the work of restoring external portions of the fabric on the south side choir, which was in so ruinous a state as to be very dangerous. Several pinnacles, also the parapet and windows, are being entirely renewed. Preparations are also being made for putting on a new roof to the great lantern tower. All these extensive works are conducted under the personal direction of Mr. Dent, and they reflect the highest credit upon that gentleman for the substantial manner in which they are executed.

ARCHITECTURAL MODELLING. — THE PAPYRUS POWDER.

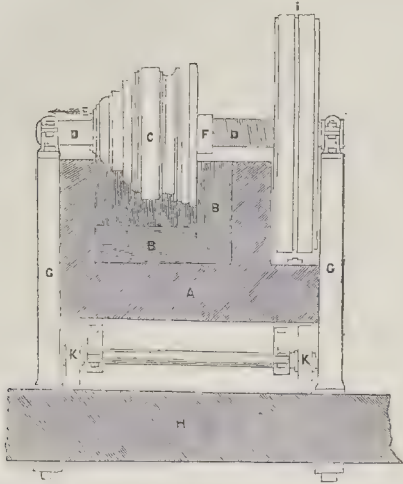
TO THE EDITOR.

F Sir,—Since I wrote to you on the subject of architectural modelling, it has occurred to me that

a drawing of the apparatus, such as I had intended to use for that purpose, would be acceptable to many of your readers. It is of simple construction, and may be made in any place where there is a lathe and carpenter's bench.

Figure 1, in the accompanying drawing, which is

Fig. 1.



the full size for a column one inch in diameter, shews the moulding trough (A), made of any hard wood, and B B are loose fillets of wood which will be used of different sizes, according to the space required to be filled up betwixt the sides of the trough and the moulding-wheel (C). The moulding-wheel may be in one piece, the whole height of an entablature, or it may be in three pieces, namely, the cornice, frieze, and architrave; it may be still further subdivided, for the purpose of introducing enriched mouldings. The several parts slip on to the spindle (D), and are screwed up tight against the pin (E) by means of the nut (F). The two wrought-iron uprights (G G) are bolted down upon the moulding bench (H) the one on the left slides in the direction of the arrow, a slit being made in the bench for that purpose. The pulley (I), has the ends of two leather straps made fast to it, the other ends being secured to the moulding trough; by turning the winch it was not necessary to shew (which in the

plan) the trough is made to move backwards and forwards as the moulding-wheel revolves in it. The moulding-trough runs upon wheels (K K), one pair being placed at each end; the bench should be perfectly level, as any inequality in the surface will alter the proportions of the mouldings upon the entablature, &c. The straps should be kept tight by means of wedges, in order that when the motion of the trough is reversed, the enrichments impressed upon the compost may not run into one another. When it is required to change the moulding-wheel, withdraw the trough from under it, take out the pin E, slide the upright (G) in the direction of the arrow, and then slip off the wheel. In placing another wheel upon the spindle, it may be found necessary to shift the nut (F) so as to get in the pin (E); when the latter is in its place, slide the wheel up to it, and screw tight the nut, the trough is then run underneath and suitable sized fillets put in to fill up the space.

Fig. 2.

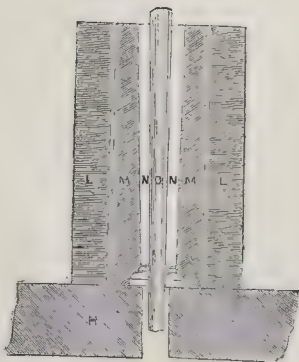
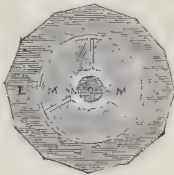


Fig. 3.

Fig. 2 shews the two cylinders for moulding columns; the one here represented as being in the mould, is, as you will perceive, of the Grecian Doric order, and presents no difficulties to its being

done entire; but in such as the Corinthian, where the capitals are foliated, and the bases in some cases enriched, it would be better to mould base, shaft, and capital, in separate parts. The outer cylinder

(L L) is in one piece, the sides about an inch thick and the inside bored through to receive the inner one (M M), which is in three pieces as shewn in Fig. 3. The papyrus compost (N N) is rolled round the iron spindle (O) placed in the mould or inner cylinder, and then compressed into all parts of it by driving down the spindle which is a little tapered for that purpose.

The column may be removed from the mould by turning the cylinders upside down, over another whose outside diameter is something less than M M; drive out the spindle, and then drive down the cylinder (L L); when about half off, lay hold of the inner one until they are clear, after which remove the three parts from the sides of the column.

Fig. 3 is a horizontal section of the cylinders, &c.

Where expense is not an object in the construction of an apparatus such as I have here described, a rack and pinion might be substituted for the straps; it could also be furnished with complete sets of moulding-wheels, &c. of the best examples of the ancient orders, of the various Gothic mouldings, and of any fancy ones, such as patterns for borders, cornices, &c., for rooms. Many designs for ornaments in various branches of the fine and useful arts may be engraved in the papyrus compost, and it may be, although I have not tried it for this particular purpose, made hard enough to be used in some cases as a substitute for wood engravings; perhaps it would be possible to increase its hardness (after being engraved upon) by a slight baking, so as to take impressions from it.

There is another purpose for which the compost would be very useful, namely, the engraving of patterns for small ornamental castings in metals; the facility with which it may be engraved is an important advantage, and it would also be superior to wood, as leaving a clearer impression in the mould.

The carving of groups of figures, flowers, &c. in relief would afford fine opportunities for exercising the taste and ingenuity of individuals; they could be coloured and framed like any other pictorial subject.

The kneading of the compost is of primary importance in some of the uses to which it may be applied. The two well-known articles, vermicelli and macaroni, are, I believe, prepared from wheat flour, and it is by incipient kneading that the proper degree of consistence is given to the paste, before it can be forced through the perforated plates; an examination of these articles will shew what may be done by kneading with one of the two ingredients in the papyrus compost.

The greater part of this communication being of a speculative nature, it cannot for that reason be of value, only so far as it may induce the creation of ideas in the minds of others. Your having attached considerable importance to the discovery of the papyrus compost, has induced me to trouble you again on the subject; at the same time it is left to your better judgment whether or not any part of it should be inserted in THE BUILDER; such publications should be vehicles for the diffusion of sound, practical information, and it is only under particular circumstances that any other should be admitted.

I am, Sir, your most obedient servant,

HENRY LIDDELL.

NEW ROYAL EXCHANGE.—This national edifice has advanced lately with giant strides, and grows more and more into the good graces of the citizens of London. The progress made is really astonishing. The façades on the north, south, and west sides, are so far completed that the great timber scaffoldings are partially removed, leaving only the carving and cleaning of the work remaining to be done. At the west end all the columns of the portico are in their places, and at the east end the first story of the tower is almost finished. The interior of the 'Change is arranged like the old one, with a large open area, and a covered walk. The area is altogether larger than the old Exchange, but different in form, and considered by the citizens in better proportion. The space covered by the walks is also greater. The internal area is arranged on the ground floor as an arcade, forming the covered walk. The arches are separated by Doric columns and pilasters. Over this is another story of Ionic columns, having arched windows between them. Over the windows are decorated and carved key-stones bearing the arms of the various kingdoms of the European family, marking the walks or districts to which the space below is appropriated. The masonry of this area is complete, with the exception of some of the carving. The approach to it from the east and west, under enormous arches, is, even in its present unfinished state, very striking and imposing.

Messrs. Adams and Fox, the extensive engineers at Old Ford, Bow, have taken the contract for building the aerial machine.

DECORATIVE IMITATIONS.—"THE GRAINER'S GUIDE."

TO THE EDITOR.

SIR,—Having seen frequent and honourable mention made of the imitative works of Mr. Charles Moxon, of Marylebone, in the journals of the day, amongst such authorities as Loudon's well-known work on "Cottage and Villa Architecture," and the "Gardener's and Mechanic's Magazines," I may quote as prominent, wherein also particular reference is made to a large and finely-illustrated volume published by him, bearing the above title, I have been at some pains to obtain the means of judging personally of the merits of his productions, both as an artist and as an author. The first step I attained was an opportunity to inspect the public apartments of Mr. Eastlake, the academical residence, in Fitzroy-square, where I found imitations of woods, marbles, &c., and was struck with the general harmony that manifested itself, both in the leading constituents and minor accessories of the decorations employed, shewing at once unquestionable taste on the part of the eminent proprietor, and high ability and experience in the artist. These works were executed under the direction of Professor Donaldson. I then learnt that an important and recent instance of Mr. Moxon's imitations was at the house of Mr. Tomline, member of parliament, Carlton-terrace (formerly the Marquis of Abercorn's), to which I was fortunate enough likewise to obtain admission, and was even more highly pleased with the work there executed. I had previously seen the princely mansion of his Grace of Sutherland, Mrs. Rothschild's, at Gunnersbury-park, Gloucester-house, and other residences, where the refined tastes of some of the most distinguished men of our profession had had that broad scope which only such abodes of wealth can afford, and was well familiarized to the profuse blandishments of scagliola in all its species of natural and unnatural marbles and granites, as well as sensible of the crude and opaque characteristics of that composition; and I was the more agreeably surprised to see, in the vestibules and staircases above mentioned, the work of the brush brought, though by some peculiar process, to a degree of perfection which, but for my previous information, I could not possibly have believed otherwise than the produce of the quarry; and that, too, as I learnt, at a fourth the cost of scagliola, a consideration which alone is of sufficient weight.

To give these deceptions their full effect, I find that the painter avoids, where possible, committing them to wood, that substance not approaching a stone-like coldness sufficiently to bear them out; and whether in walls, columns, or slabs, plaster, stone, and slate are best suited to his purpose. I remarked also that the building of his walls was in large, massive-looking blocks, giving an enhancing and Roman grandeur to them, which would hardly have appeared had they been of narrower-minded dimensions. But a most important feature is the entire absence of the brush-streaks, the cold surface having the polish of a mirror, and giving full beauty to the deep transparency and shadowy half-tints that are so captivating in these imitations, and which seem totally unattainable in the scagliola.

In the wood imitations, I find he does not revel in knots, or indeed indulge in any knarly, cross-grained stuff which the architect would avoid in the real material: also that there is, in his doors and wainscoting, a fine feeling for that harmony which should appear in the stiles, rails, and panelling. Generally, I can only describe them as being of surpassing truth and beauty; they, with the marbles, I understand, have received the encomiums of several leading architects, as well as some of the most discerning of the nobility, who were admitted to view them, and which were indeed well earned. Two of the oldest families, I was glad to learn, have lately taken him by the hand.

Respecting his published work, it would, after the notices which have appeared, be supererogatory in me to occupy space here with my remarks, especially as I wish to glean some of his, where, I think, they may be equally a guide to the architect as to the grainer. These selections are appended to this letter, the

practical matter altogether omitted, being too copious to enter into.

I remain, Sir, very obediently yours,

PEREGRINE, D.A.A.D.

P.S. In reference to the letter of your correspondent, "John Barr," in page 325, who has promised to explain his method of flocking walls and ceilings, I may observe that I have seen the Pompeian hangings put up, and have had no reason to alter my opinion respecting them.

If I had thought that in expressing approbation of these papers, I should be giving offence to any gentleman in the flock line, or any other, I would, perhaps, have refrained from taking up the subject at all, and especially if I could anticipate the offended party's thinking himself called upon, in supporting his own branch, to depreciate or run down the other.

For John Barr's information, the Pompeian patterns may be both diminished and enlarged, by curtailment or elongation. When, however, the size of the apartment is such as that too much of one of those means would have to be had recourse to, with respect to good proportions, then another pattern should be chosen whose scale is more suitable, and which would be attended with no difficulty where I was favoured with an inspection.

It would be almost imprudent in me to visit the works of the gentlemen your correspondent names, since I might not have the opportunity of seeing their productions on the walls, and be in danger of forming more false impressions.

Yours,

PEREGRINE.

Extracts from Moxon's "Grainer's Guide."

In his chapter on *Preparing Grounds and Polishing*, he says, "Smoothness is a quality essentially necessary in house-painting, and more particularly in imitations; for, however well managed the work may be in other respects, without a smooth surface your labour will lose half its value." Again, "But where the house-painter's judgment is most required, is in old houses, or in houses that have formerly been painted by other painters, perhaps on the cheap system of contract, which is very dangerous to the grainer, as his work would be destroyed should the paint peel off after it is varnished. This is generally in consequence of the painter being cheapened down to such a low price that he cannot afford to take off the old paint where necessary, and the person who employs him finds, when it is too late, that he is the loser."

Marbles.—"The chief beauty in a good imitation of marble is the transparent effect."—"In varnishing marbles, use the best polishing copal, and never put turpentine into it."

Sienna.—"When Sienna marble is imitated on very uneven plaster, it is well to use flat colours, and not varnish the work."—"This style (the deep-toned) of Sienna marble is adapted for columns and pilasters, where a rich style of colouring is required. Suppose the walls of a vestibule or corridor to be Sienna, in the crayon style, with pillars and pilasters in this, the effect would be rich without detracting from the architectural effect."

Egyptian Green.—"Sometimes there are beautiful brown patches in Egyptian green, and although this colour is considered a defect in the marble, in imitations it undoubtedly adds much beauty."

"This marble being dark and strong in colour, is adapted for columns and chimney-pieces."

Black and Gold.—"This is a useful imitation for chimney-pieces."

Rosa Antiqua.—"This is a scarce marble. The imitation of it is very simple, and when the light patches are properly grouped, produces a pleasing effect on pillars and pilasters."

Lapis lazuli.—"As this valuable marble can only be found in small pieces, a little judgment is necessary in introducing it for decorative purposes. A corresponding degree of richness should prevail where it is introduced. Gilding forms a beautiful contrast, and never fails to produce a pleasing effect."

Bloodstone.—"This famous stone is a native of the East, but it is also found in considerable quantities in the island of Rum, in Scotland, and can only be had in small pieces. The imitation is very useful for mosaic painting, and therefore necessary to painters; and as the winter season is generally a dull time of year for the trade, those young people who do not practise the more useful woods and marbles, might be employed in making fancy work-tables, chess-tables, &c. There are many ways in which the stones might be arranged, but I shall only suggest two. Suppose you make the centre squares bloodstone and white, and the border jasper, the effect would be good; or the centre squares jasper and white, and the border verd antique or Egyptian green."

Scotch Jasper.—"As it seldom happens that there are two of these pebbles of the same colour, there can be no particular method adopted for imitating them; all must be left to the taste of the painter."—"These stones are very useful for mosaic work, which should be polished, as it is often closely examined, and the polishing adds greatly to their beauty."

Woods.—"Although a specimen might be more beautiful when painted like a picture, the wood of a room would be spoiled by being overwrought."—"It is of great importance that a decided difference should be made between the stiles and rails of doors; for instance, if you make cross rails full of work, make the upright stiles plain; for if you take a piece of mahogany, or any other wood, and change its position with regard to the light, you will perceive a great difference in its appearance."—"Some grainers find great difficulty in making their colours have a soft, woody appearance. Perhaps the reason of this is, that they do not pay sufficient attention to the other arrangement of colours in the apartment. If the prevailing colour be warm and glowing, the imitation should partake of the same character: for instance, suppose the walls to be crimson, the wood, if maple, satin-wood, or oak, should be highly coloured; or suppose the prevailing colour to be green, or any other cool-toned colour, then the wood should be cool and light. The same principle applies to all other arrangements of colours where harmony is required. If contrast be desired, it ought rather to be in the furniture than the architecture."

Mahogany.—"A young painter cannot have better practice than copying a good curl of mahogany, as it will teach him the art of curvilinear composition, from which are composed all elegant forms."—"In graining work that is panelled, the lights and shades in the panels should be stronger than in the stiles or rails."

Maple Wood.—"This beautiful wood being light and delicate, is particularly adapted for the wood-work of drawing-rooms and boudoirs, where a cheerful style of decoration generally prevails."—"The colour may vary very much."

Rose Wood.—"The rails and stiles should be more simple in the grain than the panels."

Satin Wood.—"This wood is much used for drawing-rooms and boudoirs."—"The straight-grained satin-wood is the best adapted for stiles and rails."

Pollard Oak.—"When this imitation is well done, it has a beautifully rich effect. It harmonizes with warm stone colours, while with sage green it forms a very pleasing contrast. From its colour it is well adapted for dining-rooms, libraries, and lobbies. The colour may vary from the lightness of maple to the depth of mahogany, and consequently is very useful for decorative purposes."—"In consequence of the brittle nature of the wood, it does not stand, so that a good imitation is much better than the reality."

Wainscot.—"The knowledge of the best and quickest method of imitating this, the most useful of all imitations, is of the greatest importance, both to masters and workmen."—"Oak is adapted for all styles of building, and never fails to please when well done. It harmonizes with warm colours, and makes a pleasant contrast with cold ones. It looks well on ceilings, cornices, walls, and wood, in dining-rooms, libraries, and lobbies, especially in Gothic buildings."—"In some situations, the panels painted pollard oak, and the stiles plain oak, have a very good effect."

Morocco.—"The imitation of morocco is useful where a clothed and comfortable effect is required to be produced. It may be any colour."—"It may be here observed, that in apartments where there are green or crimson walls, cream-colour or French white is the most appropriate for ceilings and cornices, unless the imitation of some light wood be preferred. Gilded stars or other ornaments look well on morocco, and the effect of an apartment will be more beautiful if the enrichments on the ceilings, cornices, and wood-work, be hatched with gold, and sometimes the effect may be further improved by painting the back-ground of the enrichments with the prevailing colour of the apartment; or, if a gay or brilliant effect be desired, bright colours may be introduced from the carpet into the back-ground of the enrichments on the ceilings and cornices. This style of painting is called the Polychrome, and requires a tasteful judgment to select the most appropriate colours, so as to relieve each other, and produce the desired gaiety without harshness or glare.* But one hint I beg to suggest to our master-painters: that is, that in all decorations a proper regard should be had to the character of the building, and particularly of each apartment in which he is employed to exercise his professional skill; as painters should rather endeavour

* Those who are desirous for information on this style of painting and its origin, are referred to Art. VIII. in the 35th number of the *Foreign Quarterly Review*, Oct. 1836.

your to have their painting in accordance with the architectural design, than attempt to deviate from it, and mar the effect which was intended to be produced; and that they should not be led away by absurd manias which are pushed forward and called fashionable; for what can be more ridiculous than to introduce those harlequin-looking Moorish borders in our beautiful Grecian and Italian buildings, when there are within the reach of all abundance of Grecian and Italian ornaments? It is a blessing to society that our architects partly check such absurdities."

REMUNERATION OF ARCHITECTURAL DRAUGHTSMEN.

It is a fact not generally known to the public, and scarcely to be credited, that architectural drawing clerks are the worst paid class of men of the whole body of clerks. Considering the talent and education expected of them, they ought to be the best paid, for an architectural draughtsman must be acquainted with practical geometry, mensuration, an extensive knowledge of arithmetic, every thing relating to building in its various branches, a neat and expeditious draughtsman, well read in the old authors on the art, and, in fact, he is supposed to know as much as his employer except in the matter of taste. His education must be liberal of course, as the various branches I have enumerated will testify; and his personal appearance must be gentlemanly; and yet he is so inadequately paid, that merchants' clerks, of whom no particular talent is required beyond arithmetic, are much better paid than he is.

It may be asked, Why is this so? Why are they not better paid? Probably the system of taking pupils tends much to the bad pay of drawing clerks. Some architects of large practice take as many as six pupils, and only employ one or two paid clerks; the consequence of which is, the pupils when out of their articles are obliged to seek situations in other offices; they find pupils in every office, so that they are obliged to receive low salaries or be idle. Architects will not give high salaries while they can fill their offices with pupils who pay large premiums; they find it to their interest to have one or two paid clerks, for the pupils, know scarcely any thing beyond drawing, or it is probable that the class of draughtsmen would soon become extinct. There is something exceedingly galling in this, for a young modest fellow when he is informed of the amount of salary he is to receive, erroneously supposes that his services are not worth more, and is content to accept the terms in hopes that brighter days may succeed; but, alas! his hopes have no foundation save in his own mind. His employer, seeing him seemingly content with his situation and salary, thinks that he is satisfied, and is glad that he can get such a clever fellow for such a small salary; but should this young fellow at last, getting more confidence as he gets rubbed by the world, summon up his courage to the "sticking point," and, as conscious ability and talent swell within his breast, politely request to have his salary raised, or be allowed to resign his situation, his employer then, as it were, forced to acknowledge his abilities by the fear of losing them, agrees to augment his salary, stating, at the same time, that "he had observed for some time his attention to business, and had intended to have raised it had he not spoken first;" by which species of humbug the poor clerk is induced to believe that his employer was not so bad as he believed him to be, and, like another Tom Pinch, would quarrel with his dearest friend for saying aught against him.

I believe draughtsmen who serve with the great men of the profession are the most unlucky of the class; one certain advantage they have, which is, that being constantly associated with the great men, they to a certain extent imbibe some of their genius, and certainly gain a great deal in the matter of taste, which it is probable they might not if they were in an office of less importance; but this very advantage is a great disadvantage in a pecuniary point of view; the great men know the advantage which their draughtsmen have in being associated with them, and therefore give them low salaries, comforting themselves with the assurance that if they do not pay in the coin of the realm, they do in that of the brain, which they (not being in any pecuniary strait,

nor perhaps never having been in a "tin dilemma") consider to be the more valuable coin of the two. In this case, the poor clerk submits not to necessity, but to this consideration, that the credit attached to him by having been with such and such a great man for so many years will get him a good situation in any other office, at a good salary; this he has a right to expect, but even in this he is too often disappointed.

I am sorry to be able to record it, that builders have much more respect for the ability of their draughtsmen than architects, who would be supposed to appreciate and reward it more; but so it is, even mediocre talent is much better paid by builders than by architects.

It may perhaps be running away from the subject, but I may be excused when I say that to "give every devil his due," I think that the builder is a much more enterprising and in a great many instances a more liberal-minded man than the architect. To whom, I may ask, are we indebted for all of the improvements of any magnitude or note, either in London or the provincial towns? Nobody can deny that it is the builders to whom we are indebted for all the improvements at the West End; the very extensive buildings at Eaton and Lowndes squares, Wilton and Burton crescents, the Regent's Park, Kent-terrace, Oxford and Cambridge squares, Hyde Park Gardens, and, in fact, all of London that has been built within this last twenty years has been entirely through the enterprise of builders; they are a speculative race of men. I am sorry, though, that so few of them make their way in the world; they do an extensive deal of good to others and harm to themselves, but whoever heard of an architect failing by his profession? oh, no, they play a safer game, and not at all times a very honourable one, as many a builder can testify to his cost; but to return from whence I left off.

That architectural draughtsmen have themselves to blame in a great measure for the inadequacy of their remuneration is very evident. I hate combinations, and I therefore would not advise my brother draughtsmen to enter into them, because I conceive that the dignity of the profession would be much lowered by so doing. A much better way which we have of enforcing our pecuniary claims is by making ourselves thoroughly acquainted with our profession, extensively useful to our employers, and to make them feel that it would be an immense sacrifice to do without us, and the result is easily foreseen.

"Our doubts are traitors,
And make us lose the good we oft might win
By fearing to attempt."—SHAKESPEARE.

J. L. C.

Legislation.

HOUSE OF COMMONS, Wednesday, August 16.—*Payne's Wood Patent.*—MR. BARCLAY rose to put a question to the noble lord at the head of the Woods and Forests department concerning a subject which to his constituents and the shipping interest generally, as well as to those engaged in domestic building, was of considerable importance—he alluded to the patent process of Mr. Payne for preserving timber from dry rot, and the ravages of insects. He understood that the properties of the patent to this extent had been pretty fully tested, and more than all by the department over which his lordship presides, and that it had been satisfactorily shown that it had the property of rendering wood prepared by it unflammable, or at any rate of depriving it of a large degree of combustibility. For his own part, he (the hon. member for Sunderland) had no interest in the matter whatever; but anxious on account of his constituents, and, as he had said, on account of the general public, he wished to know from the noble lord whether any and what report had been agreed upon, in order that it might go forth to the country upon satisfactory grounds.—Lord LINCOLN said he felt most happy to give the honourable member the fullest information he possessed on the subject. The matter had been brought before him in his official capacity, and he had thought it right to take considerable pains to be well informed on so important an invention. He had paid a visit to the premises and inspected the very ingenious machinery and process of Mr. Payne, but not liking to trust his own judgment in a matter where great professional skill was essential, he had directed Mr. Phillips, Professor of Economic Geology, to examine into the invention and report upon it. That report the noble lord said was highly favourable; and since then he

had directed the erection of a structure in his department in which the process had been applied to all the timbers, and under the inspection of the Woods and Forests surveyors. He had no doubt himself of the great value of the invention, and believed that experience would confirm his present favourable opinion, but time would be necessary to test it. A comparison of the merits of Mr. Payne's, Mr. Kyan's, Sir William Burnett's, and another process, the name of the inventor of which he could not recollect, had been instituted, we understood the noble lord to say, in Regent-street or Regent's-park. He should be happy to lay before the hon. member for Sunderland the report of Mr. Phillips.—MR. BARCLAY thanked the noble lord for his satisfactory statement, and moved that the report be laid upon the table of the House, which was agreed to.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1479) — Windows — Dwelling-house — Due Assessment in 1834-5—Who to prove.

It is incumbent on an appellant to shew that he was duly assessed for the year ending 5th of April, 1835, when he seeks to be relieved from an increased charge for the windows in his dwelling-house.

At a meeting of the commissioners of assessed taxes acting in and for the said division and county, held at the court house, Osborn-street, Whitechapel, on the 23rd day of December, 1840 (48 Geo. 3, c. 55, sch. (A.); 4 & 5 Will. 4, c. 45, s. 7).—*Gregorie Grago*, of Parson-street, St. George, Middlesex, toymaker, appealed against an increased charge for the windows in his dwelling-house, being from eight to eleven. It appeared on the statement of the appellant, that in front of the house (exclusive of his shop window) there are four glazed windows, and four behind, and one which he has opened in a washhouse in the yard since 1835, which was before that time lighted by an aperture unglazed; there is besides under the stall-board of his shop in the front an opening into his cellar admitting light therein, which is supported by iron bars and not glazed, and there is also a hole in the wall of the back cellar, admitting light therein, of the dimensions of eighteen inches by fourteen, likewise unglazed.

The commissioners being of opinion, that unless the contrary is made to appear by the surveyor to the crown on evidence to be adduced by him, it is to be assumed, that parties were duly assessed to the window duties for the year ending the 5th day of April, 1835, and that the assessment of the assessors upon oath should be held to be conclusive, unless the contrary appear, *relieved the appellant*, but the surveyor being dissatisfied with their decision, demanded a case, which we have stated and signed for the opinion of some or one of her Majesty's judges, or barons of the Exchequer.

GEORGE OFFER.

EDWARD JONES.

18th May, 1841.—We are of opinion that the determination of the Commissioners is wrong.

J. PATTERSON. T. COLTMAN. W. WIGHTMAN.
—Justice of the Peace.

COLOGNE CATHEDRAL.—This famous cathedral is a fine building, but not half finished. I speak especially of the interior. Your first impression on entering it is of its exquisite lightness. The very materials seem to have lost their materialism in the hands of the architect, in conformity with the design of a great genius spiritualised by his fervent homage to the Divine Spirit. In looking upward along the tall, slender columns which seem to have sprung spontaneously from the earth like so many reeds, and afterwards to have been petrified—for only nature herself seemed capable of combining so much lightness with durability—I almost felt, as the architect must have done, that I had cast off the burden of the flesh, and had a tendency to mount skywards. In this particular it presented a remarkable contrast to the feelings excited by any other Gothic edifice with which I am acquainted. In Westminster Abbey, for instance, whose more solid architecture is chiefly visible by a "dim religious light," I was almost overcome with an awe amounting to gloom; whereas at Cologne, the state of my mind rose somewhat above serenity. Lofty, aspiring, cheerful, the light of heaven more abundantly admitted than excluded, and streaming through painted panes, with all the varied colours of the first promise; the distant roof seemed to re-echo with any other strains than those of that awful hymn the "Dies Irae." In opposition to the Temple of Religious Fear, I should call it the Temple of Pious Hope.—Up the Rhine.

In the intended new dock at Liverpool, called the Albert Dock, the estimated quantity of cast iron is no less than 7,000 tons.

LIST OF ENGLISH PATENTS.
(From the Repertory of Patent Inventions.)

George John Newbery, of King William-street, artist, for certain improvements in the manufacture and construction of window-blinds, screens, shutters, and other similar articles, parts of which improvements are applicable to other purposes.—Sealed July 6, 1843. (Six months.)

Henry Clarke Ash, of Birmingham, manufacturer, for certain improvements in the construction of teapots.—Sealed July 6, 1843. (Six months.)

James Booth, of Liverpool, clerk and doctor of laws, for certain improvements in the means of converting rotary motion into rectilinear.—Sealed July 6, 1843. (Six months.)

Thomas Masters, of Upper Charlotte-street, St. Pancras, confectioner, for an improved freezing, cooling, churning, and ice-preserving apparatus, the parts of which may be used separately or in combination.—Sealed July 6, 1843. (Six months.)

John Joseph Brunet, of Limehouse, Esq., for certain improvements in propelling.—Sealed July 6, 1843. (Six months.) Invention and communication.

George Parsons, of West Lambrook, Somerset, gentleman, for a portable roof for various agricultural and for other purposes.—Sealed July 7, 1843. (Six months.)

George Parsons, of West Lambrook, Somerset, gentleman, and Richard Clyburn, of Uley, Gloucester, engineer, for certain improvements in machinery for beating, cleansing, and crushing various animal and vegetable materials or substances.—Sealed July 10, 1843. (Six months.)

Jacob Samuda, of Southwark Iron Works, Surrey, engineer, for improvements in the construction of steam-engines particularly applicable to the purposes of steam navigation.—Sealed July 10, 1843. (Six months.)

John Laird, of Birkenhead, Chester, ship-builder, for improvements in the construction of steam and other vessels.—Sealed July 10, 1843. (Six months.)

William Edward Newton, of Chancery-lane, civil engineer, for an improved agricultural machine or implement for ploughing, harrowing, or tilling land.—Sealed July 13, 1843. (Six months.) Communication.

Richard Laming, of Radley's Hotel, New Bridge-street, Blackfriars, for certain improvements in the purification and application of ammonia, to obtain certain chemical products.—Sealed July 13, 1843. (Six months.)

Joseph Maudslay, of Lambeth, engineer, for certain improvements in machinery used for propelling vessels by steam power.—Sealed July 13, 1843. (Six months.)

George King Souththorpe, of Frederick's Cottages, Coleharbour-lane, Surrey, gentleman, for an improved method of fastening and securing bedsteads.—Sealed July 13, 1843. (Six months.)

Henry Pinkus, of Duke-street, Portland-place, Middlesex, Esquire, for improvements in the methods of applying motive power, in combination with apparatus and machinery, to certain purposes in propelling, and applicable to railways, to ships, or other vessels afloat.—Sealed July 13, 1843. (Six months.)

Stephen Geary, of 10, Hamilton-place, King's-cross, architect and civil engineer, for certain improvements in machinery or apparatus for clearing, cleansing, watering, or wholly or partially covering with sand, or other materials, roads, streets, or ways; and which machinery is also applicable to other similar purposes.—Sealed July 13, 1843. (Six months.)

William Midworth, of Mansfield, Nottingham, brass-founder, for certain improvements in the construction of what are commonly called street guardians, for public water services, and in the mode of constructing the stop-valves, stoppers, or stop-cocks, and which stop-valves, stoppers, or stop-cocks, are also applicable to various other purposes, where the flow of water, or other liquids, is required to be regulated or suspended.—Sealed July 13, 1843. (Six months.)

Henry Smith, of Birmingham, for improvements in apparatus for fastening doors, and in apparatus for giving action to alarms.—Sealed July 13, 1843. (Six months.)

William Hutchinson, of Ivy Bridge-lane, Strand, marble and stone merchant, for improvements in machinery for cutting marble and other stones.—Sealed July 13, 1843. (Six months.)

James Neville, of Walworth, civil engineer, for improvements in obtaining power by means of gases, applicable to working machinery.—Sealed July 13, 1843. (Six months.)

Ann Wise, of Saville-row, Burlington-gardens, Parisian corset-maker, for improvements in the construction of stays and umbilical belts.—Sealed July 13, 1843. (Six months.)

TO THE EDITOR.

SIR,—To trace the progress of the arts and sciences is one of the most interesting and useful pursuits of literature, and I have perused the Memoranda on Bricks and Bricklaying, by Mr. Wylson, in this day's *BUILDER*, with much pleasure and profit. But it is our bounden duty to correct an error, however slight, and when speaking of the brickmaking of the ancient Egyptians, Mr. Wylson has fallen into one when he asserts that they did not possess the knowledge of the art of making bricks. As I have always considered Egypt the parent of civilization, I have ever sought information respecting her arts, and particularly as relates to the art of building.

If Mr. Wylson will consult the great work of Mr. Perring (the civil engineer) on the Pyramids, or some practical papers of the same gentleman's in *Newton Journal* last year, he will find that the Egyptians not only burned their bricks for the formation of quay walls, and for substructing of their houses in damp situations, but that those bricks are good and solid, and impressed with hieroglyphics, shewing that they were burned in a kiln, and not clamped. Except in such localities the necessity for burning did not exist in a country without rain; hence the fact that they possessed the art escaped the notice of all mere travellers.

Wishing your practical work all the success it deserves, I remain your well-wisher,
August 12, 1843. — ARCHITECTUS.

TO THE EDITOR.

SIR,—Will you be kind enough to inform me what kind of colouring I ought to put on a brick house which has been built at different times, so that there is various hues of brickwork? I, at the same time, wish to preserve the character of the brickwork. Also, some cheap composition for bronzing some iron railings.

Thames Tunnel.

THOMAS RUMBALL.

Miscellaneous.

METROPOLITAN IMPROVEMENTS.—Mr. Brunel and Mr. Barry are surveying the banks of the Thames from Vauxhall-bridge to Battersea-bridge, preparatory to its being embanked for the new road. This will much enhance the value of the Grosvenor and Cadogan property. When completed, it will be one of the most pleasant drives near London. The houses from Abingdon-street to Wood-street are to be taken down.

THE WELLINGTON AND NELSON MONUMENTS.—A mass of gun metal remaining at the disposal of the committee of the City Wellington Statue, its appropriation has been sought by the committees respectively of the Nelson Column and the West-end Wellington Testimonial. By the latter it is urged that, for a monument to the Duke of Wellington, the material best suited is assuredly the gun metal captured in his campaigns; on the other hand, it is claimed by the committee of the Nelson Column, on the score of poverty. A meeting has taken place at the Mansion-house for the determination of the claims; and the matter is yet undecided. In such disputes sculptors and artists cannot themselves interfere; although, generally, they suffer from the evil impressions which get abroad in consequence of such contentions. We cannot blame a committee man for the entertainment of a decent anxiety for the discharge of his trust, but assuredly all reckless and "thick and thin" exertion of patronage is most disgusting. Thus we conceive to be entirely an affair of the Government: there is surely old gun metal enough for both purposes; and it is to be lamented that for such purposes it should be withheld.—*Art Union*.

THE NELSON MONUMENT.—The construction of the Nelson monument, Trafalgar-square, the progress of which was interrupted in consequence of the Corinthian capital not being completed, has, after a suspension of some months, been again proceeded with. The workmen have commenced fixing on the leaves and volutes of the capital, which were cast at Woolwich dock-yard, and which have been upon the ground in Trafalgar-square some days. Some of the leaves and volutes, which have taken between two and three years for their execution, weigh two or three tons. They have not all yet arrived from Woolwich, but it is expected the whole will be forwarded in the course of a month. There will be then nothing to impede the operations of the workmen, who have already prepared the stone-work which will be necessary to connect the capital upon which the pedestal will have to be placed. The statue will be next raised, but it will require another tier of scaffolding to be erected for that purpose. The statue of the great naval hero is nearly finished; it is composed of two solid blocks of stone, and has been formed in a temporary house on the ground by Mr. Bailey, R.A., who daily superintends its formation. It is expected that the monument will be finished by the end of the year.

HEBREW NATIONAL SCHOOL.—At Birmingham, on Wednesday week, the laying of the foundation stone of a Hebrew national school took place with great ceremony by Sir Moses Montefiore, who was accompanied by his lady, the Baroness de Rothschild (the Baron being detained in London), and several Israelites of distinction. A banquet on a splendid scale took place in the evening at Dee's Royal Hotel, at which the mayor presided. Sir Moses Montefiore delivered a brief but impressive address to the audience on laying the stone. The religious services were conducted by Dr. Raphall, of the synagogue, Birmingham, and Mr. Isaacs, of Liverpool. A band of chorists from the synagogue, St. Helen's, London, were in attendance, and took part in the services of the day. Altogether the proceedings were of great interest, and drew together a large number of the leaders of the Hebrew community from the metropolis and other parts of England.

The Hebrew congregation are about to erect a school in Lower Hurst-street, Birmingham.

Two new cartoons by Raffael, are in the possession of Messrs. Colnaghi, Pall Mall East, discovered not long since under the usual circumstances—defoulment and dilapidation. Both cartoons have attracted much notice from connoisseurs, especially that for the 'Virgin and Child,' a picture now belonging to Mr. Rogers; of which we think there can be little doubt, as a genuine design by the hand, and the sole hand, of Raffael. An engraving has been well taken, in full-size lithograph, yet its tone, at first glance, suggested to us *Andrea del Sarto*, but the cartoon itself dissipated this suspicion; there is a character, palpable though indefinable, about the Child far above Andrea, whether we regard its artistic or poetical attributes. Considering the faded state of Mr. Rogers's once admirable and still beautiful picture, this cartoon has a high value: Messrs. Colnaghi ask, we believe, 1000*l.* for it from any individual purchaser, but would, perhaps, with a fair compromise between their private interest and public spirit, accept a fifth less from the nation. Of the other cartoon, 'David slaying Goliath,' it might be enough to say that Raffael executed sketches only, not designs, for the Loggie subjects, of which this is one, at least for none beyond the first *cupoletta*: yet his inspiration renders itself visible throughout the copies made by his pupils, and gives them special worth; the present specimen, though almost obliterated, would do honour to *Giulio Romano*.—*Athenaeum*.

The premium of 300*l.*, awarded to Mr. Armitage for his cartoon, representing 'Cesar's Invasion of Britain,' was withheld in consequence of the drawing having been executed in Paris; and, agreeably to the conditions originally laid down by the commissioners, Mr. Armitage was required to execute another drawing, the subject 'An Ancient Briton defending his wounded Son from the attack of a Roman Soldier.' This he has done to the entire satisfaction of the commissioners, who have now declared that he is entitled to receive the premium.

The Lady Chapel of the church of Saint Nicolas-des-Champs, Paris, has recently been enriched by a Christ, of colossal proportions, painted on lava, on a gold ground, by M. S. Perlet, after the manner of the Byzantine mosaics which still adorn some of the Italian churches. This modern painting on lava is said to be one of the first essays of a kind peculiarly adapted to a northern climate, by its presenting a surface enamelled by fire, and therefore proof against damp.

Some time since we announced, with such commendatory terms as both the project and execution deserved, a volume which had then gone through the press, and was entitled 'Arabesque Frescoes by Raffael and his Scholars,' otherwise, 'The Architectural Decorations of Rome during the Fifteenth and Sixteenth Centuries.' Its editor, *Ludwig Gruener*, (the eminent engraver), has thought good to enlarge its plan, to give double the number of plates, and thus to render it illustrative of Italian arabesques, rather than of Roman alone. It is now entitled 'Fresco Decorations and Stuccoes of the Churches and Palaces in Italy,' exemplifying the Milanese, Umbrian, Parmesan, and other styles as well as the one first illustrated. We could wish the plan had been still more comprehensive, for it falls short of all the beautiful embraced by the name; but we have, at present, only to make brief and favourable report on the additional plates, while we reserve our criticism upon the whole work till it comes before the public together with the promised letter-press. In justice, however, to the distinguished artist, and to his royal patrons—not yet much distinguished for their encouragement of high art—we must add, that his work was presented last week to the Queen, from whom it received a most gracious approval; and that it is, by a permission as creditable, dedicated to Prince Albert, and to the Members of the Royal Commission of the Fine Arts.—*Athenaeum*.

To any of our SUBSCRIBERS who are in possession of copies of Nos. 3, 4, and 8, in an unsoiled state, and who do not require them for binding up, we shall be happy to return the full sum of THREEPENCE in exchange for such Nos., they being now entirely out of print.

THE BUILDER,

NO. XXIX.

SATURDAY, AUGUST 26, 1843.

ON THE RECENT DESTRUCTIVE FIRES IN LONDON.

LAST Tuesday evening, we were ruminating on the account of fires that had occurred in this metropolis since the day of our last publication, and we reckoned up the alarming number of TEN! with a total of some hundred thousand pounds' worth of property destroyed, not to dwell on the fearful loss of life by the explosion. We were in too grave a mood, although our gravity would hardly have been compromised by the bitter humour of a jest of such a cast; but we had no heart even for such a jest as to direct that a "head line" should be set up in THE BUILDER, dating from the publication of No. 27, wherein we ventured to express our fears, our surmises, suggestions, warnings, and we may almost add predictions—and that that "head line" should be "LONDON FIRE-PREVENTION FUND"—payments made to credit of "LONDON FIRE-CURE FUND"—and so to register the thousands and fifty thousands of pounds that each week pass in fearful rapidity from one column to the other, and pass, be it observed, from a bank or stock each day growing less, into a widening, deepening gulph of absolute loss. Yes, ten fires we had reckoned up, and closed the heart-sickening account with fervent hope that a respite would ensue for at least a week or two, premising to enter into our calculations deliberately as to the furtherance of our aforesaid recommendations, when, lo! on Wednesday morning, we are disturbed from our propriety by the rumour of Fire No. 11, in the short time from the Saturday previous, and we were thus impelled to take up our pen again.

We had but a few days before passed through hands the amended Building Act Bill, and thanked the fates that the Parliamentary session was so far advanced as to give assurance that it must lie over to a period that would admit of incorporating with it an enlarged measure of fire-preventive arrangements or provisos. We had received communications about our plan of an aqueduct, and for fire-proof buildings, &c. We had heard comments on the suspected apathy of the classes we had addressed, and had been told by one prophetic voice, that nothing but the actual setting in of the too probable SECOND FIRE would rouse the London public to a sense of the common danger. We had heard these, but not a word of objection to our plans; one class of objectors being silenced as to the practicability, and shamed into its admission by what we had said of the doings at New York; the other class, as to the possibility of a "second fire," by what we had said of Hamburg. So far the way seemed promising and clear, but we did not think of so soon and in so startling a manner being impelled to take up the question again. Here, however, it is, and henceforth it must be continued with some degree of pertinacity; it must be bawled into the ears of the sleepers, and hammered into the comprehension of the dulleards; they must know, and all London must know, and it shall

not be our fault if they do not know, that we are on the eve of a SECOND FIRE, that preventive measures are indispensable, and are our only reasonable human chance of averting it.

We shall not waste breath to insist again on the practicability of the proposal we advanced in Number 27. The Croton aqueduct is our short answer to all disputants. We shall not waste breath to insist on the possibility of a second general conflagration—Hamburg and these "portent fires," is all our response in that respect; and, if it were a question of superseding half-a-dozen stage-coaches and as many carriers' waggons by a railway and locomotive appliances, we should have no trouble in shewing that a turnpike road was an unworthy retainer of an almost obsolete system of goods and passenger transit, and that two or three millions would be well expended on an iron road and its correlatives; but although our first answers are not to be gainsaid, and although our task in demonstrating this latter position is so comparatively easy, yet, with the light before us and the fire behind us, and a superabundance of means and energies at hand, as a comparatively insignificant case has proved,—with all this, how hard, how difficult, to arouse the people—the fire offices for the security of their funds—the water companies for the security of their trusts and investments,—and the general public for the security of life and common property! Aroused, however, they shall and must be, or it shall go hard if we thunder not in the ears of some, startling and unpleasant truths, and convert the most stolid and stupid of listeners into the nervously sensitive—their fears shall be worked upon, if their common sense be so inapproachable—their apprehensions of pressing danger shall be aroused, if their sense of duty be insufficient to prompt them to action.

But it was always so. Stage-coach proprietors and turnpike trustees slept and mocked during the advent of the railway visitation, and they have been well-nigh overwhelmed as well as overtaken, and so it will be with interests now in jeopardy. Impending by a thread, by the hair of destiny, is that sword which an extra breath, a mere breath of the raging lungs of fire, may cause to fall upon this city for its devastation and destruction.

£58,500 is the amount of insurance in the several offices involved in the destruction of the premises at Topping's Wharf, and we suppose we may safely calculate on £100,000 as being the least sum which this week's burnings will have swallowed up in London alone. One hundred thousand pounds! that would have given comfort and employment to numerous artificers, and spared the irreparable losses, besides guaranteeing ten and a hundred times the security for the future.

Our hand is to this subject now—it is not to be exhausted in one or two essays—and we fear, as we feared before, that our justification will be found in the adverse turn of events. Fire upon fire and loss upon loss will preach their stern monitions without relent or following remorse. Our voice is that of the look-out-watch, and may not be disregarded. A wise people will pay heed to it—let fools contemn or esteem our sayings folly.

PRINCE ALBERT has received as a present twelve statuettes in metal, representing the emperors of the house of Bavaria, executed by Schwanthaler, of colossal size, in the throne-room at Munich. In order that such artists as might be anxious to compete for the execution of sculpture in the House of Lords should see in what way Schwanthaler had treated similar subjects, he sent them to Gwydir House for their inspection. It was kindly and considerately done. We have reason to rejoice indeed that the prince feels so personally interested in the advancement and prosperity of British art.

THIRTEENTH MEETING OF THE BRITISH ASSOCIATION—1843.

THE proceedings of this learned body commenced on Wednesday evening, the 16th inst. The sectional meetings have not, generally speaking, been well attended; the subjects discussed have not been entirely popular—and the technical dress they are paraded in does not add to their attraction. The ordinaries, &c., are more gaily frequented, and the "soirées" promise to be thronged.

The Marquis of Northampton presided in the place of Lord Francis Egerton, who was prevented from attending, and handed over the presidency to the Earl of Rosse, a nobleman distinguished for his success in astronomical pursuits. The section of mechanical science is thus constituted:—President—Professor John Naeiel. Vice-Presidents—John Taylor, Esq., F.R.S.; F. G. Burgin, Esq.; Sir T. Deane. Secretaries—James Thompson, Esq., C.E.; —Bakewell, Esq. Committee—Isaac Hawkins, Esq.; Charles Vignolles, Esq.; Archdeacon Kyle; Robert Mallet, Esq.

It met for the first time on Thursday week, when Mr. Russell delivered a lecture on the application of some laws of sound on the construction of buildings. He said what he was going to read was a practical subject. It may be known, perhaps, to some members of that section that a committee was appointed to investigate the phenomenon of the laws that communicate motion to water waves; there, many difficulties were got rid of with regard to the undulation of sound in the air, and the laws of sound were satisfactorily explained by the illustration of the causes of the motion of water waves. In consequence, there were constructed buildings in a most perfect manner for hearing. He would not have brought forward his paper on the subject, but that his views were successfully applied, and houses built on his principle capable of containing 4,000 persons. There were several of the same kind in Scotland; and having perfectly succeeded, he felt himself warranted in laying it before the Association, not as an idle speculation, but as a practical result. Some of the laws of sound were not known till very recently—still a great many of them were known always. He would at once proceed to explain a plan of construction by which 20,000 persons can be accommodated in a single building, if necessary, in such a manner that each individual should hear with the greatest ease the voice of a single speaker. It was well known that sound proceeds in a straight line, not round angles. The first element of the construction was that all the heads of the audience should form a certain curve, the focus of which was the head of the speaker, so that the head of each auditor should not interfere with another, and that each should imagine himself in as good a position as possible for both hearing and seeing the speaker. He (Mr. Russell) found by experiment, that a person speaking in a moderate tone of voice in the open air, could be heard at the distance of 280 feet. That distance in a building would accommodate 15,000 persons. Such buildings had not as yet been made to contain more than 4,000 persons, and they were very successful. He proceeded then to explain the geometrical construction of the curve, which was almost semicircular, and from which it was clearly evident that the undulation of sound from the mouth of the speaker reached the auditor in a direct line, and without the slightest interruption. He had published a paper on it some time ago, which had not been attended to, until a young architect adopted his mode of construction and built twenty or thirty houses of the kind. After some further observations, he remarked that speakers should always adapt the tone of his voice to the key-note of the room he was about to speak in, which could be easily done by a tuning fork. For if he tried to speak in any other note he would create inharmonious sounds, and render his voice very indistinct. If he took a room 32 feet long, its key-note would be C, the same as on an organ pipe of the same length; if 25 feet, the key-note would be E, and so on, and the speaker should pitch his voice to a tone most suitable to the room, and thereby he would speak with the greatest ease. Rooms ought not to be constructed in transverse parallelograms of a different size, for then the speaker could not possibly suit his voice to both, but would create

an inharmonious jarring, or what he would call the phenomenon of spontaneous oscillation in a room.

Mr. Dircks explained the mechanical construction of Luntley's Shadowless Gas-burner as being admirably calculated to favour the chemical conditions requisite to promote the perfect combustion of coal-gas. He showed that by bringing the atmospheric air, without being heated, to play directly on the inflamed gas immediately as it escaped from the numerous orifices of the burner, a larger quantity of the atmospheric oxygen was obtained in the same time and in equal measures of air, than if the same air had been previously heated; at the common temperature he observed that every cubic inch of gas would require 10 cubic inches of air for its entire combustion and consequent freedom from smoke, but that if heated to 480 degrees, every cubic inch of gas would require 20 cubic inches of such heated air, because the absolute quantity of oxygen in either case remains the same, the bulk only being increased in the latter instance, and a mechanical obstacle interposed by such expansion. What he recommended was rather to heat the gas. He stated that inasmuch as less metal was used in the construction of the improved burner it communicated its heat with greater facility and rapidly to the gas, a condition highly favourable to the combustion of gas. The glass chimney, too, was of a shape that gave a more cylindrical form to the flame, being made of enlarged openings upwards. The flame was one of intense brightness, and of the colour and appearance of the flame produced by the combustion of the purest sperm oil. The intensity of the light he attributed to direct application of a more than usual quantity of the atmospheric oxygen just at the point where the gas was bursting into flame, and that therefore a less quantity of gas served to produce a light of equal intensity with that of the ordinary burner, while at the same time the diminished combustion was not only a source of economy to the consumer, but the products of combustion and hot air were considerably diminished, serving to keep the apartments of Club Houses, Concert Rooms, and other places using a great number of argand burners, much cooler than usual, the escaping hot air and carbonic acid being greatly diminished. Mr. Dircks warmly recommended the invention to more extended notice.

This paper led to some excellent remarks from Mr. Taylor on Mr. Faraday's improvements in the ventilation of gas lamps and the lanterns of light-houses; Mr. Hawkins on increasing the draught of chimneys; and Dr. Scoresby on the improper construction of house chimneys.

(To be continued.)

THE SMOKE NUISANCE.

WE find in the *Mining Journal* of Saturday last a continuation of the summary of evidence taken before the select committee of the House of Commons, on the smoke nuisance. It relates chiefly to the invention of Mr. C. W. Williams, for blending the atmospheric air with the gases generated in the furnace, and so producing perfect combustion; in other words, preventing the formation of smoke. Dr. Ure described the process thus:—

"The air passes through a great number of small apertures, and, by this means, it gets thoroughly intermixed before it loses the temperature of incandescence, and thus insures its perfect combustion. In furnaces a great deal of carbonic oxide is formed, which also thus gets its additional dose of oxygen. The air passing up through the bars is for the combustion of the coke, while the air passing through the chamber and its numerous apertures is for the combustion of the gases; the carbonic oxide formed, being also burnt, escapes as carbonic acid. By this means the whole of the fuel is entirely burnt—only half the heat is given out when the carbonic oxide is formed. When the fireman sees any smoke, he admits the air. The furnace bars should be covered, and no holes left in the fuel; after a little time, in every furnace, the fuel burns into holes, and by which means the air passes up through them, carbonic oxide is formed, and this requires its portion of air also. To know what heat is produced, Mr. H. Houldsworth, of Manchester (whom the Doctor described as his old pupil), has contrived a very ingenious pyrometer, which consists of a long wire, acting on a bent lever; the long leg of which traverses along a gra-

duated arc—thus the workman sees the degree of heat in the furnace. The first process in the furnace is coking, and during that process, much gaseous matter is given off, which, in the ordinary plan, cannot be consumed; and as the hydrogen of the gas gives off three times more heat than the carbon or coke, this produces a great loss, if not burnt. If you burn a pound of carbon, you get only one-third of the heat you get from a pound of hydrogen; so that in hydrogenous or bituminous coals—as Newcastle coals—the hydrogen gives three times more heat than the carbon. It is the bituminous coal which produces the greatest nuisance from smoke, and which has hitherto been rightly viewed. Formerly (the Doctor said) he attached much importance to the mode of feeding the fires gradually, as by Brunton's furnace, which he described. With Mr. Williams's furnace, as you can shut off the air, and reduce it to the plan of a common furnace, you can institute the most accurate experiments. It is found that by opening the hole and admitting the air, the smoke disappears, and the evaporation increases in the ratio of 10 to 8—so that, with the same fuel, you evaporate 10 lbs. of water, and but 8 lbs. only when the aperture is closed. With respect to heating the air (the Doctor continued), it would not be any improvement; and he stated, decidedly, that a simple plan may be adopted, that would not only prevent smoke, but likewise save fuel. With respect to durability, the Doctor further observed, that the perforated plates stand admirably for years, and without any trouble—the fact is, they are kept cool, and not exposed to any great heat. To a question respecting Mr. Watt's principle, of not putting the coal on to the fire, by means of a hopper, until it was coked, Dr. Ure observed, that that produced a great evil, as the carbonic acid formed in the front part became carbonic oxide in the other. Mr. Watt thought that, in preventing smoke, he had accomplished the sole object; by more minute investigation, however, it is now found, that what is called the destruction of smoke, in many cases, is merely the production of carbonic oxide, the destruction of the fuel, and the pollution of the atmosphere. With respect to Mr. Williams's plan, which is a simple and effectual one, the Doctor stated that he understood that he will meet Parliament more than half-way, and not allow his patent to be any obstacle to the universal adoption of his principle. The plan has been adopted in many furnaces, and Mr. Houldsworth (of Manchester), who has adopted it, has given a very favourable report of it. I have known many patents, but there is none in which that blending of the gases with the atmospheric oxygen admitted from many orifices has been so well effected. In conclusion, the chairman observed: To come back to the first position, your decided opinion is this, that the means of preventing smoke from fires and furnaces are feasible?—A. Yes.—Q. And that it would be eligible for manufacturers to be obliged to adopt them? A. That is quite my opinion."

The next witness was Mr. John Chanter. It will be observed that he supports the principle on which Mr. Williams acts, though his arrangement is totally different.

"He was of opinion that smoke can be consumed with considerable advantage to the manufacturer. He had taken out a patent for the improvement of Whitby's patent, and had joined some engineers at Liverpool, and taken out other patents. Some years ago he had hundreds of engineers attending where he had a furnace, and every one saw that there was no smoke whatever from it. He had put up 1,000 furnaces. At first several failed, but now he did not know of one doing so. He had guaranteed a saving of 10 per cent. upon steam-engine boilers, and 20 per cent. on the fires of dyeing-panns. He then described his plan. Since the meeting at Leeds, he had bought two additional patents, and made a combination with his own. The present patent which he submitted to the committee is not the same as was proposed to the Leeds committee. The principle of his patent was much like Mr. Williams's, but with a totally different arrangement. He thinks smoke, after it is once formed, cannot be burnt. His plan is a union of several different plans, twelve in number. He applies his plan by double fire-grates, which are under the whole of the boiler; one is under, a little inside, and he keeps up a heavy coke fire. He recommended paying the stokers in the manufacturing districts 1s. a day extra, and that little difficulty would then occur in doing away with the nuisance. The majority of the firemen are of the lowest grades, but by paying them better the nuisance would be got rid of."

This last remark is significant. "Wrong never comes right" was the favourite maxim of Theodore Hook. Here we see it exemplified. The injustice of paying a friendless class of men inadequate wages, has been visited by a more than equivalent expenditure on experiments to abate a nuisance resulting from the

apathy and sluggishness which low wages naturally engender; nay, further, by the injury to the general health of the community which the nuisance inflicts.

The next witness speaks favourably of the invention of Mr. Williams:—

"Mr. HENRY DIRCKS was particularly acquainted with the argand furnaces of Mr. C. W. Williams, was practically acquainted with the mechanical details, and was also well acquainted with chemistry, and its connection with combustion. Had erected above 200 furnaces on Mr. Williams's plan within the last eighteen months, and it had since been applied to many steam-vessels. The expense was about from 3*l.* to 5*l.* for each furnace. The saving he found to vary from 10 to 30 per cent.; this arose from the various qualities of the coal, some producing more gaseous matter than others, and, of course, more economy by their combustion. Besides, some furnaces are already carefully managed on the common plan, and, of course, there is less room for improvement, and, therefore, there cannot be as great a saving. Still there is always a saving by effecting the burning of the gases. As to preference of plans, there is none which effects the same perfection as to the mixing of the gas and air; and, of course, so complete a combustion of those gases. On being asked to describe the chemical principles of this argand furnace, Mr. Dircks said, the principle is that gas emanating from coal requires much atmospheric air. There is no novelty in the principle of admitting air, but the novelty is in the mode of applying that principle—viz., in dividing the air by a great many apertures or jets. Every measure of gas requires ten measures of air; but if you admit the proper quantity in a body, or in bulk, it overpowers the gas, and cools it; it is like pouring oil on the wick of a lamp.—Q. The secret then is to admit just sufficient supply of air to create combustion?—A. Yes, and to get it mixed immediately. It would mix in the furnace, but the loss of time would cool the furnace; the jets, or divisions, make the mixture immediately. With respect to apportioning the quantity of air required, Mr. Dircks observed, that the orifice for its admission being adjusted, no more adjustment is required than for the argand lamp. When you ascertain, by observing the chimney, that a given quantity will produce a bright flame in the flues, and the chimney free from smoke, then you have a safe gauge, and are not admitting too much. By an experiment, the valve was kept open the whole day, and by a meter attached to it, the air had to pass through the meter, and the quantity was ascertained. On each charge being put on the furnace, an increased rapidity was given to the meter, shewing an increased quantity of air admitted; but as the quantity of gas diminished, the admission of air diminished also, as indicated by the meter; the natural demand for the air thus adjusting itself."

(To be continued.)

THE MOTION OF VESSELS CAUSED BY WAVES APPLIED AS A MOTIVE POWER.—A power which has long been vaguely known to exist, but the idea of ever bringing it into use never appears to have been even thought of, is just now being brought under notice by Y. A. Etzler, Esq., who, by means of some very simple machinery, has made the alternating perpendicular motion of a ship, by the power of the waves, subservient to her horizontal motion through the water. To conceive how this power can be brought into action, it is necessary to know, that to whatever height a wave rises, it has no effect on the calm of the water below, further than at a depth equal to its height, and hence it is easy to render the power of waves efficient, by offering them a resistance; for the propulsion of a vessel, this resistance is obtained by connecting a sort of platform placed beneath the undulation of the waves, with the vessel floating in them; at both ends of this platform, and brought up on each side of the vessel, are strong connecting rods, attached to arms working on an axis; to these arms are fixed ratchet rods, working in tooth wheels, connected with the paddles, and at every pitch of the vessel the alternate perpendicular motion causes the paddle-wheels to revolve. This is the most simple application of the power, but by a proper arrangement of requisite machinery, fly-wheel, &c., the motion of the vessel may be regulated as true as the steam-engine, and by springs placed in proper parts of the two floating bodies—viz., the vessel and the platform—all danger may be resisted, an concussion rendered harmless. Mr. Etzler calculates that 20 to 30 miles per hour can be easily and safely attained by these means, and that, taking into consideration the duration of calms, when there is always an undulation of the sea, the average rate of velocity on long sea voyages may be estimated at from 10 to 20 miles an hour. A perfectly successful experiment has been made off Margate with the most simple mechanism, and a model exhibited in the captains' room at Lloyd's for public inspection.—*Mining Journal*.

WARMING AND VENTILATING.

TO THE EDITOR.

SIR,—Great press of other business must form my apology to you and the readers of *THE BUILDER* for neglecting to notice last week T. H. C.'s plan for warming and ventilating. In a former paper I have asserted the fact, that more than thirty years ago I made myself perfectly familiar with Professor Meisner's plan for warming and ventilating with *hot air*. T. H. C. is, therefore, far from being the original inventor of that system. Like many others who have followed Meisner, if he had published the delineation of his plan and sections of building at the time of their completion, he might probably have been successful in obtaining orders; and, also, like them, in destroying the vitality of the atmosphere with poisonous effluvia.

The plan exhibited is as dangerous as that in the princely palace at Dusseldorf, which set a bedstead on fire, and as unwholesome as that in the Long-room of the Custom-house, of which the gentlemen there employed made, with so much reason, such loud complaints. Eight years ago, I saw at Cumberland-place, an apparatus on the same principle, upon the ventilators of which water might be boiled. The proprietor came to my house to ascertain the difference of atmosphere produced by my apparatus and his own. He also invited me to accompany him, on his return, to witness the boiling of water on the ventilators in his drawing-room. About six months afterwards the same gentleman, besides many others in the course of that time, came to my house, and while standing opposite the entrance of warm air, was unconscious whence the warmth proceeded until I pointed out the fact of the warm air gently breathing upon him.

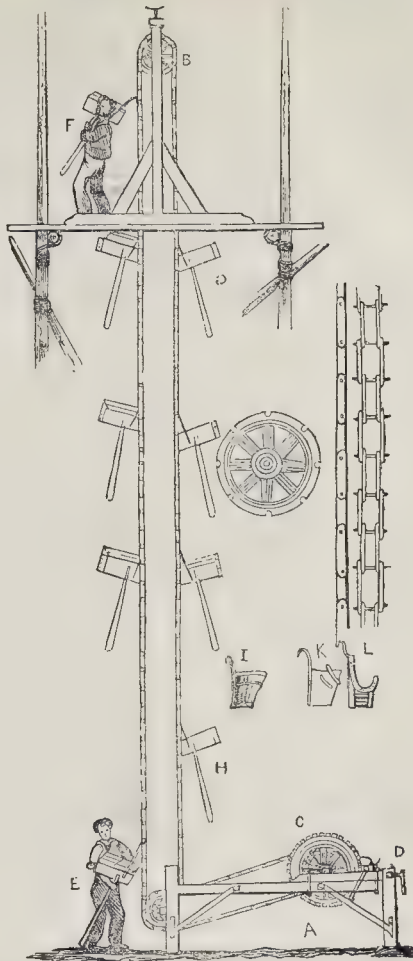
About fourteen years ago the royal stove-manufacturer of Berlin advertised a stove of *wondrous* merit, from which no smoke could escape, because it was obliged to return to the fire, by which it was entirely consumed. Some weeks afterwards, I was called to an ambassador's residence in William-street, to examine the atmosphere produced by the said stove, and to direct its improvement. This I did, also advising the proprietor of the house to report to the Commissioner of Police (called president), apprising him that the lives of the people were in danger wherever such apparatus was fixed in a room. The authorities at Berlin, well aware of my judgment in such matters, published a notice in all the newspapers, that all persons selling such poisonous apparatus within the kingdom of Prussia should be prosecuted and punished. Such a notice would, no doubt, have saved many valuable lives in this country during the last eight years; but henceforth, it is hoped, that a faithful exposition of the merits and demerits of the most important inventions, widely circulated by *THE BUILDER*, will quickly supersede the necessity of all authoritative interference in such matters. I have to thank you much for your very liberal notice of my last communication, which I feared would be found too lengthy for one insertion; but, I trust it will be deemed but an act of justice to me and my system, to give early or convenient insertion to the most important testimonials, of which I esteem not the least that of Dr. Toulmin. Other portions of my last communication I did esteem of considerable value, entirely to remove all prejudice from minds imperfectly informed on the subject, but I must willingly and gratefully bow to your superior judgment in respect of publication, and with great pleasure rely upon your honour to give insertion to such further portions as you may deem essential to a clear understanding of the merits of the case. Fully aware of the difficulties of your position, and again thanking you for your enlightened and impartial treatment of the subject,

I remain, Sir, most respectfully,

F. A. BERNHARDT.

August 16th, 1843.

THE REBUILDING OF EXETER CHANGE.—The old adage, "out of sight out of mind," is not true as regards this once ancient and venerable pile. The Marquis of Exeter, with a spirit worthy his high and honourable name, is about to restore the building so dear and familiar to our boyish recollections; the erection of a new and elegant arcade from the lower end of Catherine-street, in the Strand, to King-street, Covent-garden, is already commenced, which building will be known by the name of "Exeter Change." The architecture of the principal entrances of the proposed arcade is of the Elizabethan style, with red brick and stone, and the interior, having a curvilinear roof of glass the entire length of the building, will be fitted up with shops, exclusively appropriated to the sale of hardware, as in the ancient building. The whole will be erected at the sole cost of the noble marquis. The architect is Mr. Sydney Smirke, Messrs. Grissell and Peto the builders.



DOCTOR SPURGIN'S MACHINE FOR HOISTING BRICKS, MORTAR, &c.

IN No. 25 of *THE BUILDER* we gave a description of Dr. Spurgin's machine, and at the same time expressed a hope to be able to illustrate it in a future number. That hope we are now enabled to realize, and to make the illustration perfectly clear to our readers, we transcribe the words of Dr. Spurgin:—

"The main part of the machine rests upon the ground (fig. A).

"The second part of the machine is a trestle, which may be placed upon the scaffolding of the bricklayers (fig. B); in the upper part of this trestle is a wheel which corresponds perpendicularly with another wheel (fig. C) attached to the principal body of the machine resting on the ground.

"The wheel C is put in motion by one or several men, who turn the handle (fig. D) by which the chain operates its rotation. The workmen attach their hods full of materials, as at fig. E, and others detach them (fig. F) to carry them to the bricklayers. The empty hods are attached to the chain as at fig. G, and they are detached as at fig. H.

"The chain may be lengthened and shortened as necessary. When a story is added to the scaffolding, the trestle is placed upon the new story, and the chain lengthened as required.

"The figures I K L are accessories used for hoisting the materials; viz. I for the broken bricks, K for the water, and L for the pieces of stone for windows, chimneys, &c.

"At the top (fig. C C) is a screw for tightening or relaxing the chain, as occasion may require."

Dr. Spurgin conceives he has accomplished certain desirable ends.

"1st. To relieve the workman from the most toilsome part of his labour, by doing away with the practice of ascending the ladder.

"2nd. To prevent as far as possible the accidents arising from this practice, to which he so often falls a victim.

"3rd. To enable building operations to be carried on with much greater expedition than heretofore. And,

"4th. To diminish the cost of such works.

"Of late years building in England has been carried on to an extent formerly unknown; houses are now, for the most part, raised to four or five stories, where two or three used to be the height; the consequence is that the labour of the men employed in conveying the materials for the building has become much more severe than it was, and their strength fails and becomes unequal to the task imposed on them.

"To explain the immense advantage which the machine offers in expediting the work of building, and diminishing the expense of raising the bricks and mortar, it seems to be unnecessary to do more than to refer to the following

"DYNAMICAL TABLE OF THE STRENGTH OF A MAN.

Height.	A Minute.	An Hour.	Ten Hours.
to 10 feet	90 bricks	5,400	54,000
" 20 "	45 "	2,700	27,000
" 30 "	30 "	1,800	18,000
" 40 "	22 "	1,350	13,500
" 50 "	18 "	1,080	10,800
" 60 "	15 "	900	9,000

"Messrs. Grissell & Peto and Mr. Cubitt have adopted the machine, and have it in use at this time, the former at the New Houses of Parliament, the latter at Prince Albert's Gate, Hyde Park (as stated by us), and other eminent contractors have also certified in favour of the invention."

We understand that licenses are granted by Mr. Journet, of No. 2, Chester-terrace, Eaton-square, Pimlico.

LANDLORD AND TENANT.

We read in the *Law Times* of Saturday last the report of a case, *Doe dem. Fleming and Another v. Duckat*, recently tried at Croydon before Lord Chief Justice TINDAL, in which some most important questions were raised touching the remedy given to lessors by the statute 4 Geo. 2, c. 28, sec. 2, by which, if a half-year's rent be in arrear, the landlord can re-enter, serving a declaration in ejectment. That section enacts that, "in all cases between landlord and tenant, as often as it shall happen that one half-year's rent shall be in arrear, and the landlord or lessor, to whom the same is due, *hath right by law to re-enter for the non-payment thereof*, such landlord or lessor shall and may, without any formal demand or re-entry, serve a declaration in ejectment for the recovery of the demised premises; or in case the same cannot be legally served, or no tenant be in actual possession of the premises, then to affix the same upon the door of any demised messuage, or in case such ejectment shall not be for the recovery of any messuages, then upon some notorious place of the lands, tenements, or hereditaments, comprised in such declaration in ejectment, and such affixing shall be deemed legal service thereof, which service or affixing such declaration in ejectment, shall stand in the place or stead of a demand and re-entry: and in case of judgment against the casual ejector, or nonsuit for not confessing lease, entry, or ouster, it shall be made to appear to the court where the said suit is depending, by affidavit, or be proved upon the trial, in case the defendant appears, that half a year's rent was due before the said declaration was served, and that no sufficient distress was to be found on the demised premises, countervailing the arrears then due, and that the lessor or lessors in ejectment had power to re-enter; then and in every such case the lessor or lessors in ejectment shall recover judgment and execution in the same manner as if the rent in arrear had been legally demanded and a re-entry made." The words "no sufficient distress was to be found on the demised premises" mean no sufficient distress which can be got at: thus, when the outer door was locked, so that the landlord could not get at the premises, Lord Tenterden held, that there was not any sufficient distress, for there was not any available distress.

It happens, however, not infrequently, that the tenant is let into possession under an agreement for a demise, instead of under an actual demise; and then the question arises whether the agreement is sufficient to support proceedings under the statute. Such was the fact in the case recently tried at Croydon.

"The plaintiffs are trustees over a certain estate in the county of Surrey; their agent verbally let a tenement to one Perkins, and soon after, when alone, made the following minutes of the letting. 'Nov. 17, 1840. Agreement—Joint estate—Thomas Perkins, of No. 16, New-street, Kennington, to take the premises, late Warner, in Manor-place, consisting of a cottage, with garden-ground, for seven years, subject to being given up, should the same be required for building, at the rent of 25*l.*, pay all taxes of every description, and usual covenants.' Without shewing this document to the trustees, or Perkins, the tenant, the agent called upon Mr. Fleming, the solicitor to the estate, to prepare the lease at the rental mentioned, with insertion of the 'usual covenants.' Perkins, without waiting to execute the lease (and a knowledge of the agent's instructions to Mr. Fleming not being established as against Perkins), left the house, and let in a family named Duckat, who refused to pay rent or acknowledge any landlord but Perkins, and kept the house partially closed and bolted, so that it was impossible to ascertain whether a sufficient distress could be made. Perkins being gone, no lease executed, nor any thing to levy upon except an old bedstead, as proved at the trial, the present action of ejectment was brought, when the Duckat family denied the title of the plaintiffs.

"A severe contest between the counsel took place on the operation of the statute 4 Geo. 2, c. 28; the plaintiffs contending that, assuming there was a valid demise, under the circumstances, the action of ejectment was well brought under the intended clause of re-entry, to bring them within the benefit of that statute."

The counsel for the defendant, on the other hand, raised the following questions:—

"Is the memorandum made in and under the peculiar circumstances of this case a parol demise or not, and if so, then within the operation of the

stat. 4 Geo. 2, c. 28, or will it bear such a construction by the operation of law, to enable both landlord and tenant so to act as to entitle the alleged tenant to have a seven years' lease granted, incorporating the usual covenants contained in such an instrument, and likewise entitle the landlord to an enforcement of his rights, as though such lease had been duly prepared, and the covenants duly set forth, on breach of any one? Or is the tenant merely under a yearly holding?

"Do the facts disclosed in this case shew a sufficient stipulation in law, that a lease shall at a future period be executed between the parties, containing the usual covenants, upon the breach of any one of which (particularly the covenants not to assign, or on non-payment of rent, a right of re-entry), would entitle the plaintiff to recover sufficient damages to cover the amount of rent due in an action for use and occupation, the tenant quitting without leaving a sufficient distress on the premises to pay the rent, so as to prevent the necessity of the landlord going into a court of equity for specific performance: the whole facts, when taken together, operating in equity as a valid demise for seven years?

"Will the bare minutes of letting, placed on paper by an agent of the alleged lessor, after such agent has arranged with a tenant, be sufficient and binding instructions to justify a solicitor to prepare a lease between the landlord and tenant (such minutes not having been shewn either to the landlord or tenant to receive their approval), and also authorize in such lease the insertion of such 'usual covenants' as would entitle the landlord to sustain an ejectment under the intended clause of re-entry on breach of any one of such intended 'usual covenants,' although demise, never prepared, beyond receiving instructions for its preparation?

"Would the landlord be entitled (on such agent's bare minutes), and could he successfully in law sustain an action for damages sufficient to cover the amount of rent due and unpaid, also treat the intended lease as forfeited by tenant's breach of these intended covenants, as if the demise had been duly prepared and executed between the parties?

"Is it the usual and invariable custom and practice of solicitors to insert a clause of re-entry on non-payment of rent, or assigning without leave, when preparing leases for terms of years?

"Can a court of law take upon itself to determine or treat this case as though a lease had been in fact executed between the parties, and assist the landlord in his action of ejectment under an assumption that a clause and power of re-entry would have been inserted along with 'the usual covenants' for non-payment of rent, &c.?"

Under the direction of the Chief Justice, a verdict was taken for the plaintiffs; and of the questions raised for the defendant, three, we are told, were selected for argument next term. Which three the reporter does not say; but the questions, we presume, are these:—1st. Are the minutes of letting made by an agent, and neither shewn to the lessor nor the lessee, binding on them, so as to form the basis of a lease by which both will be bound? 2nd. Is a clause of re-entry on non-payment of rent, or assignment without leave, a usual covenant in a lease for years? 3rd. Will the court allow a landlord to avail himself of the benefit of the statute 4 Geo. 2, c. 28, on such minutes only, before the actual execution of the lease? We shall not presume to give our opinion on these questions, although we have one. The decision will, in all probability, be given next term. As a caution both to landlords and agents, the insertion of the case appears useful, notwithstanding that the final determination is postponed.

The Temperance Societies of Liverpool are about to erect a monument to the great apostle of their cause, Father Mathew. One to another great philanthropist, the Abbé de l'Épée, is to be inaugurated at Versailles on the 25th of the present month. A monument is also about to be erected in the Church of the Friars at Venice, to the memory of Titian. The sculptor is Zandomeni. The society for erecting statues of celebrated Tuscans has recently exhibited at Florence the productions of this year, which consist of a statue of Boccaccio, by Fantacchiotti, and of Orgagna, by Bazzanti. Last year the statues were Dante, Michael Angelo, Leonardo da Vinci, and Lorenzo il Magnifico. The number of niches to be filled by the society is twenty-eight. The bronze statue of Rubens was last week placed upon its pedestal in the Place Verte, at Antwerp. The whole monument rises to 30 feet. The inauguration was celebrated with music from the bands of the regiments quartered in the garrison, and the amateur societies of the city. At night the Place Verte was illuminated.

HUNT'S PATENT GARDEN-POT AND STAND.

We might be spared any observations of our own in favour of this invention by quoting from the various standard authorities on gardening, for there is hardly one under whose review it has not already passed, and that too, in the most favourable terms; but we have a twofold privilege to have our own say on the subject. First, it is included under that general head which pertains to the finished building operations where gardening and the greenhouse form the concluding touches of the architect and designer's hand; and, secondly, it relates to that section of builders' manufacture, the clay-field and earthenware products. The peculiarity of the invention is such as to ensure,

1st. A complete drainage, the under part of the hold in the bottom being so that the pot is made to stand an inch or more from the ground.

2nd. A complete current of air under the pots, however thickly they may stand.

3rd. They prevent the roots of plants growing into the earth.

The construction is such, in fact, that most, if not all the desiderata in a garden pot are obtained, whether by the use of pot itself placed in an ordinary saucer, or with an ordinary pot placed in Mr. Hunt's improved saucer. The pot may be said to stand upon legs, and the saucer has a perforated ledge to sustain the base of the pot. Many of the articles are manufactured in what is called the Lambeth stone, a species of china or delf, of agreeable colour, and equally choice as to design, so that as ornaments for the vestibule, the balcony, the terrace, and down to the common cottage window, they are to be preferred.

MANUFACTURE OF MOSAIC AT ROME.

It is well known that mosaic work consists of variously-shaped pieces of coloured glass enamel, and when these pieces are cemented together, they form those regular and other beautiful figures which constitute tessellated pavements. The principal manufactory of mosaic is at Rome, and belongs to his Holiness the Pope. The enamel, consisting of glass mixed with metallic colouring matter, is heated for eight days in a glass-house, each colour in a separate pot. The melted enamel is taken out with an iron spoon, and poured on polished marble placed horizontally, and another flat marble slab is laid upon the surface, so that the enamel cools into the form of a round cake, of the thickness of $\frac{1}{8}$ of an inch. In order to divide the cake into smaller pieces, it is placed on a sharp steel anvil, called tagliuolo, which has the edge uppermost, and a stroke of an edged hammer is given on the upper surface of the cake, which is thus divided into long parallelo-peds or prisms, whose bases are $\frac{1}{8}$ of an inch square. These parallelo-peds are again divided across their length by the tagliuolo and hammer into pieces of the length of $\frac{1}{8}$ of an inch, to be used in the mosaic pictures. Sometimes the cakes are made larger and thicker.

For smaller pictures the enamel whilst fused is drawn into long parallelo-peds, or quadrangular sticks, and these are divided across by the tagliuolo and hammer, or by a file; sometimes also these pieces are divided by a saw without teeth, consisting of a blade of copper and emery, and are polished on a horizontal wheel of lead with emery.

Gilded mosaic is formed by applying the gold-leaf on the hot surface of a brown enamel; immediately after the enamel is taken from the furnace, the whole is put into the furnace again for a short time, and when it is taken out, the gold is firmly fixed on the surface. In the gilded enamel used in mosaic at Rome there is a "thin, transparent coat of glass over the gold."

ALQUIUS.

The German papers announce that the King of Bavaria has determined on the decoration of the Cathedral of Spire. A beautiful font and a fine organ have already been placed in it, as also a monument to the Emperor Rudolph, of Hapsburg, by Schwanthaler. The frescoes have been entrusted to the painter Johann Schraudolph. The nave is to be decorated with frescoes from the life of the Virgin Mary, and the choirs with incidents from the history of St. Stephen and St. Bernard. A bronze statue of an Amazon has recently been finished by Prof. Kisz, and placed in front of the eastern flight of steps of the museum at Berlin. Rauch is commissioned to execute a group of Hercules and the Nemean Lion for the western flight.

WARMING AND VENTILATION.

TO THE EDITOR.

Sir,—After a careful perusal of your abstract of Mr. Bernhardt's papers, I confess (with due submission) that I am unable to discover any thing therein that at all changes my opinion of that gentleman's pretensions, or of Dr. Ure's qualifications. I am sorry Mr. Bernhardt still refuses to furnish any data by which the merits of his system might be fairly judged, as much time and space would have been thereby saved; however, he must of course act as he pleases. I think your readers will agree with me that he has failed to show how his interests could suffer by the disclosure of what he calls his secret.

I shall not pursue this subject any farther at present, as I am anxious to enter upon a course which I think more likely to be useful to your readers and the public, namely, a development of the principles of a system of warming and ventilating large buildings efficiently and economically. Before, however I go into this subject, I wish to lay before your readers a few examples in which these objects have been sought to be attained in some cases that have fallen under my own observation, which will, I think, prove the necessity of the present discussion which some appear to doubt.

The first case which I shall mention is that of the establishment of Mr. Bentley, the eminent bookseller and publisher of Burlington-street. About the year 1838, Mr. Perkins was employed to fit up this establishment with his system of hot water circulation, which, to those unacquainted with it, may be thus described. In the basement is placed a furnace in which is coiled a quantity of iron pipes, the top of which coil is carried up through the flooring and down one side of the range of offices intended to be warmed, returns by the opposite side to the same room, and again passing through the floor is connected to the bottom of the coil in the furnace. I should mention that a larger pipe is attached to the upper portion of pipe, so that as the water in the pipes is expanded by the heat, it rises in this larger pipe, and thus relieves the pressure which would prevent the circulation of the water in and burst the pipes.

The whole of the small pipe being filled with water, and a fire lighted in the furnace, the heated particles of water (being lighter) rise to the upper level and are replaced by the colder water in that part of the pipe connected with the lower part of the coil; thus the water is continually circulating through the whole length of the pipe, and in its passage gives out heat (chiefly by contact) to the surrounding air. These pipes are about one inch and an eighth diameter, and pass, as was observed, once round the rooms. I was informed that the apparatus was fitted up under Mr. Perkins's own direction, and cost a large sum; open fires had been previously in use.

This system was continued in use three successive seasons, and then given up for the following reasons:—

First—The cost was nearly equal to the open fires.

Secondly—The warmth obtained very local and insufficient.

Thirdly—The furnace required replacing frequently at a considerable expense.

Fourthly—The health of all the gentlemen employed there suffered very much from the effects produced on the atmosphere of the offices by the overheated surfaces of the pipes; producing the identical symptoms of disturbed health described by Dr. Ure in his Custom-house Report quoted in a former letter.

I measured one of these offices, and the quantity of pipe in it, carefully, and will show by-and-by the heat which the pipes would have required to be kept at in order to maintain this office at a proper temperature, supposing it to have been ventilated, for which (to my surprise) no provision whatever had been made!!! except that the chimney-place was left open.

It is worthy of being remembered, that in this case, all the pernicious consequences of warming air by overheated metallic surfaces followed, and yet that the amount of heat produced was insufficient to raise the air to a comfortable temperature, and that a return to the use of open fires was attended with exemption from the symptoms of disturbed health mentioned above. (See Note 1.)

The second case which I have selected is that of an infirmary for diseases of the chest, situated in Artillery-street, Bishopsgate-street, in which neighbourhood it has been established about thirty years, and gives medical aid, in that particular class of disease, to a great number of out-patients, and also to a more limited number who are received into the infirmary and provided for during the winter season.

It is impossible to overrate the value to the public of establishments of this nature, conducted upon proper principles, when it is remembered that

fully one-third of our population die of these formidable diseases, consumption and asthma, and that from their lingering nature they are not generally received into the hospitals; in such an institution we expect to meet with every arrangement for alleviating the distressing symptoms peculiar to diseases of the respiratory organs, which a sympathizing benevolence, guided by science, could suggest; but above all, to find an institution of the kind established so many years a model of perfection in respect of warming and ventilation.

Having received a hint from Dr. T. Herbert, who appears to take a great interest in the subject of ventilation, from motives of benevolence, I applied to Dr. Ramadge, the senior physician to the above charity, for permission to inspect the general arrangements of the infirmary, particularly those connected with the subjects I am more particularly interested in, which request that gentleman very politely acceded to, and I accordingly proceeded to view the place, and will now endeavour to convey some idea of what I observed.

The building, as I before observed, is situated in Artillery-street, at the corner of Gun-street, and is in the immediate neighbourhood of *Wentworth-street* and *Pellicoat-lane*; it is in the form of a trapezium, having its two longest sides nearest the street; the other two sides, abutting against the adjoining buildings, do not admit of ventilation in that direction: it is three stories high. On the ground floor are three small rooms; that to the right as you enter is the consulting-room, the one on the left the dispensing-room, and one at the end of the passage being used, together with the passage, by the patients waiting for advice. The first floor, by far the best in the house, consists of three rooms, and is occupied by the house-keeper and servants; the second and third floors being intended to be appropriated to the use of those patients who are received into the house.

It is to these floors that I wish to direct attention more particularly: the front room (second floor) is about 28 by 14 feet, the back room about 11 by 18 feet, and the height of both 8 feet; the rooms on the third floor are of the same dimensions of floor, but scarcely 6 feet high, from which reason it has been described as useless; seven beds are made up in the front room (second floor), and three in the back room, which I need scarcely say are always occupied; each patient is also allowed two visitors, crowding occasionally a large number of persons into a very small space.

In the advanced stages of these diseases a uniform and warm temperature was considered by the founder of the institution, Dr. Buxton (as I was informed), to be a desideratum, and accordingly, to produce an artificial atmosphere, in "imitation of the mild and genial climes of Italy or Madeira," was the object aimed at in the arrangement now to be described.

In the first place, all the chimney-places, except a very tiny one in the front room, are carefully stopped up with plates of sheet iron, to prevent any communication with the external air by means of the chimneys. Secondly, two grotesque antique German stoves, of the commonest kind, stand about three feet into the room on sheets of lead, in such close proximity to the patients' beds, that they must suffer the greatest inconvenience from the heat; another of these three-legged German stoves is placed in the back room, the chimney of which is also (as observed) stopped up by iron plates, through holes in which the pipes or flues of the stoves pass into the chimney.

This kind of stove, notwithstanding every care, will frequently attain a red heat, in which state their temperature will be 1,077 degrees Fahrenheit, or just 865 degrees more than the proper temperature for heating furnaces as laid down by Tredgold and others, namely, 212 degrees (see note 2); and in ordinary circumstances the temperature of these stoves will seldom be less than 400 degrees.

The effects produced on the health of the inmates, and especially on that of the unfortunate patients, we shall speak of when we have described the peculiar mode by which the air is furnished to this "mimic Madeira."

In the corner where the adjoining buildings meet, a space parallel to the staircase, and passing from the ground floor to a fixed skylight in the roof, is boarded off; and small hinge windows are furnished at each floor; at the bottom of this air-shaft, on the ground floor, are the two small privies used by the patients, communicating by an open drain with a large cesspool in the cellar, into which the rats have opened several communications. It appears that in this neighbourhood there are no sewers, so that this place must be occasionally emptied; there being no outlet from this shaft except through the small windows mentioned, no one can conceive the abominable effluvia with which this place is continually filled, leaving a thick deposit on the surface of the walls, but ill-concealed by daubs of white-wash. In this detestable place and between the two privies is located the domestic water-but, the ab-

surdity of which arrangement I need not say one word about.

Now, in the winter, when the temperature of the rooms is raised, light, the cooler air in this foul air-shaft must be drawn into the rooms continually, and breathed by the patients and other inmates, thus completing a picture of human folly and ignorance, which, it is to be hoped, has few parallels in any city in civilized Europe.

The effects produced on the patients' health are exactly what might be expected: within the first few weeks, the patients almost uniformly exhibit constitutional excitement, manifested by headache, flushed face, glistening and suffused eyes, accelerated pulse and respiration, dry heat of the skin, &c.: to these often succeed symptoms of an opposite character; such as general depression, debility of a sudden and marked character, cold, clammy perspirations, loss of appetite: these have at times reduced the patients to such a state, that, unless promptly withdrawn, they are almost certain to sink under them.

It is but just I should add, that Dr. Ramadge stated he felt the absurdity and mockery both of the end aimed at, and the means mischievously employed to attain it; that he had often urged the necessity of a change of system, but that he possessed no control over the internal arrangements of the infirmary; but these are matters which of course cannot be properly discussed in *THE BUILDER*, my aim being to show that great ignorance or apathy exists in the public mind on the subjects of warming and ventilation.

Case 3 is that of a large public building erected by Charles Barry, Esq., architect, of the New Houses, and shews how many hundreds of pounds were thrown away to no purpose in the said building; and, at the same time, shews the value of that gentleman's opinion upon such matters (see Testimonials), but as I have already exceeded the proper limits of this letter, I must defer it until another opportunity.

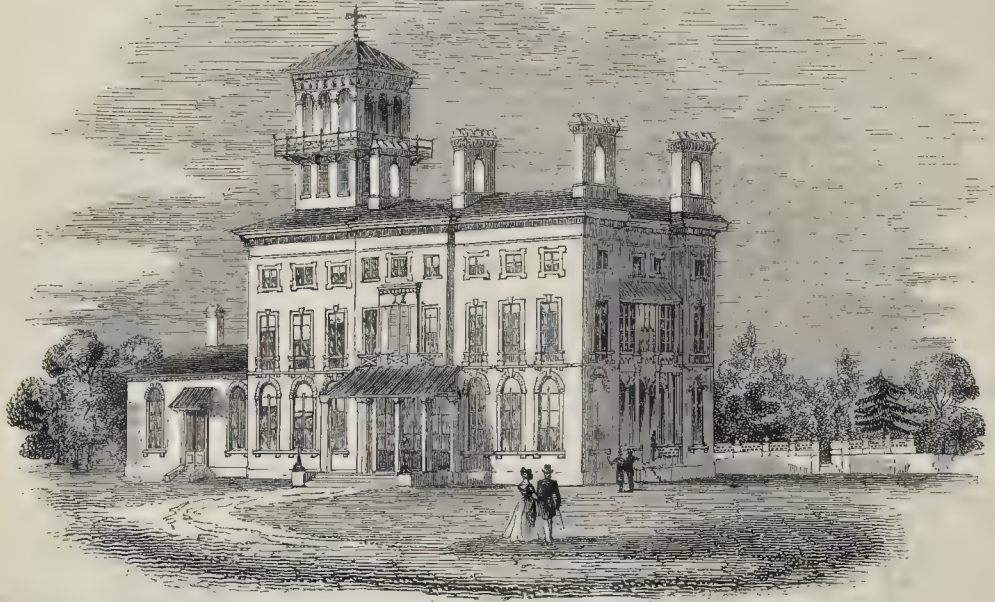
There is just one point in Mr. Bernhardt's paper which, in conclusion, I will advert to. He says (third paragraph, middle column, page 313), "*The warmth*, as produced by my apparatus, is from a continual change of air, properly called ventilation." The warmth is properly called ventilation!!! Surely, Mr. Editor, you must have been quizzing him in placing this sentence in your abstract.

I remain, Sir, very respectfully,
GEORGE SPENCER, Engineers' Draughtman.
5, Hungerford-street, Strand.

Note 1. The facts mentioned in this case I give on the authority of a gentleman now in Mr. Bentley's employ, and whose health suffered much during the time the pipes were in use. The pipes and furnace are still where Mr. Perkins left them.

Note 2. Mr. Bernhardt surely gives a most erroneous opinion on the merits of Mr. Tredgold's work on ventilation, as a work more free from useless theory does not exist in our language. Mr. Tredgold states in his preface that he intended to furnish a work of a purely practical nature, and therefore, says he, "I thought it best to suppress, as much as possible, the technical forms of science, and where it was not easy to avoid them, without either a sacrifice of generality, or giving rules without the reasoning on which they are formed, I have added them in notes, so that they may be consulted or not at the reader's pleasure;" and well did he perform his promise.

THE SECRETARY TO THE FINE ARTS COMMISSION.—C. L. Eastlake, Esq., R.A., has received from his Royal Highness Prince Albert a present of a diamond ring, of great value, in testimony of his high appreciation of Mr. Eastlake's services in forwarding the objects of the Commission. We rejoice to record an incident no less honourable to the illustrious originator of the commission than to the distinguished artist by whom it has been conducted to results which even already form a glory of the age and country. We understand that the autograph letter which accompanied the gift is such as to render that gift immeasurably more valuable in the estimation of the receiver. The public owe to Mr. Eastlake a debt which cannot be so soon discharged; it is one that may be paid by the satisfaction he will receive in having done more within a year to elevate his profession than any single individual has been able to achieve in half a century. To that profession he has rendered incalculable service—service tangible, solid, and substantial. We know that in art and in literature both, the "benefits conferred" are too frequently taken by those who obtain them as "recompences earned;" and that, consequently, for such benefits thanks are not only not required, but ought not to be paid. For our own parts, we entertain no such opinion, and should heartily rejoice to see that artists and men of letters are not behind corn-law leaguers and cotton-printers, in their willingness to recognize a great and important benefit to individuals as well as to the mass.



NEW RAILWAY HOTEL, COLCHESTER.

TO THE EDITOR.

SIR,—Being accustomed to the study of architecture, and one who fully appreciates the invaluable notices that weekly appear in your publication, I beg to offer a perspective view of an hotel, now building at Colchester, in the Italian style, from the design and under the superintendence of Mr. Lewis Cubitt, the architect, a gentleman well known for his very correct and elegant taste.

It will have a very superb coffee-room 37 feet long by 27 wide; a commercial-room 24 feet by 17 feet; and a very handsome room to be used as a refreshment or billiard room 30 feet by 18 feet.

The novelty of a tower to an hotel must be considered worthy of notice, and as such forms a very beautiful feature in the building. Those resorting to the hotel may be enabled to have a fine view of the surrounding country from its great height,

which approaches one hundred feet. It is even imagined that the sea may be seen from this point, and the trains on the railway may be seen coming for many miles. I send you the accompanying sketch, as one I think deserving a page in *THE BUILDER*. I remain, your obedient servant,

J. W.

The Cups Inn, Colchester, August 5, 1843.

CASINOS IN THE PARKS.

THE importance of this subject has been so much pressed upon our attention, and the expectation of our readers so much excited by the occasional notices we have given in our paper, that we can no longer defer the consideration of it. We promised almost at our first setting out, to do what we are now doing, but afterwards we heard, and in No. 24 referred to it, that Mr. John Harrison Curtis, the artist, had, with his accustomed praiseworthy zeal in such matters as refer to public health, comfort, and convenience, brought forward plans, and submitted them to the consideration of the Commissioners of Woods and Forests. We therefore thought it more than probable that the architect of those plans would enable us to give the public an opportunity of appreciating them, especially as the matter is purely and essentially a public one—the Commissioners of Woods and Forests being public trustees appointed by the Crown, and the parks being the public property. So long we have waited, and no ripened movement appearing, it therefore devolves upon us to redeem our promise in some fashion, and to give a stimulus to that progress which the matter, in our estimation, and in that of many, imperatively demands. The parks are incomplete without a resting-house—their attractions are diminished for the want of such, and their efficiency is so far short of the true measure; but such buildings should not be mere resting-houses—they should provide for the refectory or refreshment of those who frequent the parks, especially at an early hour, and in this sense would be a temptation to health, if we may so speak, for thousands would use the parks and go there before breakfast, the most beneficial period of the day, if a breakfast

were associated with the parks; but every one knows how irksome it is to “fetch a walk,” as we have heard designated that effort for health-seeking which mere walking exercise supplies.

It is not, therefore, in the sense of advocating a building scheme, or a mere building improvement, that we write; our views in this article, as well as in the whole conduct of this journal, are not alone to promote the direct well-being of our class, but much more to propound and to work out the problem of the general well-being, and to shew how important a part “*THE BUILDER*” has to take, and may take, in the direction and promotion of it. An architect should be essentially a philosopher, deeply read, not in books, not in stones, not in ruined structures, not in forms and exterior features, but in human nature; this philosophy is the light that must guide his pencil, assist him in his designs and conclusions, and without which he is a mere formalist.

We return, then, and ask the question, of what use is a public park, without the accessories that invite to, nay, command, the proper enjoyment of it? People must be beguiled, as it were, into availing themselves of its advantages, and the more complete you make it in its satiating appliances, the more naturally do the public fall in and associate themselves with its salutary influences. A park without a casino is more pleasant to look upon than to walk in; at any rate, it is in this sense more tempting; the social charm is wanting, where Art has not in some quarter of the green and gravelled area put the unequivocal stamp of her proprietorship. We never yet saw a nobleman's park wanting its temple, its casino, and appropriate building embellishments, that did not look to us more like an ornamented paddock or grazing ground, and was, in fact,

esteemed by its owner as little better, or other than such. The aspect of green fields may be to the London citizen a novelty, and, in some instances, a charm; but depend upon it, that, in thousands and tens of thousands of cases, there is something more wanting to constitute a permanent attraction, and without this, the great end and object of your aim in establishing public parks will fail. The parks and squares may be the lungs of London, as we have heard them called, but, *we think*, they only ought to be. London is not an abstraction, a mere city of streets and dwellings; London is two millions of human beings; and their lungs are within their bodies, to inflate them with air, as God intended they must live in it, and no artificial conduit to the lungs is so good as the natural one. The exercise of the limbs and the inhaling the pure atmosphere are essential accompaniments. Drive the people to it you cannot, inviting them alone will not do; but habits may be insensibly created, and the habit of frequenting the parks must be made one of familiar and easy acquirement.

We have spoken of the advantage of an early hour for the indulgence in this habit. Habits of early rising, and early exercise in the pure and open air, would be a new life to London; but we need not enforce this—we may, however, quote the words of Mr. Curtis, whose work on “*SIMPLICITY OF LIVING*” we have before referred to; where, in a lecture on the Present State of Aural Surgery, delivered at the Royal Dispensary for Diseases of the Ear, Dean-street, Soho-square, and published at the request of the governors of the institution, he says:—

“The vast extent of London, rendering it almost impossible to escape from its interminable streets into any open space, is another circumstance highly

injurious to the healthiness of its inhabitants, the majority of whom are engaged in sedentary occupations; to counteract the ill effects of which, they ought habitually to take considerable exercise in the open air. But what inducement is there for the weary tradesman to wander up and down streets, the fac-similes of those in which he has all day been toiling? And yet to escape from them he must walk perhaps several miles. There has for some years been a growing sense of the necessity for providing a remedy for this evil; and at length something is on the point of being done to procure open places for public resort and amusement. Were the gardens of all squares opened to the public even for a short time daily, an important step would be taken towards this object; and if casinos were erected in all the parks, where visitors could be furnished with breakfast or tea in the open air in fine weather, the novelty of the thing would attract many, and thus induce some to leave their beds an hour or two before the usual time, and inhale the fresh morning air before it is impregnated with smoke."¹²

Fortified by such an opinion as this, coinciding as it does so entirely with our own, we do not despair of accomplishing, the object we have in view. Mr. Curtis is a conspicuous instance of the truth of that proverb which applies to the efficacy of constant iterations and their conse-

¹² "At the lodges to the parks, milk, and curds and whey, can be procured; and there appears to be no reason why something more substantial should not be provided for those who desire it, in the parks themselves."

quent success. He may be said to have established the benevolent institution to which we have adverted, supported as it now is by the powerful patronage of her Majesty, his Royal Highness Prince Albert, and the rest of the Royal Family, as well as many of the first persons in rank, science, and professional celebrity; an institution which nothing but an unwearied perseverance on his part could ever have established; and which, indeed, was the only one wanting to complete the charitable institutions of the metropolis; for previously there was no place provided for the gratuitous relief of the poor labouring under deafness and other diseases of the ear, and where they could be supplied as they are now with advice, medicine, and, when necessary, with acoustic instruments. We are proud to support or second, in our humble way, so successful a champion of practical philanthropy; and again we fortify ourselves for this new work by a retrospect of what he has accomplished in the past. In acknowledging a vote of thanks at the last meeting of the governors of the Royal Dispensary, at which the Duke of Cleveland presided, he says:—

"From the report, it appears that, since the establishment of the charity in 1816, upwards of 13,250 patients have been cured or relieved, and that as many as 180 frequently apply for assistance in a single day." And he remarked, "that most diseases of the ear were from neglect of the laws of health,

and might be prevented by the adoption of sanatory improvements."

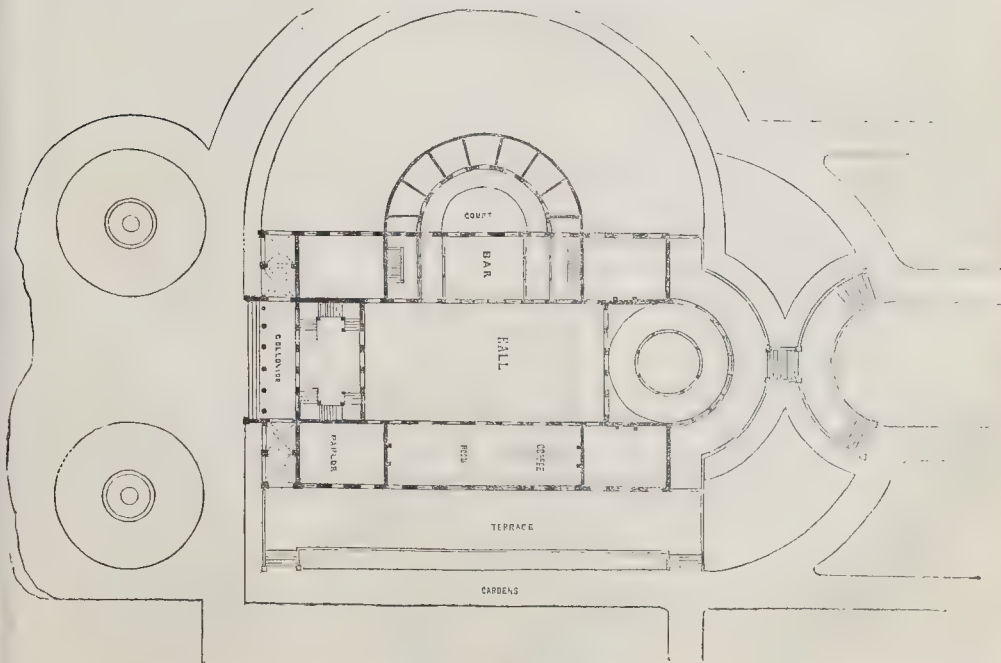
Yes, sanatory improvements, health-promoting regulations—preventive, and not merely curative—are those we advocate. In the words of the old proverb, we would "lock the stable door before the steed is stolen."

The English people, however, are peculiar in many respects in doubting the efficacy of a thing unless it can be shewn that the cost shall be attended by its equivalent per-centage. As to the parks, we have already stated in our paper that the cost of their maintenance is between 50,000*l.* and 60,000*l.* annually—an amount which we are sure the people do not now begrudge, though it was long before they could be brought to spending it; but as to the cost of casinos, we can shew, and we will do it in Mr. Curtis's own words, that no expenditure over the sum necessary to set up the building will be required. He says: "A large rent might easily be obtained, and the greater part devoted to the improvement of the parks. As a proof of this, I may mention that the rent received for the refreshment-room in the Zoological Gardens defrays more than one-half of the annual rent paid to government for the whole of the grounds occupied by the society."

But it is time to say a word of our plan. We would have the principal feature one large central hall, 70 feet by 35 feet, for common



NORTH-WEST VIEW OF THE CASINO.



GROUND PLAN OF THE CASINO.

public resort, fitted up with moveable chairs and tables, whether for indoors or the open air, as is the fashion in such buildings on the continent; round tables, so that parties may group themselves without formality, two, or three, or more, at a table. In one building we noticed abroad, the slabs, or table-tops, were of marble, and being ponderous, it is an excellent material, and could be had cheap enough for such purposes here. At the farther end of the hall is a conservatory, separated from it by a glazed partition, but accessible from the hall under proper regulations, and at all times presenting an agreeable feature to the visitor. Rare plants and choice specimens of the floral world would occupy it, and beyond it would be a fine terraced garden, sloping to the south or south-west. On one side of the hall is the bar, from whence would be served out to waiters, from an open counter, all the refreshments; and on the opposite side a spacious coffee-room, looking out on to a terrace, and to be occupied by those who would read or spend a quiet hour apart from the passing to and fro in the hall. At each of the four angles of the building is a private parlour, or dining-room, for parties, or it might be, for ladies alone—or for children's parties. The hall is lighted by a sort of clerestory, rising above the roofs of the surrounding apartments, and those roofs are terraced for a public promenade, approached by capacious stairs from the large vestibule to the hall. Above the hall, again, is a still more elevated terrace, or verandah—a stage of ornamented iron-work, roofed in low, so as to have the character of an awning, and be a favourite place of resort and shade in hot weather. Behind the bar is a semicircular range of offices, and all around the building we would have it laid out, in the best taste of public walks and gardens, with appropriate fountains, terraces, steps, pavilions, and the like.

See what an influence such a place of resort as this would have upon public manners. We would have it economical, and principally, if not wholly, confined to the simple class of refreshments, such as tea and coffee and confectionary. We are not for setting up a government or a national tavern, nor a government anything, to come into unfair competition with private trading; but since it would be manifestly improper to permit the erection of private public-houses in the people's parks, so the only proper alternative appears to be that, under the guardianship of the public trustees, the really requisite and reasonable provision should be made of the kind we advocate.

We have heard much of the sufferings from the over-tail of late hours and confinement of poor and respectable females in the employment of our mantua-makers and milliners, and of the drudgery of shopmen in drapers' and other establishments. We fly to our authority again on this head, Mr. Curtis, who says—

"It cannot be denied that a very large proportion of the diseases of the inhabitants of towns, including those of the ear, are produced by their long sedentary occupations; and unless some abridgement can be effected in the hours of business, so as to leave time for healthful recreation, the opening of parks and squares will be attended with but little advantage to the adult population. It is custom and prejudice only which prevent some change of this sort; for, by beginning business an hour or two earlier, quite as much work would be got through as at present, even though all places of business should be closed at six o'clock in the evening. When in Dublin I was informed that all the banks leave off at three in the afternoon, and no complaint is made of this arrangement; nor is it easy to see how any harm can result from it."

Confident, therefore, in the accomplishment of our object, we have taken this decisive step as a beginning of progress, and we shall be happy if what we have done invite the attention of abler heads to the design and suggestion of these or similar structures. Again we urge the union of the *dulce cum utile*, as the perfection of the arts and workings of civilization, and we will conclude as we have been prompted to refer all along to our precursor friend in the path we are treading.

"It has been said, 'See Paris, and die!' As if the sight of that city were the supremest enjoyment in which man could participate; but I would much rather," says Mr. Curtis, "have it said, 'See London and live!' and live happily and joyously too. Napoleon called us a nation of shop-keepers, meaning to reproach us with a sordid devotion to mere commerce, and with incapacity for compre-

hending the loftier pleasures derivable from the triumphs of art; but I doubt not yet to see the time when this reproach shall be utterly inapplicable to England; already we have made great progress in a better state of things, and no limit can be set to our progression. A dramatic writer has called London the *fons delectabilis*; but I should like to see it deserve the appellation of *fons salutaris* also; and it is gratifying to know that every change which adds to its external attractions contributes to its healthiness at the same time.

ON VARNISHING AND THE PREPARATION OF DIFFERENT VARNISHES.

(Continued from page 324.)

To prepare the Rotten-stone.—We rarely obtain rotten-stone free from grit and harsh particles. The best, but certainly not the most agreeable way of ascertaining its quality, is to take a little between the teeth, when the least portion of grit is instantly detected. An equally certain and far more cleanly method is that invariably adopted by careful workmen, who always wash it previously to use. This is done by stirring the fine powder in a large quantity of water, then allowing it to remain at rest for a few seconds, and pouring the water into a vessel of glazed earthenware; the powder which then precipitates will be perfectly fine and smooth; by washing the remaining portion, the whole of the finer parts may be separated from the grit.

The gloss upon shell-lac varnish which has been polished is less brilliant than that of the unpolished varnish; but this gloss may be imparted by a single coat of seed-lac varnish, which will not materially affect the perfect surface produced by polishing.

Black Shell-lac Varnish.—We may easily render this varnish black, by the admixture of either ivory or lamp-black. We are assured by a gentleman who has devoted much attention to the subject, that the latter is to be preferred; but it should not be used as obtained from the shops, being then greasy, as the workmen term it, and will neither mix nor dry well. Not unfrequently, the lamp-black contains particles of plaster, from the walls of the chamber in which it is prepared; this, of course, must be rejected.

To prepare Lamp-black for Use.—Press a portion of it into an earthenware or metallic vessel, which is to be made red-hot in a clear fire. It is not absolutely necessary to close the vessel, but the powder should be well rammed in, and a regular heat sustained until the contents are red-hot throughout; this may be known by the lamp-black ceasing to flame at the exposed parts. Now remove it from the fire, and allow it to become quite cold before taking it out of the vessel, otherwise it will burn into ashes. Lamp-black thus prepared will mix readily with water, and will dry well in paint or varnish, added to which, its colour is improved.

To mix the Colour with the Varnish.—Rub the lamp-black up with a little alcohol, spirit of turpentine, or weak varnish, taking care to make it perfectly smooth before adding it to the varnish. To ensure a good black colour, the quantity of lamp-black must be considerable; this, doubtless, will lessen the brilliancy of the varnish in some degree, but a thin coat of seed-lac tends to diminish the fault. When a small quantity only of black varnish is wanted, it may be conveniently made by the solution of black sealing-wax in alcohol; the sealing-wax being composed principally of shell-lac. This preparation must be made with very little heat, or the black colour will be precipitated.

Shell-lac Varnish for various Colours.—This may be easily made by mixing strong body colours in fine powder, with the varnish, observing to levigate them in the manner already recommended. None but full deep colours will answer the purpose, as the colour of the varnish will deteriorate all those which possess any transparency, or are of a light shade.

White or Light-coloured Spirit Varnishes.—We have observed, that although varnishes made from lac are, in many respects, preferable to those made from the more colourless resins, yet they cannot be applied where a tinge of brown would be inadmissible. In this case the varnish must obviously be devoid of colour, or nearly so. The resins principally employed are mastic, sandarac, elemi, and animi; but the two latter are rarely used. Neither mastic nor sandarac alone constitutes a good varnish; the former is deficient in hardness and solidity, and the latter has too little gloss; they are, therefore, best employed in combination, and the following proportions are strongly recommended:—Mastic and sandarac, in the ratio of 1 to 3 (by weight); alcohol, 10½ (by measure)—that is, assuming the joint weight of the resins to be four ounces, the proper quantity of alcohol would be 10½ ounces.

Tingey recommends, in making varnishes of this description, to pulverize the resins, and add about

one-third of their weight of pounded glass when they are mixed with the alcohol; this prevents the particles of resin from agglutinating, and likewise from adhering to the bottom of the vessel, which is apt to take place if the ingredients are not shaken or stirred very frequently. A moderate degree of heat must be employed, but this should be carefully regulated, and in the summer season is unnecessary, as the warmth of the atmosphere is generally sufficient.

Copal.—This valuable and singular description of resin is imported from South America and the East Indies: it is a natural exudation from a large tree, which hardens in the air. The best copal is a hard brittle resin, in rounded lumps of moderate size, easily reducible to fine powder, beautifully transparent, but often like amber, containing parts of insects and other small extraneous bodies impacted in its substance.

The colour of copal is a light lemon yellow, varying to orange, but, when dissolved and thinly spread over any surface, the colour is scarcely perceptible, and it only gives a fine, hard, smooth, transparent gloss. It is this union of hardness and transparency, with a want of colour, that renders copal peculiarly valuable as a varnish.

Copal is the most intractable of the class of resins, and differs from most of these substances in the great difficulty with which its solution is effected in alcohol and the essential oils, so as to require great purity of these *menstrua* and particular management. Alcohol, which so readily dissolves the other resins, has but little action on copal; for if this resin, in fine powder, be digested with the very purest alcohol, with or without heat, scarcely any of it is dissolved, and the copal coalesces at the bottom of the vessel into a tough cohesive mass. A solution may be effected by the addition of camphor, which acts powerfully upon all resins, but upon none are its effects more striking than upon copal. When the two are separately powdered and mixed, the copal absorbs the camphor, swells and softens into a pasty mass, which will remain for months of the same consistence, without hardening. To make an alcoholic solution of copal, dissolve half-an-ounce of camphor in one pint of highly rectified alcohol; put it into a glass vessel over a lamp, and add four ounces of copal in small pieces; continue the heat just to that degree at which the bubbles may be counted, till the solution is complete. A portion of the copal will separate when cold, but the greater part of it remains in permanent solution. It is necessary, however, first to dissolve the camphor in the alcohol; for, if the pasty mass arising from the mixture of copal and camphor be added to alcohol, the solution will not succeed.

Copal may be dissolved in spirit of turpentine, by the aid of an essential oil, of which the oil of spike and lavender are considered the best, although we do not find any material difference. The process is as follows:—Take 2 oz. of oil of lavender, heat it in a glass matrass, add thereto 1 oz. of copal, in coarse powder, and, at different times, stirring the mixture with a stick of white wood. When the copal is dissolved, add 6 oz. of spirit of turpentine, nearly boiling, and incorporate the whole thoroughly. This gives a fine gold-coloured varnish.

Camphor also assists the solution of copal in spirit of turpentine, as it does in alcohol, and the same precaution must be observed to dissolve the camphor completely in the spirit of turpentine before the copal is added. As a general rule, it is found that ¼ ounce of camphor is sufficient to 1 quart of spirit, to enable it to take up as much copal as will constitute a good varnish.

The best solvent of copal is *caoutchoucene*, combined with alcohol, as it acts rapidly on the resin, and without heat; nor are we aware that any particular care or attention is necessary. To unite copal or any of the resins with a fixed oil, it must first be rendered *drying* by exposure to the sun and air, on water placed in shallow leaden vessels, for at least three weeks, until it is bleached and becomes white. It is absolutely essential, however, in making oil-varnishes, to expose the materials to a high degree of heat, not less than is sufficient to liquify the resin. This invariably gives a brown colour to the resin, which, as we have already observed, is frequently detrimental. Copal, when melted with as little heat as possible, and then dropped into drying oil, dissolves with ease, and this solution, mixed with spirit of turpentine, forms a very fine hard varnish. To avoid, as much as possible, the discolouration of the copal, Tingey recommends it to be enclosed in a kind of wire cage, suspended in a very slow and well-regulated furnace; and, so soon as any portion melts, it falls in drops into the drying-oil, heated and set beneath it.

We are indebted to the late Mr. Hand, an eminent painter on glass, for the following process:—Copal or amber being put into a suitable vessel or matrass, of very thin glass the same must be held by its neck, in wooden tongs, over a clear fire—being careful, however, not to overheat or discolour the copal or

amber—until the white and acid vapours cease to be disengaged. The vessel is then to be placed in a heated sand-bath, where it must remain until it acquires the temperature of the oil, similarly heated in another vessel, and in the same sand-bath; the oil is then to be added to the copal or amber. This mixture is to be diluted for use, by heating it, and a portion of highly-rectified spirit of turpentine, in separate vessels, to a similar degree of heat, in a sand-bath, and then mixing them together; if this precaution be not observed, a coagulum will be formed, and the copal or amber be precipitated in a solid mass.

If melted copal be dropped into water, a small quantity of oil is separated, which floats on the top, and the resin falls to the bottom, it is considered to be rendered, by this simple preparation, somewhat more soluble in the different menstra.

We have now explained the theory of the composition of different kinds of varnish, and also the method of using the same. Here we must conclude, reserving the practical application, more especially the process termed "French polishing," as well as a large collection of recipes for making a great variety of varnishes for a future opportunity.—*Penny Mechanic.*

WHO SHOULD EMIGRATE?

CHAPTER IX.

"LET me look around and record the experiences of the last twenty years, of those now living in my neighbourhood, not individually but in classes, within a short distance of each other and many of their farms adjoining, live about thirty farmers, occupying five well farmed and well tilled farms, varying in size from two to four hundred acres each, all owned by the proprietors who reside upon them. These with half-a-dozen exceptions all came here without a dollar, and many of them in debt for the passage money that brought them over; and a few hundred dollars composed the whole of the wealth of the individual exceptions to the general rule of the absolute absence of property. They were mostly labouring men in England, some were little farmers in the habit of working with their own hands on their rented lands. Their scanty means in most cases were barely sufficient, and in most cases wholly inadequate to bring them to our settlement in Illinois, but they brought with them the habit of hard work, the power of labour. Most of these men hired out for one, two, or three years at first, after a short period some rented lands for one or two years more, or acquired lands of their own, hiring out at intervals to obtain a little necessary ready money, whilst the crops on their own lands were growing; most of them now have larger families which are growing or are grown up, many of their children are married and comfortably settled. Their whole career has been one progressive state of improvement in circumstances, habits, and attainments. This little community is one of the many examples of the sterling good qualities of English labourers, spending and improving under the free institutions of the United States; what would they have been in England? poor and dependant, and their children left in the same condition after them. Families who live by their labour and farm labourers may safely emigrate, not to the Atlantic towns, not to the crowded cities of America, but to the interior of the continent, where land, and bread, and meat, is cheap, where, if their services are not even wanted for hire, they can get on land, and raise their own provision. Next in order of certain success are all of the handicrafts, bricklayers, plasterers, sawyers, masons, carpenters, wheelwrights, blacksmiths, shoemakers, and all the various tradesmen necessary to an agricultural community. These assemble in our small towns, which are scattered in the interior of the new states, and find in them an ever-expanding field open for the successful enterprise of vast numbers of workmen. This class are too apt to confine themselves to the large towns. In the small towns in the interior it is that their services are in great demand; they there acquire property at a cheap rate, which is continually increasing in value. Thus they grow with the growth of the town and the country around them. They always do well, or might do well. Habits of intemperance in drink are more common among the mechanics than among the farmers. The drunkard is apt to blame the country rather than his own bad habits for his ill-success. They, however, feel the deprivation more than other men of social town habits. They miss their beer. This is too much; they may increase in property—they may want for nothing; but if the beer is lacking, they will often damn the country and all things in it. From the general success of this class, we may safely say that hard-working, industrious mechanics, who are pressed for means of subsistence in the old country, would do well to come to America."

CHAPTER XII.

"An European emigrant first coming into America changes his pounds sterling into dollars. This is a change for the better, for he gets many more

dollars than he had pounds, and a dollar, for many purposes, in America goes quite as far as a pound sterling in England.

"A cow worth fifteen pounds in England, is worth fifteen dollars in Western America. A horse worth fifty pounds in England, is worth fifty dollars in Western America. Land in the Old States is worth about as many dollars as it is worth pounds in England.

"In the Western States land is much cheaper, clothing and labour dearer. Bread, meat, and fuel, much cheaper. Taking it on the average, a dollar in America is worth as much as a pound sterling in England. Let all who think of emigrating, as a last resource to a falling fortune, come out in time, and not wait until they have lost their all. By gamblers it is reckoned a desperate chance to risk the last shilling.

"What an imperative duty rests upon the father of a family if he has thoughts of emigrating, to stop in time, whilst he has yet two thousand, one thousand, or five hundred pounds in his possession. How improvident is his conduct who flies to a new country not possessing the power of labour, with a large family, and without a dollar! More than senseless are his fruitless complaints that he cannot find a comfortable living when he gets there. Yet there are such!

"Those who have saved a thousand pounds for investment, will find when it is turned into dollars, that it will count four thousand four hundred and forty-four dollars; and for all the purposes of life will go as far as many pounds in England."

The foregoing extracts we have much pleasure in selecting from a useful and interesting compendium bearing the title of "Errors of Emigrants." It contains twenty-one chapters or letters, purporting to be addressed by a Mr. George Flower, of Albion, Edward's County, Illinois, to his brother Edward Fordham Flower, of Stratford-on-Avon, Great Britain. We have not seen any thing within the compass and price of this work (one shilling) of a more practical character, and Mr. Clave deserves well for its publication. The difficulties of emigrants, the means of their obtaining correct information, the methods of farming and advice thereupon, and as to realizing stock, advice on the selection of land, both as to quality and quantity, and also as to price; the locality to be made choice of; the state of circumstances of emigrants; annoyances; money and currency; an account of Rapp and Owen's settlement, and a large variety of equally important information and subjects are gone into. The selection we have made will give a fair specimen of the character of the work, and since we know that its contents are of consequence to many of our readers, we have performed an agreeable duty in thus far bringing them acquainted with it.

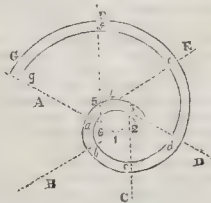
CURVES OF FANCY EQUATED.

TO THE EDITOR.

PROBLEM VI.—To describe a spiral from any number of equidistant centres (say six).—Let 1 2 3 4 5 6 be a regular hexagon produce the sides 2 1, 3 2, &c.

With 1 as centre, and any distance 1 a, describe the arc a b; with 2 as centre, and distance 2 b, describe the arc b c; then with 3 as centre, and distance 3 c, describe the arc c d, and so on the spiral may be continued at pleasure.

If necessary, it may be composed of a double, &c. line. From this similar constructions with other polygons are easily made.



BUILDERS' DRAWING SCHOOL, OR A SCHOOL FOR A DUE CULTIVATION OF THEIR FACILITIES FOR THE ARTS.

TO THE EDITOR.

SIR,—In your most useful work THE BUILDER of last week, I saw there were in the Leader many admirable remarks made upon a most important matter, the formation of a Builders' School. The very name must astonish every artist, and almost make him fancy that he had in some measure lent

a helping hand to keep from that valuable class of persons the school they are in such great need of. It is not a little surprising to see announced publicly, that a school for builders should be established. One would have supposed that schools for builders had been established since the days of Alfred. Have we arrived at the year 1843, and now begin to consider it is high time that the builders should have a school in, which their faculties for the arts should have a legitimate training—and such a school is now considered necessary—so that the extraordinary drawing schools at Exeter Hall and Somerset House are—for what? The builders say they do not know. Do the Government Council of Education know? Perhaps not so much as the builders, who have given them trial, and have found that the prism of the one, and the curvings of the other, are out of harmony with their faculties for the arts, and that such instruction amounts to a drawback on their understandings—the matter they are not in search of. Builders, because they are builders, do not want to be made bad artists of, or artificialists, which is the same thing. Surely a carpenter, a cabinet-maker, a picture-frame-maker, an upholsterer, a carver, a mason, a bricklayer, &c., would execute their work all the better for being naturalists, and if so, all the worse for being artificialists, and in which quality the government schools propose to perfect them. Is this, then, the end of the wisdom of the Council of Education? Surely the Council of Education are not aware of their having established the wrong thing; or have the council discovered that when our glorious houses of prayer, the cathedrals, were erected, that the designers and builders of them were taught drawing according to the prism system at Exeter Hall, and design by artificial curves and stone foliage designs at Somerset House? The only reason for the council having established such a backward and round-about system wherewith to enlighten the public, would be in their having discovered that such great works were the result of such a system of prism drawing teaching as taught at Exeter Hall, and some foliage designing as developed in Somerset House. And should such a discovery have been made, we must then set ourselves to work to ascertain in what way the faculties for the arts arrive at a knowledge of the works of creation. That a knowledge of the different sciences is indispensably necessary to an understanding of the matter to which they relate, every one must admit; but then let the time that certain persons have only to spare for obtaining a certain end be most correctly applied, and as immediately as possible to the point they want to arrive at, and not send the Londoners to Edmonton as the best route for arriving at Brentford. All round-about methods of communicating information should be abolished, and a straight path should be made for the poor and our artisans to walk in; for the well-intentioned of them have neither time nor money to waste on erroneous notions, but what they have to spare should be applied to sound information, such as would facilitate them in their various callings, and be the means of their improving daily in the different departments of the building craft in which they happen to be placed. A school for drawing and design for the purpose of bringing the working classes forward in those important matters, requires much consideration, and without its being well digested and based upon a natural foundation, it will be to them worse than useless. No one will learn to draw correctly, or design consistently, by being subjected to capricious and artificial forms; such arrangements for drawing teaching must be condemned in the strongest terms possible, that the faculties for the arts may not be corrupted, and when thus injured, are beyond the pale of recovery. We must, therefore, do the utmost in our power to correct the present evil of wrong teaching, that each individual may be saved from the mischief that he would otherwise fall into. It must not be supposed that any kind of artificial teaching will do for the working classes, because they are mechanics and not artists; for, on the contrary, the most sound arrangement should be made for them, that the least possible time as well as expense should be given, and the right kind of information obtained, such as will be made available by them, and turned to the utmost possible account in every part of their craft. Defective instruction should not be imparted to any one, much more to mechanics, for their usefulness entirely depends upon accuracy, and it is the power to perceive and represent true form that they are so much in want of, and to accomplish this important end should be the business of the instructor. The mechanics have been greatly neglected in their education, and however limited it may be, yet what there is of it should be of the best kind. But up to this time the faculties for the arts of the poorer classes are not cultivated. A little artificial drawing done from other artificial drawings, is about the utmost that they obtain from various schools. This is far from cultivation, it may even do more mischief than good; for the Creator has given all the faculties for legitimate training; and as they are

given to man for a wise purpose, so should they be wisely cultivated, and therefore exercised on the works of creation, with which they are in perfect harmony. No wonder, then, that the mechanics are so deficient in information on drawing and design. No one will ever learn the one or the other by having their faculties exercised on artificial objects. If we examine the works of the ancient designers, we shall be sure to see in them correct representations of natural forms—showing that they were accurate observers in Nature's boundless field: and when corruption worked its way in among them, they turned after its contaminating influence, and began to fancy all sorts of vagaries and vain imaginations, as half-human and half-beast, added together to patch up a being, shewing the designer's ignorance and consummate impudence in the bargain. From those times to these more or less has common sense been insulted with monstrous productions—the result of a vicious education. Let us then keep clear of false art and wrong instruction. It is much more important that the poorer classes should have the best instructors, as their minds cannot afford a loss. Not so with those who are not obliged to work for their living, as they do not depend upon the soundness of instruction for their support. Happy ignorance will not distress the wealthy, but to a certainty it will turn out of employ the dependent. That most important class, the mechanics, who, by their toil and laborious ingenuity, house their employers against the raging elements, and secure to them numberless comforts, are highly entitled to the best exercise of their intellectual faculties, that a due reward for their great services they may receive when poverty and ill-health may deprive them from purchasing it. They are too valuable a class of men to be neglected, and though, unfortunately, from ignorance and a want of prudence, they often neglect to benefit themselves when they have it in their power, yet as the wealthy commit the same faults, they are highly entitled to be assisted with sound instruction, when with themselves every one would be considerably the gainer by their increase of intellect. And, if this due cultivation of their intellectual faculties was begun at the time they enter school, they would arrive at a certain state of proficiency in drawing and design, so as to be of importance and value to their masters at the very time they would enter into their apprenticeship, and which value would be more than an equivalent to a premium; but permit me to state again that none other than sound instruction will do to arrive at that proficiency here enforced; for any thing less than the truth will be sure to lead to confusion—and there is plenty of the latter to convince any one who will open his eyes to see what the superficial and artificial systems have already produced. Most assuredly there is enough of nonsense already without adding to it. If a builders' school is established upon true principles, I will, if wanted, add to its efficiency. In the interim, if required, and classes are formed, I will, with Mr. Barker, do my utmost to bring them forward on the true principles of drawing and design, when I am sure they will become as much better mechanics as they will be improved as artists.

I have more to say upon this important subject, and will do so as soon as I can find time to do so.

I am, Mr. Editor, truly yours,

GEORGE R. LEWIS.

61, Upper Norton-street,
August 21, 1843.

Fresco.—A letter, signed "A Traveller," has been addressed to the *Spectator*, from which we extract the following important passage:—"Fresco" has a grand sound in the ears of men ignorant of the practice of art. They know the 'Stanza of the Vatican' were painted in fresco by Raffaele and the 'Capella Sistina' by Michael Angelo: and because this mode of working has not been much practised in England, they think it confers critical consequence to assert that English artists cannot do it. Not so, however, says the most experienced fresco-painter of the age. I happened to be at Sir Robert Peel's when the Director Cornelius, on his last visit to England, was courted to give his opinion on the subject; and from long personal acquaintance I know Cornelius to be an honest man and no flatterer. He said, English artists seemed to him to be especially qualified to become excellent fresco-painters: the harmonious arrangement of colour and boldness of execution, for which they are remarkable, would add a new charm to the art in their hands. When deficient drawing was suggested as an impediment, he said, the necessity of preparing elaborate cartoons would compel a mode of study that had never yet been called for in England; and it was not just to presume the talent could not be found till the call were made. In the case of decorating the Houses of Parliament, he recommended the immediate arrangement of subjects, and setting about the designs, though the walls might not be ready to receive painting for some years."—*Art Union*.

ARCHÆOLOGICAL RESEARCHES IN GREECE.

The *Athenæum* of Saturday, Aug. 5, contains a letter signed George Finlay, in which a most interesting account is given of the excavations, discoveries, and restorations that have been effected at Athens during the last ten years. The date of the letter is "July, 1843," and the object of the writer was to awaken the attention of those in this country who are capable of rendering effective service to the cause of archaeology. The following passage will amply repay perusal:—

In 1837, a new era dawned on Greece. Public opinion extended its influence everywhere, and the government was compelled to abandon all the outworks of its anti-Hellenic system, in order to defend Bavarianism in the central departments of public business. An Archaeological Society was then formed by the Greeks themselves, and it exists to this day, though its funds are not very large, as the annual subscription of the members is only about 10s. 6d., and from the Report drawn up and published by the president and secretary, it appears that a large proportion have allowed even this small subscription to fall into arrear during the last two years. This Society has nevertheless rendered great service to art and literature, and its affairs have been conducted in the most popular and prudent manner. One general meeting has been held annually in the Parthenon, in the open air, and all the world has been free to attend; nor have the meetings failed to attract some of the fair dames from distant lands, who have chanced to visit Athens at the time. Indeed it must be owned, that such sights can never fail to leave agreeable reminiscences. The unrivalled splendour of the setting sun, seen from the Acropolis, has excited many a noble verse: an assembly of Greeks discussing in their own language the affairs of their ancestors—the venerable president, Mr. Rizos, eloquently expounding the new light thrown on some point of ancient history, in which he shines far more than in penning dispatches as Minister of Foreign Affairs—all this makes a stranger proud on such an occasion to be a member of this society, or even to have attended one of its meetings. At this annual meeting a committee of management is elected, the report of the proceedings of the previous year is read, and any question concerning the administration and application of the funds determined. The excavations already made have been very successful, and reflect great credit on the committee of management.

The entrance to the Acropolis has been cleared, and all the ruins and rubbish which encumbered the centre of the propyleum have been removed. All the modern buildings have been taken down which blocked up the northern wing, and the pinakotheké is now completely laid open. A considerable portion of the cell of the Erechtheum has been re-constructed, by replacing the ancient blocks which had fallen, and a sixth caryatide has been found, so that the little portico might be restored, except for the one in the British Museum.

But the most important labour of the society is the clearing the basement of the Parthenon, and the restoration of those parts of the building which were uninjured, to the original places. The northern side has been completely cleared from the earth and rubbish which covered the fragments of the temple, which now remain exposed to view in ruined majesty. A well-preserved metope, three more pieces of the frieze, and several fragments of sculpture from different parts of the temple have been found—amongst the rest a colossal owl, about whose position the Athenian antiquaries have expressed a multitude of opinions. The old mosque in the centre of the Parthenon has disappeared, but it was not removed until the fall of its portico warned the conservator of antiquities to remove all the fragments of sculpture it contained, and destroy it, lest it should destroy something valuable, by the fall of its heavy dome. The centre of the Parthenon would have presented a very meagre appearance after the removal of the mosque, and even the general appearance of the Acropolis would have lost something of its picturesque beauty, had nothing been done to enable the eye to connect the two masses of building which formed the eastern and western fronts, and which were left almost entirely unconnected by the explosion of the Turkish powder magazine, during the last siege of Athens by the Venetians. Several columns in this interval have been almost restored from the fragments found merely overturned by the explosion; thirty-four drums of columns on the northern side have been replaced in their original positions, and twelve on the south side. Part of the wall of the cella, and several of the large marble flags of the pavement have likewise been replaced.

These excavations have not been made on the principle adopted by Klenze, the celebrated Bava-

rian architect, who visited Greece in 1834, in order to propose a plan for the restoration of the Parthenon, and choose a site for the palace of King Otho. He seems to have been equally unfortunate in his opinions on both subjects, though his hurried visit may afford some apology, if his orders were not to exceed the time he devoted to the subject. In this work, published after his return, he expresses some alarm lest the actual palace should be flooded by the Ilyssus, and with regard to the restoration of the Parthenon, he considered it sufficient to take any drum of any column at hand, the diameter of which nearly corresponded with the spot it was to occupy, and replace it on the column to be restored. In this way he replaced one of the drums of a column on the northern side of the temple, where it still remains, as a specimen of the unsightly figure which the Parthenon would have been rendered had his plan been adopted. I cannot, myself, understand how a learned scholar and an architect of the classic school, like Klenze, could have entertained the idea of defacing a work of the purest architectural taste in this manner. It is well known that no two columns of the Parthenon correspond exactly. The axis of no column being exactly through its centre, every column has likewise an inclination towards the centre of the building, and the basement on which they stand, and the architrave which they support rises in the middle of the side. Since the time of Verres nothing so unclassical has been done in the way of restoration, and one would almost fancy Mr. Klenze appreciated so little the true principles of Hellenic art, that he considered it sufficient to make a column perpendicular.

The society adopted a very different principle, as they considered the plan of Mr. Klenze implied a re-making, not a restoration, of the Parthenon. No piece of marble has been replaced, unless in the position it occupied before the explosion removed it. The Athenian antiquaries considered that it will be time enough to discuss the question, how far restoration ought to be carried, when all the fragments in the Acropolis still prostrate have been reinstated in their original positions.

Numerous interesting discoveries have likewise been made, but they appertain too exclusively to the domain of the antiquary and topographer to be interesting to general readers. Part of a sculptured frieze of black Eleusinian marble belonging to the Erechtheum was found near that building. An excavation behind the propyleum has exposed to view a beautiful specimen of a building destroyed to make way for the magnificent gateway to the Acropolis, built by Pericles. Many of the sites of temples and monuments mentioned by Pausanias, have been ascertained, and the inscription on the Trojan horse has been found on a vase in the position he mentions that he read it. Much, it is to be hoped, will be found, when it is in the power of the society to clear out the southern side of the Parthenon, as they have done the northern. Only about the half of the metopes of this side are in the British Museum, and one is in the Museum of the Louvre, so that there seems every probability that many may be found covered with the rubbish, which, from the lowness of the level of the soil on this side, has accumulated in a greater degree than on the north.

In the town, a considerable space has been cleared out round the tower of Andronicus Kyrhestes, or the Temple of the Winds, as it was formerly called. In common conversation it is now called the Temple of Eolus, and forms an appropriate termination to one of the new streets, of course Eolus-street. An excavation was also made by the society in the Theatre of Bacchus, and near it a curious statue of Silenus, with a young Bacchus sitting on his shoulder, and holding a mask in his hand, was found.

As a contrast to the labours of the society, I shall now mention a proof of the archaeological zeal and judgment of the central government. For some years no one was allowed to build, nay, the houses half built, were ordered to be left unfinished, within a certain limit, and government determined to purchase all the ground for excavation. Many individuals remained ill-lodged, with half-finished houses, and paying enormous rents for upwards of eighteen months. Suddenly the government plans were changed, and orders were given to build a large barrack within the sacred inclosure; and in order to remove any respect to Hellenic ruins part of the building was erected on one of the existing walls of the gymnasium of Hadrian, near the old Turkish bazaar, while the rest of the area was filled up with a layer of rubbish seven feet deep.

The services which the Archaeological Society of Athens has rendered to Europe, may be appreciated from this fact. It could not, however, have accomplished at much as it has already executed, had it not received several donations from Western Europe; and its labours would have been interrupted last year if His Majesty the King of the Netherlands had not sent a donation of 300 drachmas. A request was lately transmitted to Mr. Bracebridge, who has been a liberal promoter of the cause of education in Greece, to attempt the formation of a society, or the

establishment of a branch of the Athenian Archaeological Society in London; but from no official authority to act having been forwarded by the committee of management, this was found to be difficult. The state of the Athenian Society was, however, communicated to Colonel Leake, who, with his usual promptness and liberality in aiding the cause of Greece, immediately sent the society a subscription of 500 drs., (18*l*.) As it is probable that many admirers of ancient art may be inclined to support this useful institution, I have ventured to send you this long statement of its affairs and proceedings.

It must be observed that the archaeological commission, charged with the publication of the *Ephemeris Archaeologica*, in which the ancient inscriptions are printed, is not a part of this society. It consists of persons employed by government, though several members of the commission have been elected also members of the committee of management of the society, from possessing the requisite qualification for the office in the highest degree. All members of the Archaeological Society are, however, entitled to receive the journal of the commission at a moderate price.

I shall not recapitulate the most remarkable discoveries which have been made in the Greek provinces. An excavation made by the late General Gordon at the Heraeum, near Argos, at which I was present, brought to light two interesting fragments—a portion of a marble peacock and a large fragment of a pæfix of terra-cotta, painted as a peacock's tail. Several trifles in terra-cotta and bronzes were likewise found, and an extended excavation at this place would probably yield important results. At Delphi several fragments of the great temple, which it was supposed had entirely disappeared, were accidentally discovered; a small temple was also found, and the late Professor Müller made an excavation into the ancient treasury under the cells of the great temple.

A considerable collection of ancient statues from all parts of Greece has been assembled in the Temple of Theseus, several of them belonging to the first school of art, and rendering this little museum of great interest to antiquaries, and worthy of a visit from all admirers of classic sculpture.

One of the most curious monuments in the collection is the figure of a warrior in low relief, rather above the natural size, and executed with a degree of stiffness, which shows far more affinity to the style of the Eginæ marbles than to the Attic school of Phidias. Its antiquity, and the visible traces of the painting with which it was adorned, give it great value. This curious piece of sculpture was found at a place called Velandiza, on the coast of Attica, two or three miles to the south of Araphen (Rafina), between Hæle and Prasie, in the year 1839. An ancient demos existed in this plain, and near it there were forty or fifty unopened tumuli, which had excited the attention of several antiquaries. It is said that a society of excavators received permission to open these tumuli, but I have never been able to obtain any exact information on the subject, though I have applied directly to Mr. Pittakis; and Professor Ross was also unsuccessful as I was. Much mystery attended the whole proceedings for the Greek government has generally been extremely averse to all private excavations, and General Gordon was requested to discontinue his at the Heraeum; I suppose that many of the vases offered to travellers for sale, in 1839, were from Velandiza. Mr. Pittakis has published no account of these excavations, and the Archaeological Society took no notice of them, as it is dangerous for a body wishing to live in peace with all men to attempt penetrating where there is mystery. No account of these excavations has appeared in the *Annals of the Archaeological Institute at Rome*; and the only knowledge the world possesses of them, is the singular work of Aristocles, which we have noticed; this, however, is the best preserved monument of the most ancient style of Greek art when it began to rise towards perfection.

THE QUEEN'S COLLEGE AT BIRMINGHAM.—The ceremony of laying the foundation-stone of the Queen's College of Medicine at Birmingham took place on Friday, August 18, in the presence of a numerous assemblage of the inhabitants of the town, together with a large body of students.

NEW CHAPEL, UPPER CHELSEA.—On Wednesday week, the first stone of the new chapel in Turk's-row, in the parish of Upper Chelsea, was laid by the Hon. Sir Edward Paget, G.C.B. governor of Chelsea Hospital, who officiated in the absence of the Earl of Cadogan, the lord of the manor.

BIRMINGHAM.—A new workhouse is about to be built here; the cost is estimated by some as likely to reach 50,000*l*.; but we should suppose half that amount would well suffice. The design will, no doubt, be the subject of a competition.

Legislation.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1480).—Windows.—Dwelling-house.—Due Assessment in 1834-5.—Effect of want of.

Appellant was charged in 1840 for sixteen windows, having been assessed for the year ending 5th April, 1835, for ten only, and having opened four new ones since. The commissioners reduced the charge for 1840 to twelve; being of opinion that having opened the four on the faith of the statute, he was exempt for them: Held, that the determination of the commissioners was wrong.

At an adjourned meeting of the commissioners, acting for the borough of Wigan, in the county of Lancaster, in execution of the acts granting the duties of assessed taxes, held the 17th September, 1840, for hearing appeals against the first assessment of the said duties for the year 1840, ending the 5th of April, 1841 (48 Geo. 3, c. 55, sch. A.)—Thomas Coupe, of Wigan aforesaid, calendarer, appealed against an assessment in respect of the windows of his house, the number charged being sixteen. It appears that in 1834, the appellant was assessed for ten windows, and that, in consequence of the privilege granted by the act of 4 & 5 Will. 4, c. 54, s. 7, he has opened four windows. The commissioners being of opinion, that the appellant had opened four windows on the faith of the privilege granted by the 4 & 5 Will. 4, c. 54, *relieved him from the charge*, by reducing the number to twelve, thereby adding to the ten windows assessed in 1834, the two windows omitted to be charged in that year. The surveyor contended, that as the appellant, according to his own statement, had not been duly assessed in 1834, he was not, in his opinion, entitled to be relieved from the four windows he had opened in pursuance of the said act, and requested that the case be stated for the opinion of the judges.

Witness our hands this 4th day of February, 1841.

WILLIAM LAMB.

BENJAMIN POWELL.

18th May, 1841.—We are of opinion that the determination of the Commissioners is wrong.

J. PATTISON. T. COLTMAN. W. WIGHMAN.
—Justice of the Peace.

POMPEIAN PAPER-HANGINGS.

Mr. Butler's Observations on the Remarks of B. A. A. D.

No doubt the decorations were very finely drawn, and aptly designed to illustrate the history of the people and times in which they were executed; they were not copied from remains explored by them, they were original designs, and referred to their then existing manners, habits, customs, and religion; therefore how can they be appropriate or anywhere consistently apply in the present day; what have we to do with pagan altars and sacrifices, Italian vases and mythological absurdities?

Paper-hangings, and every other kind of decoration, whether in our manufactures or architecture, should be the index to our state of civilization; the same resources of design exist now as ever existed. How will posterity be able to distinguish us, or know how to class us, when our letter-press documents are belied by our architectural and other remains?

JAMES BUTLER.

TO THE EDITOR.

SIR,—In your last week's number, at the bottom of page 309, is a recipe for Cistern Cement; can you give or obtain a more particular description of the component parts of the material for making the cement; whether the clay should be London, and fresh dug from the earth, or made moist by tempering? What sort and quality of sand is to be used? And as to the oil, whether raw linseed or boiled, or any other sort? And then, as to the best mode of amalgamation? In doing which you will much oblige a subscriber from the beginning, and

Your most obedient servant,

PLASTIC.

PAINTINGS FROM THE CARTOONS.—Already instances have occurred to shew the advantages that may arise out of the cartoon exhibition. Mr. Stephano has received a commission to paint a picture of the subject of his cartoon at the price of 200 guineas. We believe other cases of the kind have occurred.—*Art Union.*

LIST OF ENGLISH PATENTS.

(From the Repertory of Patent Inventions.)

Robert Ramrose, of Ipswich, iron-founder; Charles May, of the same place, iron-founder; Arthur Biddell, of Playford, Suffolk, farmer; and William Worby, of Ipswich, foreman to Messrs. T. R. and A. Ransome, for improvements in machinery and apparatus used for ploughing and scarifying land, and for raking; and improvements in machinery and apparatus used for thrashing, cutting, and grinding, for agricultural purposes; and improvements in the construction of whipple-trees.—Sealed July 15, 1843. (Six months.)

James Overend, of Liverpool, Gent., for improvements in printing fabrics with metallic matters, and in finishing silks and other fabrics.—Sealed July 15, 1843. (Six months.)

William Garnett Taylor, of Halliwell, Lancashire, cotton spinner, for certain improvements in machinery for spinning cotton and other fibrous substances; and in preparing and dressing yarn for weaving.—Sealed July 15, 1843. (Six months.)

James Gollop Beater, of St. Clement's-place, Worcester, tailor, for certain improvements in the fastenings for trousers-straps, and in fastenings for wearing apparel generally.—Sealed July 20, 1843. (Six months.)

Henry Austin, of Hatton Garden, civil engineer, for improvements in the construction of water-closets.—Sealed July 20, 1843. (Six months.)

Charles Bertram, of the Borough of Newcastle-upon-Tyne, Esq., for an improved mastic or cement, which may be also employed as an artificial stone; and for coating metals and other substances.—Sealed July 20, 1843. (Six months.)

Joseph Harvey, of James-street, Buckingham Gate, Gent., for improvements in the construction of two-wheeled carriages.—Sealed July 20, 1843. (Six months.)

William Daniell, of Abercane, Monmouth, tin-plate manufacturer, for improvements in rolling iron into plates or sheets.—Sealed July 22, 1843. (Six months.)

James Nasmyth, of Patricroft, near Manchester, engineer, for certain improvements in machinery or apparatus for driving piles, part or parts of which improvements are applicable also to forging and stamping metals and other substances.—Sealed July 24, 1843. (Six months.)

Joseph Daniel Davidge, of Greville-street, Hatton Garden, machinist, for improvements in manufacturing certain materials as substitutes for whalebone, applicable to various useful purposes, and in the machinery for effecting the same.—Sealed July 24, 1843. (Six months.)

David Napier, of York-road, Lambeth, Surrey, engineer, for improvements applicable to boilers, or apparatus for generating steam.—Sealed July 25, 1843. (Six months.)

Frederick Lewis Westenholz, of 151, Regent-street, merchant, for a double-centered steam-engine.—Sealed July 25, 1843. (Six months.) Communication.

Samuel Faulkner, of Manchester, cotton spinner, for certain improvements in the machinery or apparatus for carding cotton and other fibrous substances.—Sealed July 25, 1843. (Six months.)

Edward Eyre, of Poole's Hotel, London, Gent., for certain improvements in railways, and in the machinery or apparatus employed thereon.—Sealed July 25, 1843. (Six months.) Communication.

William Crofton Moat, of Upper Berkeley-street, Marylebone, surgeon, for a method of obtaining aerial locomotion.—Sealed July 26, 1843. (Six months.)

IRISH PATENTS.

To William Newton, of the Office for Patents, 66, Chancery-lane, in the county of Middlesex, civil engineer, for certain improvements in the preparation of paper designed for bank notes, government documents, bills, cheques, deeds, and other purposes, wherein protection and safety from forgeries or counterfeits are required.—Sealed July 5, 1843. Communication.

Robert Faraday, of Wardour-street, Soho, in the county of Middlesex, gas-fitter, for improvements in ventilating gas-burners, and burners for consuming oil, tallow, or other matters.—Sealed July 10, 1843. Communication.

Gregory Seale Walters, of Coleman-street, in the city of London, Merchant, for improvement in the manufacture of chlorine and chlorides, and in obtaining the oxides and peroxides of manganese in the residuary liquids of such manufacture.—Sealed July 10, 1843. Communication.

William Mayo, of Lower Clapton, and John Warrington, of Wandsworth-road, gent., for improvements in the means of, and apparatus for manufacturing gaseous liquors, and for filling bottles and other vessels used for holding the same, and retaining the contents therein, and emptying the same when required.—Sealed 12th July. Communication.

Anthony Bernhard Baron Von Rathen, of Birmingham, in the county of Warwick, engineer, for improvements in fire-grates, and parts connected therewith, for the better consumption of fuel and generation of heat; and improvements in the method and apparatus for the absorption and utilization of heat.—Sealed 12th July.

SCOTCH PATENTS.

To William Newton, of the Office for Patents, 66, Chancery-lane, London, civil engineer, for certain improvements in the preparation of paper, designed for bank notes, government documents, bills, cheques, deeds, and other purposes, wherein protection and safety from forgeries or counterfeits are required.—Sealed June 23. Communication.

William Needham, of Birmingham, gun-smith, for improvements in fire-arms.—Sealed July 4.

Robert Smart, of Commercial-road, Bristol, ship-owner, for improvements in paddle-wheels.—Sealed July 4.

(To be continued.)

Miscellaneous.

THE FIRE-PROOF POWDER MAGAZINE.—A very interesting experiment took place recently at Paine's Wharf, Cannon-row, Westminster, in the presence of several distinguished naval and military officers, and other scientific gentlemen, for the purpose of testing the capabilities of a magazine to contain powder in ships of war, recently patented by Mr. J. A. Holdsworth, of Dartmouth, as being impervious to fire, though subjected on all sides to the greatest possible degree of heat. A model of a magazine, about nine feet square, was placed on the wharf, within a few feet of the water's edge. This model is formed of a double set of thin iron plates, rivetted together at about two inches and a half asunder, the hollow being filled with water supplied from a vat placed somewhat above the level of the magazine, and entering it through a pipe inserted in the lower part of the model. A channel of communication exists through every side as well as the top and bottom, and from the upper surface a second pipe conveys the stream of water back to the vat from which it is supplied. The door of the magazine is hung on hinges, made hollow, and guarded from leaking by stuffing-boxes, so that the water flows into the door through one hinge, and out through the other. This appears to be the principle of its construction, and it is alleged that it will be as impervious to fire as an iron kettle containing water. The more violently the fire impinges against its side the more rapidly the water within the hollow circulates, but it cannot flow more rapidly out of the upper pipe, through the action of the fire, than it will be refilled below if the supply of water be properly arranged; and as long as the hollows contain water, the metal plates cannot become red-hot. The patentee having explained this much of his invention, placed a quantity of combustible matter within the model, over which the gunpowder was laid on a sheet of paper. A regulating thermometer having been placed inside, the door was closed and a stack of dried timber deposited on every side of the model, which, on being ignited, burnt with the greatest rapidity. The fire was kept up more than half an hour, and the water rose to very nearly boiling heat, continually passing in a stream through the upper pipe into the reservoir, containing cold water. On the door being opened, the combustible matters and powder were found to be perfectly uninjured, and the highest point to which the mercury had risen within the model was marked at 100 degrees of Fahrenheit. Great satisfaction was expressed by the gentlemen present at the successful result of the trial, and the inventor explained to those present that the position of the pipes in the side of a ship of war might be varied in any way to suit the convenience of the ship, care being taken that each was below the surface of the sea, or so arranged that the top of the magazine, when exposed to a fire, might be always filled with water. A somewhat similar principle has been applied to the stoker's-room in the Victoria and Albert royal steam yacht, where the bulkheads have been constructed of two plates of sheet iron, instead of wood faced with iron, a stream of water constantly flowing between, by which means the temperature of the engine-room is kept perfectly cool. By this contrivance it is anticipated that great advantage will arise to war steamers on the tropical stations, where the excessive heat of this part of the vessel is a fruitful source of sickness among that class of men.

THE QUEEN'S SUMMER-HOUSE in Buckingham-gardens is nearly completed, and the frescoes produced by Maclise, Ross, Uwins, Stanfield, and Landseer, to whom her Majesty and the Prince intrusted the adornment of this enviable spot, are spoken of by the chosen few who have been fortunate enough to see them as being more than successful. The subject chosen was *Comus*, and the illustrations are, though of a small size, full of subject and interest. It is said that Landseer completed his between sunrise and sunset; Mr. Eastlake is still untouched: he has been so occupied with the Commission that he has not had leisure, we have heard, to do more than sketch his subject. To paint the moral of the tale is his privilege, and it is of all the portions which he is best calculated to illustrate. Her Majesty and the Prince have taken the greatest possible interest in the progress of the adornment, visiting it themselves repeatedly, without state or ceremony. We hope the example they have shewn in appropriating this branch of art to such a purpose will be followed by those of our nobility whose princely fortunes enable them to joy in the pure and high art which such men can present to them.

CHAPEL OF SABLONVILLE.—The plan is that of a Greek cross, the upper end occupied by the altar, dedicated to the Virgin. In one of the sides of the cross is the chapel dedicated to St. Ferdinand, and in the other a statue of the Duke of Orleans, in the dress of a general officer, and in the position in which he happened to be at the moment of his death. Above the head of this figure is placed an angel, kneeling as if in prayer, sculptured by the Princess Mary. The reclining figure is by M. Trignetti, after a design from the pencil of M. Ary Scheffer. On the principal front of the sarcophagus is represented France in the form of a genius in an attitude of grief, bewailing the loss which she has sustained. The French flag lies at her feet. On the walls of the chapel are the prince's cipher. There are ten windows in the building, all adorned with stained glass, representing fourteen saints, seven at each side of the grand altar. The three circular arches of the roof are ornamented with statues of the three Apostolic virtues; Faith being placed over the entrance, Charity at the side of the Chapel of St. Ferdinand, and Hope in the part of the cross occupied by the figure of the dying prince. The chapel, in the Byzantine style, is surmounted by a stone cross. The compositions of the windows are by M. Ingres. In front of the chapel a residence has been prepared for the officiating ecclesiastic.

LYCIAN ANTIQUITIES.—Mr. Fellows is now on his way to Malta, whence the expedition will start in October. It will consist of one hundred persons, engineers, carpenters, masons, &c., besides an architect and artist (under Mr. Fellows's control, who acts gratuitously). A government steamer, the *Medea*, whose officers, having been employed before, have volunteered again, is placed at his command. They will arrive during the healthy season, and not, as was the case when the Syrian marbles were fetched away, exactly at the time when the climate became intolerable, and even the natives had deserted the banks of the Xanthus, a mistake which occurred in spite of Mr. Fellows's express warnings, that they should be out of the country before the month of June. Lord Aberdeen and Sir Stratford Canning have meanwhile diplomatically made all the arrangements to facilitate proceedings. The firman given to Mr. Fellows before is still in force; the local pachas are prepared to render every assistance; timber is felled in readiness to pack up all that may be acquired; and it is probable that every thing worth having—on the Xanthus, at least—besides what may be discovered elsewhere, will be added to the stores in the British Museum.

A large quarry has been accidentally discovered at Cirencester, close to the canal wharf, and in that part of the suburbs called Querns Hill, where the soil is so picturesque uneven from old quarry work. The name of Querns signifies quarries, and this spot lies within the compass of the ancient Roman walls of Corinium. The quarry laid open is evidently very ancient. Unlike our present quarries, it is not worked from an exposed surface down to a pit, but extends under the plane surface horizontally. On entering, you diverge into several cells or chambers, forming passages or tunnels, the roof being supported by shafts of the original rock, of various heights, left unworked. The principal coal mines in the Forest of Dean are worked in the same way into passages, and the ancient Phœnician iron mines which remain there, and can be traversed to a great extent, are similarly formed. The ancient title of this suburban spot (the Querns)—its contiguity to the city walls of this Roman station—and the manner of working the quarry so closely resembling the Phœnician mines, offer a reasonable ground for conjecturing (till better advised) that this mine was prior to the erection of the church, as has been guessed, and a Roman excavation.—From a Correspondent.

CHELTEMHAM IN THE OLDEN TIME.—A very curious drawing has just been brought to light, representing a view of Cheltenham nearly a century ago. The drawing is in body colour, executed by Robins, in 1748, evidently with great accuracy and minuteness. The spectator is supposed to stand on the elevated point of the Bays Hill Estate—the old church, the pump-room, and avenue of trees—mere sappling elms—in the foreground the Coteswold Hills rising in the distance, and, on the whole, presents a singular contrast to Cheltenham in its present rich and splendid appearance. An inscription under the drawing tells the tale of the discovery of the waters, about thirty years before the painting was executed, and the gratitude of "Gabriel Davies, a mason, who, receiving a cure from taking them, sunk a well and laid in stones, which was afterwards palisaded round and walled in; and that Capt. Henry Skillicorne (ancestor of the present Mr. Skillicorne) made a handsome walk, and additional buildings;" which are plainly shewn in the drawing, by a double row of young trees, which now, in their green old age, presents so rich and conspicuous a feature from the same point of view. This very interesting relic of ancient Cheltenham ought to be carefully deposited in the museum of the Philosophical Institution, as one of the evidences of the great benefit society has reaped from the discovery of the health-inspiring waters of our mineral springs; contrasting, as it does, Cheltenham as an insignificant village, with its present palmy and high estate as the Queen of Watling Places. The drawing is in the possession of Mr. Alder, Promenade.—Cheltenham Examiner.

"Let no man that intendeth to build settle his fancy upon a draught of the works in paper, how exactly soever measured, or neatly set off in perspective; and much less upon a bare plant thereof, as they call the schiographia or ground lines, without a model or type of the whole structure, and of every parcell and partition in pasteboard or wood. Next, that the said model be as plain as may be, without colours or other beautifying, lest the pleasure of the eye pre-occupate the judgement; which advice omitted by the Italian architects, I finde in Philippe de l'Orme, and therefore (though France be not the theater of best buildings) it did merit some mention of his name. Lastly, the bigger that this type be, it is still the better, not that I will persuade a man to such an enormity, as that model made by Antonio Labaco, of Saint Peter's church in Rome, containing 22 foot in length, 16 in breadth, and 13 in height, and costing 4,184 crowns; the price, in truth, of a reasonable chapell. Yet in a fabrique of some forty or fifty thousand pounds charge, I wish thirty pounds at least laid out before hand in an exact model; for a little misery in the premises, may easily breed some absurdity of greater charge in the conclusion."—Sir Henry Wootton's *Elements of Architecture*, Ed. 1624, pp. 64, 66.

The cost of maintaining the public parks of the metropolis is £59,478 per annum.

A plan has been proposed by Mr. Hudson, of York, Chairman of the North Midland Railway, to merge the North Midland, the Birmingham and Derby, and the Midland Counties Railway, under one management, and thereby to effect a great saving of expenses. A committee has been appointed to consider and report on the proposition.

We are apt to inquire how much a man has done; but with how much virtue he has done it, is not so diligently considered.

Some one remarking to Dr. Johnson on the inequality or inferiority of Milton's sonnets, was silenced in this manner: "Milton was a genius that would carve a Colossus from a rock, though he could not cut heads from cherry-stones."

On the Harrow Road there is a memento in brick and mortar, connected with a story of singular interest—two houses stand together, the one spruce and prim in its comparative newness, the other tottering with age and dilapidation; their juxtaposition of the strangest; and this is the tale that is told of and concerning them. The proprietor had secured the affections and was about to be united to the person of the damsel of his choice, intending to carry her as bride into the venerated home of his ancestors; this, however, the lady resented, and vowed to retain her hand unless a domicile more in accordance with her taste were provided by her aspirant lord and master. All obedience in this respect, the good man built by the side of his ancient home, a fairer tenement, according to modern rules and proportions, upon which he challenged his betrothed to the fulfilment of her promise; but no! the old house must be levelled, it was odious in her eyes. This was more than complaisance self could comply with—at least so thought the hitherto complaisant suitor; the bargain was off, and there stands the record of these mutually obstinate sticklers for mutual absolute concessions.

WANTED, Three or Four good Joiners, for Three Months certain, and probably for a longer period. Also Two Stone Masons for the same time. Address for Terms, &c., to ALEXANDER AFSLEY, Builder, Ashford, Kent.

THE BUILDER,

NO. XXX.

SATURDAY, SEPTEMBER 2, 1843.

FIRE-PROOF BUILDINGS.

WE care not if the under-current of a powerful movement which is now setting in be acknowledged as put in motion by ourselves, or be attributed to and claimed by the straws which float upon the surface; but we are glad to learn that after all we have said, and after the stern and oft-repeated monitions of dear experience, a movement is being made towards a change of system on the part of the Fire-offices—a wiser system—that of foresight and prevention is about to take place of the haphazard and foolish reliance on a power to cure or to suppress, and presently we shall as soon expect to hear men advertising to their fire insurance policy as a ground of security, as to find men of that genus of the Irishman in the storm, who, while his fellow-passengers and the crew were in terror and apprehension of instant loss, sat full at ease and replied, "Fair, now, and why should I be concerned? didn't I insure my life before starting on the voyage?" No man, and no body of men, will consider themselves secure upon any such ground, or upon any thing less than having taken precautionary measures of another class, and we do not despair of seeing our proposition for fire-proof structures, fire-proof blocks of buildings, but above all, the grand aqueduct, seriously thought of first, and then carried out. We learn that a half-silent movement is being made in the way of bringing public attention to the subject, and convening a suitable meeting through the City and other authorities. This is as it should be in the main, and shall have our best attention and aid; but we may venture to offer a word of advice not to be thrown away or lightly heeded.—Steer clear of petty jealousies, envious ambitions, and private jobs."

WE do not conceal, and it would be contrary to our nature to attempt to conceal, that we are to a great degree satisfied in the receipt of the letter of the Rev. Vicar of Leamington, which appears in another part of our paper. It is complimentary to ourselves, but it is more valuable, and infinitely more honourable to the reverend vicar, that he should recognize in the frank and manly manner in which he has done, his responsibility to the architectural public for any supposed or imputed breach of just dealing to it through one of its body. The liberal and art-loving spirit which has impelled him to great efforts for the re-edification and enlargement of his church, could scarcely exist without thus much of amenity in the defence of his conduct, or without this fine sense of accountability to a tribunal of proper jurisdiction, and where the forms of arraignment had been fairly set forth. Our first notice of the church in which the rev. vicar is engaged, referred to the fact of the works as viewed then in progress; the next step was setting forth the substance of a letter from Mr. Jackson, the architect, who had been superseded, as stated by us, in the direction of the works; wherein a case appeared to be

made out requiring explanation. We were determined not to prejudice; and now we have the other side of the question. In such explanations as these it is hardly possible to avoid, by a statement of pure fact, the mention of things of such a nature or in such a way, as to produce irritation in the minds of even the least perturbable; and we are afraid that in this instance the reverend vicar may have, in his own justification, stated so much and in such a way, as to tend to such a result with Mr. Jackson; but we conjure both parties, and especially the reverend gentleman, who will excuse our seeming boldness, while we have a profound deference for his better knowledge of duty—we conjure both to adhere to the most scrupulous resolutions of pacific purpose.

We shall not attempt to anticipate Mr. Jackson's reply, we only hope it may be in the spirit we so much affect.

While we are upon a subject in which mention has been made of the Cambridge Camden Society, we may take occasion to allude to a matter personal to ourselves. In the last number of the *Ecclesiologist*, and an interesting one it is, a promise is made to deal with some "unsound and mischievous principles" alleged to have been propounded by us. We are far from deprecating any thing like a free and fair criticism upon the course we are pursuing, or the opinions we hold; and if our principles are really in fault, we shall be thankful to the hand that chastises; but we are not so hypocritical or so filled with affectation as to assume ignorance of what is meant. We shrink from no scrutiny, while, on the other hand, we invade no sanctuary; and the scrutiny we invite will be to reveal that we are not without some pretensions to have our say, to propound and to maintain our opinions. We wish not to invade the sanctuary of the Camden or any other society for the sake of testing the weight of opinion emanating from thence. Independent, therefore, of personal matters, and assuming the name of our respective organs to be a fair exterior index of qualification for combat, if combatants we must be, we hold at the outset that *THE BUILDER* has at least as fair ground as the *Ecclesiologist* for privileged opinion in matters of building art. This is not much, to be sure, and we do not put it forward as an argument, but taken in its full significance it may have the force of one. We are fully alive to the value and importance of the labours of the Camden Schools of Ecclesiologists.—Stimulated from without, or it may be more correct to say from within, for the clergy have been once, and may be again, the leaders and arbiters in matters of art; so stimulated, we say, and so encouraged and guided, the professors of Architecture may be found forward in proficiency, where otherwise complaints as to shallowness and empiricism might lie. But we opine that much has to be conceded, or rather acquired, on both sides; PRINCIPLES are the things at issue, and right glad we are that it is upon these rather than upon any fanciful and immaterial accidents that some friend has stumbled, and so reported us to the Cambridge Camden Society, or its editors—PRINCIPLES of design involving all the questions of propriety in adaptation, in structure, in choice of materials, in forms and essentials—these are what we are in quest of—gladdened with somewhat of glimpses (we boast no more), and humbly intent on pursuing. In this progress we find ourselves associate with ardent, zealous, and indefatigable spirits—chief of which, and chiefs among, are the Camden Societies. We see them active in culling flowers, or picking up

gems from the fields in which their vocation has charged them to labour. We witness with gladdest feeling, and participate in their delight. We echo every boast of their discovery—we cry repeats to all their assertions of right, and remonstrances against wrong—and suffer or grieve only when the clamour of the less enlightened of the party—the mere *camp-followers*, raise a cry of war—or when their run-ahead propensities appear more dangerous to the cause of general success than the incursions of the savage, the barbarous, and the uncivilized. In arts there are but few leaders; indeed it is in this, the highest of empires, that the generalissimo obtains and commands place, more than in great campaigns of war and conquests. Art, long sunk in a night of inaction, following the spent-out efforts of her day of great achievements, wakes up slowly to renew her labours and assert her supremacy; the recollection of past efforts is excited, but a world of new circumstances and new agents have been born to her in her sleep; she draws from her armoury or storehouse her once well-trusted weapons and machinery, and essays a renewal of their workings; but if we examine, the most that they claim of attention or admiration is based on reminiscences, a little to fashion, and this with the multitude, while a few only of the profound and far-seeing observe in them the functions of precious depositories of eternal principles of fitness, beauty, and design, and as such venerate and esteem them in a spirit far apart from the profanity of the thoughtless or the frivolity of the uninspired.

A riper age than this produced but one Wykeham, but now we have many, or many who aspiring to be commentators and interpreters of his spirit, discharge the trust in the spirit of such functionaries. Wykeham spoke to his times in a burning language—in words of living and active intelligences—let us in this imitate him; but who but a Wykeham shall emulate a Wykeham?—and these are not made in the machinery of schools, but born under stars and in times of God's appointment.

PRINCIPLES, indeed, say we. Sit we down with special zest to the discussion and digestion of a feast of principles, and whether with the Camden or any other, the patrons and espousers of Archæology, break our bread and share our salt; but—spare the grace that pervenes the feast with the stigmas of "unsound and mischievous."

BUILDERS' AGENCY.

A CORRESPONDENT, under the signature of "Yorick," is impatient as to progress in this matter; so are we, but our impatience, unlike his, must cope with and remove the obstacles. His suggestions of several weeks back were neither idly laid aside, nor did they fall upon our minds vacant of such thoughts and plans for months and months before. We have to the best of our power kept a registry of situations and applicants for situations in the building crafts; and, as we have announced before, have had the satisfaction of assisting many; but we were aware from the first thought of the matter entering our minds, that this business would become too extensive and important for any but a special and systematic dealing and treatment. We knew that our stepping forth in the capacity of caterers for our class, would result in the erection of one of the most important structures of commercial and trading enterprise which these times have been destined to produce. We knew that a class of half a

million of the pick and choice of British industrial interests, such as we have the honour to serve and represent, would, upon the exhibition of their rallying standard, shew signs of power, wealth, and influence in a way to astonish, although before so little thought of, and hardly dreamed about.

But five hundred thousand builders, scattered and disorganized, as we may so speak, living in half ignorance each man of the other's existence, exhibiting to the world, in this day of class representation and class union, the almost astounding paradox of having no organ of public expression, while the "press" has groaned under the duties of representing little sections of a hundred inferior interests; five hundred thousand builders, we say, are not for the first time enrolled, and their census taken, without great labour, the encountering of great difficulties, and what may seem to some a tedious process, and symptomatic of delay. **THE BUILDER** and the **BUILDER'S AGENCY** are twin brothers, so to speak, of coeval existences and coincident progress; many minor or apparently secondary off-shoots will grow out of them, but these proceed in parallel lines, and accumulate in equal ratios. What we have wished, and still desire to accomplish, is as much as possible to preserve a character of liberal and generous devotion to the interests of our class in all our workings. So we have sent the paper forth, relying upon, and we are happy to say experiencing, a large share of popular support. In this agency business, promising to be, as we have said, co-extensive in importance and usefulness with **THE BUILDER** itself, we are anxious to conduct ourselves on a footing to square with the rest of our doings, and should be best satisfied to see a suitable gentleman from the Builders' ranks, entitled to their confidence, placed at the head of it. Builders, and Builders only, ought to reap the principal advantage in what so distinctly pertains to them as does this business, and we offer, nay, invite them to seize these advantages. Hitherto we have borne the brunt of great and trying responsibilities in this vast experiment. Although we are convinced that thousands would have relieved us had it been known to them what difficulties we have had to encounter; but now much of the ground is cleared, and the prospect of success developed. We will say no more. The Builders' Agency, in connection with **THE BUILDER** itself, is open to the man of right qualifications, and one qualification is the sense to perceive its extensive ramifications in all matters pertaining to Builders' wants and requirements, not only in this country, but all over the world.

The Earl of Pembroke has given instructions for a mansion to be erected for his lordship at the lower end of Grosvenor-place. It will command a splendid view of the Buckingham Gardens.

On Saturday afternoon, the foundation-stone of the new church in the parish of All Saints, Southampton, was laid by Sir Launcelot Shadwell, Vice-Chancellor of England, and father of the late lamented rector. A beautiful lithographic representation of the church, as it will appear when completed, has been executed, which indicates that the intended structure will add to the well-deserved reputation of Mr. Owen Carter, of Winchester, who has been appointed architect. The building is to be in the Norman style, with a tower and spire of peculiar but extremely characteristic and picturesque appearance. The material is to be of stone, and the roof covered with tiles, the construction substantial, and the proposed cost, including the tower, will be under 3,000l. The proposed accommodation is for upwards of 500 persons, of which nearly 260 will be free sittings, and the contract for the building has been taken by Mr. W. Williams, formerly of St. Cross, near Winchester.

PATENT ELASTIC CAOUTCHOUC, OR INDIA-RUBBER PAVEMENT.

This pavement is termed by the inventors and proprietors patent elastic pavement, but we have appended to it a name of our own, because we like such designations as make a matter familiar to every one we address; we have therefore called it the India-rubber pavement; the term caoutchouc is less popular, and less understood than India-rubber. We remember the time of the introduction of various fabrics, in which caoutchouc formed the staple, such as the macintosh cloaks, goloshes, web, &c., and we invariably found it preferred to attach the popular rather than the technical term; for this reason, therefore, it is that we adopt it on the present occasion.

If we had been writing about or considering this invention for the first time, if, for instance, it had been announced to us only to-day that such a discovery or such an application of India-rubber was proposed as for floors and pavements, we should have been overflowing with the feeling and expression of surprise, exclaiming perhaps, "What will come next?" Gums and vegetable extracts for floors and pavements! What in the name of novelty is it we are tending to? If asphalt and artificial stones, pitch and resin, and concretions of lime, gises and composites had not in an almost endless variation of shapes been presented to us for this and similar uses, and if this **INDIA-RUBBER PAVEMENT** itself had not been under our observation for some time, quietly watching as we were the experiments of its promoters and projectors, we should most assuredly have been at this present writing under the influence of surprise, astonishment, and probably incredulity; but prepared as we say we have been by long contemplation of ancillary workings, we are enabled to speak now in the sober language of ordinary lookers-on, and what we are most interested in or excited by, is, that this extraordinary, though familiar, substance and process should have its full, fair, and early trial and judgment.

And the builders are the men to give it this, and this paper, the vehicle of information to builders, is the most fitting to put itself forward to ask for this trial. It may be all very well for the common curiosity to be excited through the common channels, and that the experiments of a thousand novices in the building art should be set on foot, and there are many who incline to the opinion that we builders are pushed forward, and in fact, that all regular professions or crafts are as much benefited by experiments and practitioners without the pale of our craft as by those made in it, but, after all, we contend for it that the approving fiat of the builders is necessary to stamp a matter of this kind with value and authenticity. We therefore call upon the builders to apply their minds to the consideration and trial of this India-rubber pavement and flooring; there are thousands of instances where the experiment, if successful, would be signally beneficial, and where, if it were not so, it would be of little consequence; a few instances we will proceed to mention.

But first, by the way, it behoves us to speak of the various different forms and uses under which this material is presented to us. We find it solid and compact in some instances as a wooden block, in others pliable as we might expect from its nature; in the one case compressed by great hydraulic force, in the other laid out, tenacious and cohesive like a sheet; in one instance combined with sand, rendering it insoluble in wet, a most important quality, in another instance combined with sawdust, deriving its colour from the different qualities of the sawdust used, if from mahogany one colour, if from oak another. In one case we find it an inch thick for stout pavement, in another still thinner, for the floors of ordinary apartments; again, a mere sheet, or of oil-cloth texture, for laying over damp floors, sheathing, or casing damp walls and the like.

It is spoken of as being likely to be very valuable for barn floors, resisting damp and decay, and from its elastic quality (like wood) avoiding the bruising or cracking of the grain in thrashing. In stable floors it is already used, as at Sir Francis Collier's, at Woolwich, Mr. Rolt's, Hyde Park Gardens, &c., and the highest commendations of it are given. Unlike the ordinary pavement, there is no chance of the absorption, either in joints or otherwise,

of the dung or urine, by which that painful and injurious exhalation of ammoniacal vapour, so hurtful to the eyes and health of horses, is avoided; and in the use of straw we hear it is remarkably economical.

The patentees, who have an office at 42, Lombard-street, have of course published an account of the particular uses and advantages of their material, and our readers who are desirous of making themselves intimately acquainted with it, will do well to apply for the tract and specimens; the former enters into the question more fully than we can pretend to do, speaks of the rate of cost, the nature and composition, the uses and trials it has been put to, and those for which it is designed, such as matting, roofing, sheathing, railway packing in lieu of felt for the chairs and rails, for foundations and floors, and lastly for ship and boat building, by way of protection from splinters, &c.

Drawings are also given with the tract, and a description for laying stable floors, which will be found more than merely useful in reference to this material, and a table of the comparative weights of different roofing materials, so that there is ample promise of gain and information, if only by looking into the matter as we have done.

WATER-PRESSURE ENGINE AT FREYBERG.

BY W. L. BAKER, GRAD. INST. C. E.

The machine, described in this communication, was designed by Herrn Brendel, in 1823, and constructed in 1824, for draining the Alte Mordgrube Mine, one of the largest silver mines in the neighbourhood of Freyberg, in Saxony. This engine, which is fixed at a depth of 360 feet below the surface of the ground, has two single-acting cast-iron cylinders, each 18 inches in diameter and 9 feet stroke; to the pistons of which are fixed strong timber piston-rods, each attached at their upper ends by a flat-iron rod and chain, to the opposite segments of a horizontal working beam, thus connecting the pistons of the two cylinders, so that, when one is being moved upwards by the pressure of water underneath it, the other is depressed by the weight of all the pump-rods and other moving parts to which it is connected. The admission and eduction of water from the cylinders is regulated by slide valves, worked by levers and tappets. The piston-rods give motion to the horizontal arms of two bell-crank levers, the diagonal arms of which move the main pump-rods, working forty-four pumps, in two sets of twenty-two each, placed one above another, at an angle of 45° with the horizon, each dipping into the delivery cistern of the pump immediately below it; this is repeated downwards for the whole series, and thus the water is raised from the bottom of the mine to the point where it runs off by an adit. Each pump has a lift of 30 feet 4 inches. The duty performed by this engine is stated by Gerstner (*Handbuch der Mechanik*, published at Vienna in 1834) to be as 70 to 100. The author then gives a very minute account of the construction of the engine, illustrating the paper by three drawings, giving the general arrangement and the detailed dimensions of all the working parts.

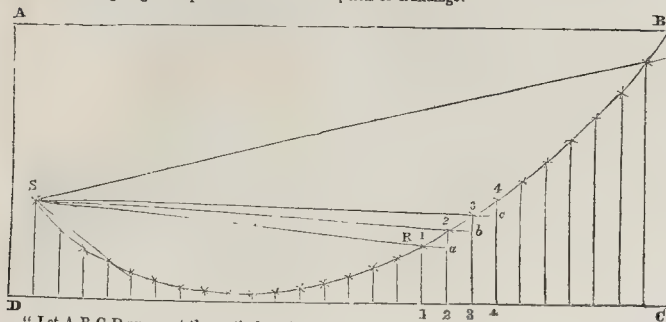
Mr. Taylor remarked, that the water-pressure engine was of Hungarian origin; it was extensively used in Germany, and had latterly been much improved in construction, particularly by abandoning the rude mode of placing a series of pumps over each other, as had been described in the paper. He believed that Smeaton erected the first engine of the kind in this country. Trevithick built one about forty years since, with cylinders of Mr. Fairbairn's diameter. Another was erected by Mr. Fairbairn, and, since then, one had been built under the direction of Mr. Darlington, with cylinders of 50 inches diameter and 10 feet stroke, worked by a force of water of twenty-two fathoms, through a descending column of 30 inches diameter, the pumps worked by the engine were 42 inches in diameter, raising water from a depth of twenty-two fathoms; the usual speed of working was four strokes per minute, but he had seen it attain six strokes. The concussion produced by the closing of the valve at the end of the stroke was generally very prejudicial to these engines, but in that made by Mr. Darlington, it was diminished by allowing the large valve to close a short time before the stroke finished, and bringing the piston home with a small valve; by this means no noise was heard beyond that of the rush of the water, and the violent shocks were avoided.—*Trans. Inst. of Civil Engineers.*

THIRTEENTH MEETING OF THE BRITISH ASSOCIATION—1843.

(Continued from page 346.)

The following diagram represents the isacoustic

curve, or curve of equal hearing, referred to in Mr. Scott Russell's paper "On the Application of our Knowledge of the Laws of Sound to the Construction of Buildings."



"Let A B C D represent the vertical section of a building for public speaking, S the height of the speaker on his platform, D C the floor of the building; then, for the purpose that all the auditors should hear and see equally well, they should be placed on the line S R B of the acoustic curve. This curve is constructed in the following manner: D C is first divided into equal parts, to represent the usual breadth of a sitting, and vertical lines are drawn through these points. R being the place of the auditor 1; the place of auditor 2 behind him is assigned thus—join S R, and produce it to a—from a upwards set off $a 2 = 9$ inches, and 2 is the proper height of the next spectator. Then join S 2, produce it to b, and set off $b 3 = 9$ inches, and 3 is the place of the third spectator; and so on for the place of every spectator. Such was the vertical section of the building. The horizontal section was either circular or polygonal, having the speaker at the centre. This form had been found perfectly successful in affording the highest degree of comfort both to hearer and speaker; therefore he submitted it with confidence to the Section, as a practical and established principle, more than as a mere theoretical speculation."

GENERAL COMMITTEE—Monday, Aug. 21.

Invitations, not to be pressed unless circumstances required, were presented from Derby and Hull, but it was generally known that all parties had agreed to hold the next meeting at York; and a resolution to this effect was passed by acclamation. The following noblemen and gentlemen were elected office-bearers for the next year:—

Rev. J. Peacock, Dean of Ely, President.—Earl Fitzwilliam, Viscount Morpeth, J. S. Wortley, Esq., Sir D. Brewster, Professor Faraday, Rev. Vernon Harcourt, Vice-Presidents.—W. Hatfield, Esq., Rev. Mr. Scoresby, —Meynel, Esq., W. West, Esq., Secretaries.—W. Gray, Esq., Local Treasurer.

It was resolved, that the meeting should be held in the course of September, the particular day to be determined by the London Council. The following gentlemen were appointed to the Council for the ensuing year:—Sir H. de la Beche, Dr. Buckland, Dr. Daubeny, Prof. T. Graham, G. B. Greenough, Esq., Leonard Horner, Esq., Eaton Hodgkinson, Esq., Robert Hutton, Esq., Sir Charles Lemon, C. Lyell, Esq., Prof. Lloyd, D. Macneil, Esq., Prof. M'Cullagh, the Marquis of Northampton, Prof. Moseley, Dr. Richardson, Prof. Sedgwick, Col. Sykes, W. Thompson, Esq., Prof. Wheatstone, Rev. Mr. Whewell, and Dr. Williams, with the officers of the Association. The general secretaries and treasurer were re-elected.

SECTION G, MECHANICAL SCIENCE—Saturday,

Aug. 19.

The first subject for discussion being Mr. Dircks' method for the prevention of smoke, as applicable to steam-engine and other furnaces.

Mr. Dircks said the subject was one of particular interest at the present time, a parliamentary committee having been appointed to inquire into the feasibility of burning or preventing smoke, with a view to promote the health of towns. He briefly recapitulated the principle and arrangement of the Argand Furnace of Mr. C. Wye Williams, which admitted the air in the divided form of jets of air. The advantage of the plan he described as demonstrated by the indications of Mr. Houldsworth's pyrometer. This view he further supported by reference to tables of the relative calorific and commercial value of fuels for evaporative purposes, drawn up with much care, and giving, among other data, the escape of heat in the chimney as indicated by a pyrometer, showing a range of temperature from 240° to $1,020^{\circ}$, in other words, a loss of power equal to the evaporation of an increased quantity of water, but which is wholly overlooked in practice. The following is the table exhibited:—

No. of Experiment.	DESCRIPTION OF FUEL.	Pounds weight of fuel burnt per hour.	Pounds weight of water evaporated per hour.	Pounds weight of water evaporated per pound of fuel.	Average heat of flue most distant from the furnace.	Temperature of product at foot of the chimney.	Cost of fuel for evaporating 100 cubic feet of water.	Condition of furnace as to admission of air to the gases.
1	Turf. Quality obtained in wet seasons—clamp	456	883	1.93	430	380	6 1/2	Air admitted to gases as well as to sub-pit—no smoke.
2	Turf. Same as last experiment	450	1444	3.20	582	493	4 4	Air excluded from gases (on old system)—much smoke.
3	Turf. Quality obtained in good seasons—dry	403	1560	3.87	672	593	3 7	Air admitted—new system—no smoke.
4	Bituminized—C. W. Williams's plan	393	1872	4.76	635	741	4 7/8	Ditto, ditto
5	Turf. Plain—same as No. 3	252	1733	4.12	775	615	3 9	Ditto, ditto
6	Bituminized—same as No. 4. 40 parts Coal from St. Helen's Liverpool	168	653	4.12	515	454	10 1	Air excluded from gases—old system—much smoke.
7	Coal, ditto	224	1715	7.67	1193	1020	5 5/8	Air admitted—new system—no smoke.
8	Coal (Liverpool)—bituminized	168	993	5.90	285	240	7 0/4	Air excluded—old system—much smoke.
9	Coal, same as No. 8.	170	1560	8.71	703	613	4 9	Air admitted—new system—some smoke.

In the above, the turf is taken at 5d. per statute box of 20 cubic feet. The bituminized turf at 8s. per ton, although it can be manufactured considerably under that price in many localities; and the coal at 16s. per ton.

After a few observations from Mr. Taylor, at the conclusion of Mr. Dircks' address, in which he wished to show that there were some objections to the plan proposed, which would be obviated if furnaces were heated on Mr. Meller's plan,

Mr. Taylor, Treasurer to the Association, said that it was only a week since he left Cornwall, for the purpose of attending the present meetings of the Association. That before he left, the great engine owners of that district, including himself, had tried all the plans now before Government and the country, their object being to arrive at the best method of economizing fuel, which to them was an object of the greatest importance. The result which he and others arrived at, after a series of experiments, was, that different plans succeeded at various times, success in almost every instance depending more upon the attention and care of the engineer than on the excellence of the plans themselves. In Cornwall, the capability of every engine was known, and the spirit of emulation excited among the engineers, and the pride they felt in making them perform the greatest quantity of work with a small supply of fuel, was well known to the proprietors, and found most advantageous to them. Whenever the services of a person was required, he was acquainted with the performance which the engine had previously made, and if he did not make it maintain the same action, his salary was reduced, or his services dispensed with.

Doctor Scoresby said that he came from the region of smoke, where the practicability of its removal, diminution, and conversion into heat, thereby ensuring an economy of fuel, had been frequently tried in the extensive factories in Lancashire, every plan that has been recommended is immediately tested, and the conclusion that he came to from a careful examination of the subject was, that a very indifferent plan succeeded better than a very good one when the person in charge of the fire happened to be attentive and experienced. There was one thing greatly to be censured in the conduct of engineers and proprietors of factories, that is, leaving the care of supplying the fuel to an inferior class of persons, called stokers, who are very poorly paid, and consequently cannot be supposed to possess much of engineering or mechanical knowledge. He happened to visit a factory a short time since where a plan for the prevention of smoke had been most successfully tried. At the time of his visit the proprietor of the establishment was absent, but on being made aware of the object for which he came, the fireman began to heap coals upon the furnace, as the fire was very slack at the time; the result was that the chimney smoked to a degree which confirmed him in the opinion he had already formed, that the most efficacious way in every instance would be to preserve a strong, clear fire, and gradually feed it with coals, a free current of air to the furnace being most requisite.

ECONOMY OF FUEL.

Mr. Chanter.—Ladies, my lords and gentlemen, I have the honour to appear before you to explain the various modes adopted for the economy of fuel as well as the prevention of smoke, and which is my intention to compress in as short a space as this valuable subject will admit of. The inquiries of the legislature having, during the last month, been directed to the best mode of economizing fuel in furnaces, and the prevention of the nuisance of smoke therefrom, numerous plans have been submitted to the Committee of the House of Commons appointed for undertaking the investigation, the details of which will, I understand, shortly be published. The inquiries of the Committee have not only been directed to ascertain what plans are in practical use to prevent smoke, but to the most efficient means which have been adopted to economize the greatest quantity of fuel at the least expense, so as to induce manufacturers, distillers, brewers, and others who not only use large quantities of fuel, but who produce the largest quantities of smoke of the most noxious character, to adopt the plan which, by experience, has been found the most successful. My attention has been directed to this subject for the last fourteen years, and I flatter myself, that I have carried out the principle required with success, and that I can apply the same with advantage to every description of boiler, at the same time guaranteeing a very large economy of fuel, whilst preventing the formation and distribution of smoke. To elucidate my plans, I beg to call your attention to some drawings and models, to illustrate part of my arrangements. Nos. 1, 2, 3, are applications to steam boilers. No. 1 to a wagon boiler; the universal plan with few exceptions in Lancashire and Yorkshire. No. 2, a defective boiler, and No. 3, the Cornish boiler, which is considered to generate a larger proportion of steam than other forms. It will be perceived that by my arrangements, I possess the power of regulating the exact quantity of atmospheric air which is required, and which I introduce through a pipe or pipes at the furnace door. In conjunction with this there is a slight hole through which the state of combustion in the interior may be perceived. The air is carried

into an air chamber of sufficient dimensions to allow for its expansion. This air chamber is covered with a brick arch, with slits or apertures, in order to equalize the supply and thoroughly diffuse the oxygen of the atmosphere upon the gases given off in the destructive distillation of the coal, which are radiated downwards by a deflective arch placed under the bottom of the boiler. Thus, a perfect combination is effected with the different gaseous substances, which are often given off as colourless smoke. The prevention of carbonic oxide is effected, or where such has been formed in the first stage of the process of combustion, it is necessarily burnt, by having an adequate supply of oxygen whilst there is sufficient of the latter for the combustion of carburetted hydrogen, and other gaseous products, the diffusion or formation of black smoke having been previously prevented by the supply of a proper quantity of oxygen, neither too much nor too little.

By these combinations all combustible matters are consumed. The deflective arch in my arrangements has the further effect of checking the progress of cold air that enters the feed door whilst firing, and which under average drafts is admitted to travel at fifty miles per hour, but which is highly rarified by its contact with the former. A second bridge impinges the heat direct to the bottom of the boiler, and prevents the too rapid progress of the heated air to the chimney. For steam-boilers I recommend one length of fire bar, but the proportions are so well understood, that it is needless to enter into particulars further than that I prefer a single bar as long as can be conveniently worked, and narrow, according to the proportion of surface required. The fire-brick, as a heating for the boiler, should be sloped back as far as possible, in order to allow for the irradiant heat of the former, and the exposure of as much of the surface of the bottom or legs of the boiler as possible. The fire-bars here shown are a recent improvement. They are not only suited to the common steam-engine furnaces, but can, with equal facility, be applied to the furnaces of marine engines. The principle of the invention consists in moving each alternate bar longitudinally in one direction, whilst the intermediate bars are moving in the opposite direction. This movement, aided by the corrugated surface of the bars, effectually prevents the formation of clinkers, and thus keeps the airway perfectly free. The advantages which they secure are very considerable, as coal of an inferior character can be used without the usual effect of choking up the grate. The effects are a very considerable saving in fuel, whilst the draft is considerably improved. In reference to Nos. 4 and 5, there will be seen a double fire-grate, applicable to short boilers and other manufacturing purposes. This double fire-grate produces numerous advantages.—1. A quick combustion is insured.—2. A more regular, steady, and uniform heat produced from a second or coke fire, which, to distillers, brewers, dyers, and all other manufacturing purposes, is of the first consequence, as it not only produces a steady application of heat, but retains the same to a treble extent over furnaces of the ordinary construction, with an economy of double the saving as when applied to steam-engine boilers. To elucidate the difference, it may be stated that a short heat and a long fire requires an entirely different arrangement; a short boiler or pan requires the whole of the heat to be used under the surface of the boiler, whereas a large fire requires the gaseous matter in combustion to be carried round the boiler, in its whole length and flues. To show the expense and time requisite for the adaptation of my patent, I may state that I have lately applied my furnace to boilers of 76-inch cylinder in Cornwall, which I commenced and completed in 13 hours. My terms are to economize fuel to an extent of 8 per cent., or no charge made, in Cornish boilers, where the utmost economy is observed, and to an extent beyond any other part of the world; whilst to other furnaces (according to their construction, &c.) I guarantee a saving of 10, 20, 30, or 40 per cent. I have numerous testimonials to prove this fact from the first manufacturers in Lancashire. In one manufactory at Clithero I have ten steam boilers on my principle, and in one house in Yorkshire I have licensed thirty in one establishment. I am desirous to call the attention of the British Association to ascertain the fact of the nature and extent of heat given off in the combustion of the different gases, which are separated in the destructive distillation of coals, either separately or collectively, more particularly with regard to carbonic oxide. In experiments which I made at London and Liverpool some five years since, the satisfactory results of which in the suppression of smoke were demonstrated to his Royal Highness the Duke of Cambridge, and upwards of 300 scientific men this question was resolved as perfect; by careful observation, I found that I did not evaporate the quantity of water as I expected, and which I can now do with the same quantity of fuel, by at least

30 per cent. My ideas are, that on the previous occasion I had converted the black smoke or carbon into carbonic oxide, and that thus the power of evaporation was diminished. I consider that my present plan combines all the principles of combustion, uniting or igniting the carbonic oxide with the hydrogen and other gases. I hope that this meeting may consider that the question of the ascertaining the proportion of heat given off in the separate gases is worthy the attention of the "British Association," more particularly as regards carbonic oxide, which I am given to understand is applied in Germany and France; after it leaves the puddling or other furnaces, is collected in flues, and again used under boilers with great economy and effect. It appears from Mr. Taylor's report on experiments made at the last meeting of the British Association, that Mr. Fairbon's experiment on Mr. Williams's furnace produced a saving of 4 per cent., and that those boilers on which the experiment at Manchester was made, consumed 10 cwt. of coal per horse, whereas the boilers in Cornwall only consumed 2½ cwt. My recent visit into Cornwall has enabled me to examine the various boilers at Cornbreia mines, and I have undertaken to reduce the consumption of fuel in the Cornish boilers at least 6 per cent., whereas by the following report of one of the first houses in Manchester I saved 16 per cent., and on short copper pans from 20 to 40 per cent.

"Primrose, 17th July, 1843.

"Mr. John Chanter.

"Sir,—We have carefully and attentively examined the evaporation of water by your patent furnace, which we now send you, in accordance with our agreement with you, to economize 10 deg. in fuel on our steam boilers, and 20 deg. in our drying and puddling stoves and other small boilers. The result, we are happy to say, is greatly in favour of your furnaces, as may be seen by perusing the accompanying statement, giving an average of more than 16 deg. on our steam boilers, of 30 deg. on our single plate, and nearly 38 deg. upon our blanket drying stoves.

"We are, Sir, yours respectfully,

"THOMSON, BROTHERS, & SONS,

"PER JAMES BOLD."

Mr. J. P. Booth exhibited his model of a machine for raising and lowering miners, raising minerals, and ventilating mines, which he has patented. It consists principally of a revolving incline plane, or a continuous screw shaft, the threads or surfaces of which are made to act against the peripheries of wheels extended from a carriage in which the miners or heavy bodies are placed, and power is derived for working the ventilating apparatus from the rotation of the screw shaft. The principle being the same as that of the screw jack with diminished friction, it is capable of lifting very great weights. Mr. M'Swiney has cast 45 feet of full working size, which is fitted up at the Agricultural Museum, and two men have raised two tons, including the carriage, which proves that if it had steam power, which is intended to be applied to it, it would raise an immense weight in a short time. The miners in Cornwall work 8 hours per day, from one to two of which are laboriously occupied in descending and climbing the ladders, which impairs their strength for the remaining time. This machine will raise and lower the miners in shafts of moderate depth in about 30 min., or 15 min. each way, without any exertion, and with safety not surpassed by any known conveyance, and also raise a large amount of ore. The usual mode of ascending a house or perpendicular height is by pursuing a spiral stair or way; the revolving incline plane effects the same object by bringing the road to the carriage.

Mr. Taylor stated that he had just returned from Cornwall, where he had seen an invention to raise and lower the miners which he thought preferable for deep mines, as he foresaw some difficulty in extending the screw sufficiently to answer in deep mines.

Mr. Booth said that there were but few deep mines, and that his screw could be extended to 150 or 200 fathoms, as a part of the weight could be carried at the top and the remainder at the toe or bottom, in proof of which there are vertical shafts working in Manchester carrying weight on the toe of near 20 tons, and driving heavy and numerous machines with more tonnage than will be required by the screw in a mine of 150 fathoms.

Mr. McNeill, the president, stated that a screw shaft on a similar principle to that of Mr. Booth's, is used at the Greenock Railway for raising carriages of six tons each from one level to another. There are but few of the Cornish mines that have a spare shaft, which the reciprocating rods spoken of by Mr. Taylor require, and the cost of sinking one is from 5,000l. to 20,000l., which can only be afforded by very rich mines; as the revolving incline plane will raise the ore as well as the men in their present drawing shafts, both objects will be effected. Reciprocity can be obtained by putting two screws into

one shaft or pit, and working them together by spur wheels; the descending load will assist the ascending one, but the well-known power of the screw is such, that it is considered capable of raising any weight of ore and stuff and men required, without the assistance of a balance, and mechanical arrangements can be made to raise or lower great numbers of men at once.

THE BRITISH MUSEUM.

TO THE EDITOR.

SIR,—The British Museum is a subject which ought to be strongly taken up by every publication which interests itself in the cause of architecture and the fine arts. It is time that the public should now know for certain what the intended façade is to be, and have some positive assurance that it will be in every respect worthy of so important a national edifice. Let us not have a second National Gallery business; and let us also have some pledge beforehand as to what the design really is. There can be but one good reason for now withholding it—the consciousness that it will not bear critical examination, but, on the contrary, would be found very unsatisfactory, a very good reason for the design being suppressed altogether.

Sir R. Smirke seems either to despise public opinion, or else to be dreadfully afraid of exposing himself to it one moment sooner than circumstances compel him, and concealment is no longer possible. He makes a point of never exhibiting any drawings at the Royal Academy, otherwise we might have expected to behold there his *project* for the front of the British Museum. Instead of this he prefers leaving us to conjecture, nor is it difficult to conjecture what sort of a design it will prove. It will be just the same sort of *Grecian* as the Post Office and College of Physicians, or of a piece with the elevations of the interior quadrangle of the Museum itself, decently dull and respectably prosy. Five and twenty years ago such style might have passed with the public for ultra-classical, but now hardly so, at least such is to be hoped. Surely Sir Robert does not shut himself up so entirely in his own studio as not to have suspicion of what is doing out of doors. Does he never deign to look at the drawings in the architectural room at the Royal Academy? If he does not, he is probably not aware that the building now in progress for St. George's Hall, Liverpool, is likely to prove a most formidable rival to his façade for the British Museum, even supposing the latter to be by many degrees superior to any thing he has yet produced. Though what grounds there can be for forming any such supposition I know not, since it is a safer and more natural course to draw conclusions as to what a man can do from what he has done, especially when, like the architect of the British Museum, he has been most singularly favoured by opportunities.

Surely the new Palace of Westminster is not of such all-absorbing interest that no one can bestow a thought on any other building, not even on such a truly national one as the British Museum? If nothing can now be done without a commission being formally appointed, then let there be such commission, and that without any loss of time.

It would, moreover, be somewhat satisfactory to know distinctly by whom the design for the façade of the Museum has been approved of or sanctioned, or if the architect has been left to have it all his own way.

I remain, &c.

INQUIRER.

DORSETSHIRE.—The parish church of St. Peter's, Swallowcliffe, which has been rebuilt on a new site, and which has for some time past been completed, will be consecrated by the Lord Bishop of Salisbury, for the several offices of religious worship, on Tuesday, the 29th instant. The old church has been pulled down, it having been found much too small for the population of the parish; in addition to which it was almost wholly surrounded with water, and the low and damp situation in which it stood rendered it unhealthy and cold. The present church is built on a larger scale, and on a more elevated site, and will afford accommodation for the greater portion of the inhabitants. The church has been built wholly by voluntary donations and subscriptions from the inhabitants and gentry of the neighbourhood, and on a piece of land which was given by Lord Pembroke.

SOUTH BRENT, SOMERSET.—A handsome new gothic front has been affixed to the organ of the church, and executed by Mr. Smith, organ-builder, of Bristol. A chaste and beautiful gallery has also been erected for the reception of the instrument, in excellent keeping with the ancient and much-admired church. Further improvements in the interior of this fine church are, we hear, in contemplation.—*Bath Chronicle*.

THE DECORATIONS AT THE TRAVELLERS' CLUB.

THE following article appeared in the *Athenæum* of August 12. It will be found interesting as a description, and not altogether uninteresting as a piece of criticism:—

EXTENSIVE decorations, costing, it is said, some thousands of pounds, have recently been completed at this very happy adaptation of the Bufalini Palace. It is a satisfactory sign for the progress of Art to find a growing attention paid to architectural decorations, and, in so far as those lately executed at the Travellers' Club are likely to promote that desirable result, we are disposed to welcome them; but, in proportion to their probable influence, it is the more necessary to protest against that absence of all principles, which is manifest throughout—on floors, on walls, on ceilings, in passages, and in rooms. Tasteless and chilling as may be the universal white paint of Queen Anne's days—of which the Library at Blenheim affords a cool specimen—monotonous and depressing as are the drab and slate colours patronized by George the Fourth, which abound in Windsor Castle, and are, unhappily, conspicuous in Buckingham House (the pictures in the Long Gallery are hung against a drab-coloured wall)—it may be a question whether they are not preferable—exciting, as they do, no interest whatever—to bright colouring so misemployed that the eye cannot turn without detecting some false principle of taste.

The greatest offences in the decorations of the Travellers' Club arises from the employment of affectations and unrealities, which abound everywhere—sham granite walls, sham marble columns and dados, sham bronze doors, sham bas-reliefs. As soon as you have passed the hall of entrance into the corridor, the fictions begin, and you traverse a passage of universal granites—pink, grey, green, &c. Besides being an affectation itself, this is the affectation of an unfit thing. Suppose the thing for an instant to be all real, would a granite passage be right in such a place? We are not entering an Egyptian temple, or the basement of a castle, but the light, cheerful passage of a sort of democratic modern palace, free from all fear of outward violence, and with a portal no more capable of resisting attack than polished mahogany and plate glass. Granite is surely not the hardest of stones for such a purpose, then ought not the forms in which you employ it to be somewhat analogous to the material itself? Here you have mock granite adapting itself to Italian mouldings—so light and elegant that you would select the softest colic of wood to chisel them. The ceiling, too, is painted to affect granite. Do not all analogies drawn from Nature, as well as all good architectural precedents, tell us that the upper part of a building should be in all respects of material, form, and colour, lighter than the lower part? Let us forget this affectation of a thing out of place, and look at this passage simply for its colouring, which indeed begets the first general impression. Banish from recollection that the colouring is grained, and look at it as a surface of pink and grey—which is its aspect to most eyes. It may be a right principle to keep the passages and halls duly subordinate to the rooms, in respect of their decorative characteristics, but surely a passage that faces the north needs to be a little warmer and more cheerful in colouring than one which looks south. Yet there, in a due north aspect, we have shades of cool colours. The materials employed in the building of this hall, and its ornamental parts are chiefly wood and plaster, made to be coloured. Would not correct taste, then, simply colour them, producing the best effects out of the unlimited range of colours?

The wainscot staircase of the club remains substantially as it was before these recent decorations. Being chiefly of oak, its very reality protected it from change. The ceiling here has been richly painted in various bright colours, displayed in arabesque forms and panels, generally resembling those we also find in the drawing-room—for which very reason we think that these decorations cannot be altogether consistent—certainly they do not accord with the oak stairs and banisters. The walls here, as in the upper corridor, have been divided into panels by arabesque borders and lines. The effect is light and tasteful; but the carpet, which is a mass of unbroken crimson, is much to full-toned and positive to accord well with the delicate pale hues of the walls. The figures in the arabesque painting do not rise beyond second-rate decorative art, and the human figures which are sometimes introduced, are by no means well drawn or well proportioned. The highest academical excellence in drawing ought not perhaps to be demanded under such circumstances, but in this case, as it was thought necessary to send out of England for a decorative painter, we might fairly have anticipated something better than what we could have produced ourselves. In the present case, the work—both in design and execution—is

certainly not beyond the mark of many of the London decorative painters. If our school of design has produced any fruits at all, it must by this time have educated a score of pupils quite up to the standard of these decorations.

Through a mock bronze door—of which a few words presently—we enter the drawing-rooms. What is the first general impression, without examining the details? The tone of the colouring is neither warm nor cold—though parts are of both characters, and there is no lack of many varieties of colour. The aspect of the room is a north one, and being such, the prevailing arrangement of colour should be warm. Modify it as you please to suit the particular character of the apartment—but do not forget that the room receives hardly a ray of direct sunshine throughout the year. In these drawing-rooms, the greater part of the surface of the walls is of a pale, cool-looking colour, something between a lemon and cream colour, arranged in panels, which are bordered by strong and rather dark contrasts. The lower part of the walls, the dado, and its mouldings, are coloured imitations of marbles, in which a blueish green predominates. Then the doors and window-shutters are coloured dark green, to imitate bronze—a violent contrast to the walls—and made the more positive by the deep crimsoned draperies of the curtains. The ceiling is richly coloured and gilt, whilst the walls are comparatively plain. The character of both ought surely to be more consonant,—or, if there were any difference, ought not the more attractive features to be on the walls, where they are most easily seen? Look from the ceiling to the carpet, and in the latter there is the same absence of concordance and propriety. It has no leading key-note of colour, so to speak, but is a sort of helter-skelter of many colours. These rooms cannot be said to have any general effect, or any one strong point to which all others are subordinate. There is nothing positive—nothing consistent—one part is warm, another cold. Richness in the ceilings, poverty on the walls,—deep-toned colours brought into violent contrasts with others of a very low tone. As for harmony and due subordination of parts one with another, they cannot be met with. The whole gives an impression as if it had been the work of a committee, where there had been a compromise to suit every one's taste, and each member had undertaken the independent arrangement of different parts—one superintending the floor, another the ceiling, a third the walls, a fourth the doors and shutters, a fifth the draperies, and so on. Having looked at the rooms thus generally, we proceed to glance at some of the details, which in their want of principle deserve severer criticism.

The ornaments are inconsistent with each other. Some are early Grecian, some Pompeian, some of the age of Louis Quatorze! as in the cornices of the window-curtains. There is no objection perhaps to a combination of different styles,—but it can only be realized successfully by a principle which, depriving each of its distinctive and independent character, succeeds in making all integral and harmonious parts of a novel creation. In architectural forms Palladio and Wren succeeded in accomplishing this, when they took those of ancient Rome and adapted them to the buildings of modern Europe. But the decorations at the Travellers' Club are very wide of the application of such a principle. Each different part—said cornices especially—looks like an independent impertinence, and to have been brought together by chance or caprice. It has been noticed that the doors and window-shutters are painted in imitation of bronze, of a dark blueish bottle-green hue. The same question suggests itself here as below in the granite corridor. What want could there be even for real bronze under such circumstances? The doors are subjected to no violence; at best even exposed to corrosion in the open air. At best they are unsightly mockeries. On the panels of the doors are painted imitations of bas-relief metal-work. Imitations are tolerable in proportion to their successful approximation to realities. When it was decided so to ornament these panels, the use of real metal, iron, if bronze was too costly, would not have been an impossibility: a few shillings' worth of Mr. Bieldfield's *papier maché* ornaments would at least have given an actually raised surface, and insured natural shadows whenever the door was opened. Now under fixed painted shadows, every time the door is opened a positive untruth is told in the face of the light. What can be said of the drawing-room carpet?—a thing in which the cost of pattern hardly a consideration: certainly not to such a Club as this. It is just the carpet you would have chance to find adorning the drawing-room of a flourishing chessmonger in Aldgate or the Minors: flowers of every hue displayed in shaded golden scrolls. It belongs to no recognized style, ancient or modern; even that lowest of styles, the Louis Quatorze, could not own it. Is it not a mistake to attempt any imitations which cannot succeed? If we want the representations of flowers,

let them be executed by means which insure something like a correct representation. Employ colours and brushes in the production of pictures of them if you will, but surely not worsted threads. The Greeks took the beautiful forms of nature and used them not as affectations to recall feebly the remembrance of the originals, but adapted them in new methods to new purposes,—which suggested new views of their intrinsic beauty. Even the artists of the middle ages exercised a better taste than ourselves. A bunch of flowers or group of animals worked in worsted, with its angular shapes affecting to imitate the flowing lines of nature's original, with its crude colouring and hard-marked blotches meant for brilliant hues and soft graduated shadows, merely reminds you how signally it is unlike what it has copied. How different is the effect produced by the pattern of the Grecian housesuckle or the acanthus leaf on the Corinthian capital! We look on both as works intrinsically beautiful in themselves, as new creations and not as imitations. The Arabs have taught us how we may have a beautiful arrangement of colours almost independent of pattern. But we do not now intend to write an essay on carpets; and we can only despatch that of the Travellers' drawing-room by saying that it has both pattern and abundance of colour—but combined on such false principles that the meanest of Grecian ornaments or Arab combinations of colours rise very far above it.

We have thought it worth while to enter somewhat at length into this matter, because the members of the Travellers' Club belong to a class who will probably exercise some influence in those decorations of our national buildings which seem to be likely to be realized at no distant day. Should the parties who are responsible for the taste of the decorations in this Club have any voice in directing those of the Palace of Westminster, we hope our remarks may induce them to reflect that there are principles in such matters which cannot be neglected. If it be true that some thousands of pounds have been spent on these works, we do not scruple to say that a more satisfactory result might have been produced at a much less cost, had a more correct knowledge of the principles of decoration been applied.

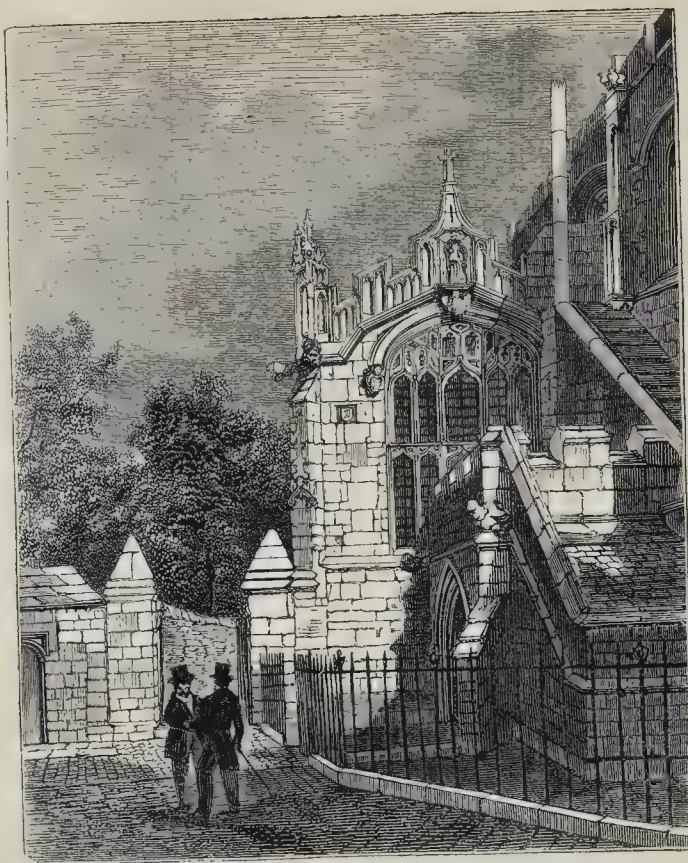
SMALL STREET HOUSES.

TO THE EDITOR.

SIR,—My object in the following remarks is to call the attention of young architects and architectural draughtsmen to the subject of small street houses, with the hope that some improvements may be suggested, if I can raise a discussion on the subject. I am aware that it is usual for young architects to employ their leisure hours in designing temples, palaces, &c., which are never likely to be executed; therefore the time spent in arranging the plans, &c. is lost to themselves and the public. Now, I think commencing at the bottom of the ladder is the best place, and if we could only get the poorer class to wish for and have more comfortable and better dwellings, the next class immediately above them would catch the infection, and so on upwards.

The building societies being now established, many persons, such as clerks, workmen, and others, are about to build or purchase, with their earnings, in the environs of London, and as most will build for their own occupations, they will not object to spend thirty or forty pounds more than usual to obtain a comfortable and complete house, in which, perhaps, they will end their days. Such being the case, I will take the ordinary six roomed house; these are designed generally with two-rooms on a floor, and, in consequence of the Building Act limiting the ground to be covered to 550 feet, they are, with the exception of the front kitchen on the basement and the one pair front room, mere boxes. Now our object would be to see whether this plan can be improved upon; if not, take a little more ground, and if a much better plan can be obtained, now is the time to point it out while the Building Act is under consideration. Where a person has no family, perhaps he would be glad to let a portion; as three rooms would be sufficient for a man and his wife, he could well do so, but many are deterred from it, the two families being too much mixed together. I would suggest here that a plan might be so arranged, that three rooms be divided off, with a separate entrance, so that this objection might be got rid of, and would thus more readily allow the purchaser to pay off the amount of its cost. There are many little things in the interior arrangements of the cupboards and fittings in this class of houses that might be much improved. Means should be taken to prevent damp rising up the walls, and every room should be so ventilated, that a constant draft of air be kept up without the necessity of opening windows and doors to admit dust. All these and other additional comforts may be obtained at a very trifling extra expense, if well considered in, and form part of the original plan.

B.



CHURCH OF ST. JOHN THE BAPTIST, CIRENCESTER.

THE church of St. John the Baptist, Cirencester, is considered to be one of the most splendid parochial edifices in the kingdom. It consists of a large body, or nave, seventy-seven feet in length, and seventy-four in breadth, including its lateral-aisles; a chancel fifty feet long and twenty-four broad; a rich proportioned tower, 134 feet in height, with enriched battlements, and surmounted by pinnacles at the angles, rises at the west end; and it has handsome porches on the north and south sides: adjoining the body and chancel are five

chapels, dedicated to Jesus, St. John, St. Catherine, St. Mary, and the Holy Trinity. The building, generally, is of the fifteenth century. The windows contain sumptuous specimens of ancient stained glass. The ceiling of the entrance is grained with pendants and beautiful fan tracery.

St. Catherine's chapel, on the north side of the chancel, was founded by Thomas Ruthall, bishop of Durham, in the reign of Henry VIII., and the immediate predecessor of Cardinal Wolsey in that see. This chapel is

fifty-four feet long, and but thirteen wide; the roof is a fine specimen of fan tracery, sculptured in stone. St. Mary's Chapel is forty-seven feet, by twenty-one. Trinity Chapel is a fine example of pointed architecture, with a richly-carved oak ceiling, supported by brackets springing from figures of angels holding shields. These chapels, particularly that of St. Mary, were anciently endowed with great revenues. The monuments are very numerous, and cover the remains of persons of great distinction.

THE NEW HOUSES OF PARLIAMENT.

SECOND REPORT OF THE COMMISSIONERS ON THE FINE ARTS.

To the Queen's Most Excellent Majesty.

WE, the Commissioners appointed by your Majesty for the purpose of inquiring whether advantage might not be taken of the rebuilding of your Majesty's Palace at Westminster, wherein your Majesty's Parliament is wont to assemble, for the purpose of promoting and encouraging the fine arts in your Majesty's United Kingdom, and in what manner an object of so much importance might be most effectually promoted, humbly report to your Majesty, that having, in furtherance of the objects proposed by us in our first report, and sanctioned by your Majesty, invited a competition in cartoons, we have now humbly to state to your Majesty, that the competition referred to has taken place, and that we are satisfied with the evidence of ability afforded, not only by the works of the successful candidates, but by those of many others.

Having satisfied ourselves respecting the attainments of many British artists in the practice of cartoon-drawing, and respecting their capacity to attain excellence in those

qualities which are essential in historical painting, we now propose, in pursuance of the plan before announced by us, to invite artists to exhibit specimens in fresco-painting of a moderate size, which, by being portable, will enable all candidates for employment in that method of painting to send in works exhibiting their qualifications therein as painters and colourists, and which, taken together with the larger compositions in drawing which they have exhibited or may exhibit, and with other existing evidences of their talents, may enable us to proceed to the selection of artists for the decoration in fresco of certain portions of the Palace. Nevertheless, as paintings executed in other methods may be free from a shining surface, and may therefore be deemed by some artists to be fit for the decoration of walls, we have invited such artists to exhibit specimens of the methods in question, and shall regard such methods as open for consideration.

With respect to sculpture, we have announced that various statues will be required for the decoration of the Palace, and we have invited artists to exhibit models, in order to assist us in the selection of sculptors to be employed.

With regard to decorative art of various

kinds — namely, glass-staining, arabesque-painting, wood-carving, ornamental metal-work, and ornamental pavements, we have, in like manner, issued notices inviting artists and others to send in specimens, in order to assist us in the selection of persons to be employed.

We have further humbly to state to your Majesty, that the claims of candidates for employment in oil painting, and other departments of the art besides historical painting, will be considered hereafter, and that the order in which the several branches of art and decoration applicable to the embellishment of the Palace have been considered by us, has been, and must continue to be, determined by the time requisite for the preparation of the works, the study required by the artists in modes of execution which are new to them, and by the progress of particular portions of the building.

We humbly subjoin, as an appendix to this report, some papers treating in detail various matters connected with the subject of our inquiry, and explanatory of the proceedings of the Commission; and, with respect to the architect's report, have to state that we have taken it into our attentive consideration; but although we have, in consequence, issued various notices calculated to assist us in coming

to a final decision thereupon, we are not yet prepared to lay any specific recommendation before your Majesty, both in consequence of the building not being sufficiently advanced, and the result of the inquiries and experiments made and making by and under our direction not being sufficiently ascertained, to justify us in coming to any final conclusion in this respect. And with reference to that part of the architect's report which relates to local improvements in the neighbourhood of the Palace, we consider that, however deserving of attention the improvements in question may be, they do not come within the inquiry with which we are intrusted.

ALBERT.	COLBORNE.
LYNDHURST.	CHAS. SHAW LEFEVRE.
SUTHERLAND.	ROBERT PERL.
LANDSDOWNE.	J. R. G. GRAHAM.
LINCOLN.	ROBERT HARRY INGLIS.
ABERDEEN.	HENRY GALLY KNIGHT.
J. RUSSELL.	B. HAWES, JUN.
PALMERSTON.	SAMUEL ROGERS.
MELBOURNE.	THOMAS WYSE.

Whitehall, July 29, 1843.

THE ATMOSPHERIC RAILWAY.

THE preliminary experiment of the principle upon which the Atmospheric Railway is to act, was made on Saturday, and it answered in every respect the expectations of the patentees, Messrs. Clegg and Samuda, as well as of all those concerned in the introduction of this most important national project into Ireland. The experiment was one made solely for the satisfaction of the engineers, the works being as yet in a very crude and imperfect state, and, owing to the long continuance of dry weather, there was scarcely as much water in the reservoir as would charge the boilers. Every precaution was taken to prevent accident to persons who might happen to be on the line of rails either from motives of information or curiosity. A cordon of police were posted in various directions to warn the public of the consequences. Numbers of persons were attracted to the place, and the anxiety of the men who have been employed on the works was intense, as the whole affair has been a perfect riddle to them, solved in a variety of ways, some the most ludicrous. At five o'clock the scientific gentlemen interested arrived, and the steam was soon after laid on, when the leviathan air-pump commenced its labours—the mercury in the barometer soon displayed what success. In sixty strokes an altitude of twenty inches was obtained, and shortly afterwards it reached twenty-two inches and one-tenth. This was the realization of the most sanguine expectations, and left no room for doubt as to the completeness and power of the machinery and its capability of producing sufficient vacuum. Mr. J. Samuda asserts that he will, with the efficient means at his disposal, have twenty-seven inches at any time, if required. The power may be estimated thus:—The exhaustion indicated by each inch of mercury in the barometer gauge is capable of propelling nearly nine tons on a level road, or nearly two and a-half tons up an inclination of 1 in 115—that of the Dalkey line—at a velocity dependent on the speed of the air-pump piston with the present apparatus; each double stroke of the air-pump is equivalent to upwards of two miles per hour; and the Dalkey engine being constructed to work at the rate of twenty-four double strokes per minute, it follows that, if desired, the trains may be moved at upwards of fifty miles per hour! Thus far having progressed, the next course pursued was to introduce the piston into the tube at the equilibrium valve near Glashute-bridge; but while this was being done, the key of the fly-wheel slipped, and a delay of nearly an hour elapsed before it was adjusted. It has been stated before that the experiment was but preliminary, and to this may be ascribed this trifling incident, for accident it cannot be called. The anxiety of the spectators was now considerably increased, and an hour was spent in speculations of all sorts by those who were not aware of the cause of the delay. It was a time of anxious hope of success on the part of the uninformed, confidence abiding in those who knew the utter impossibility of failure. The fly-wheel movement being rectified, the engine was set going once more, but not on its condensation principle, for there was no cold water to condense. It was at high pressure and half power; the height of mercury in the gauge varied from eleven to fourteen inches. The signal was given by men stationed with small flags on the line, and the piston carriage, with two passenger carriages, one second and one third class attached, moved along *per se* amid the joyous shouts of those assembled. It seemed more as if some magic power were at work—some force that no human energy could awaken into existence. In four

minutes they accomplished the distance, one mile and a quarter, retarded considerably at starting by the breaks on the wheels, to keep the motive power under proper control, as also at the terminus, not to let the train overshoot the line of rails. Mr. J. Samuda was on the piston carriage, and several gentlemen took seats in the other carriages, and they describe the motion to be more than ordinarily smooth and easy—the curves were passed without the slightest perceptible difference in the motion of the carriages; altogether, it is pronounced to be no longer an experiment, but *un fait accompli*. What was deemed to be a problem by the uninitiated is now perfectly solved.

A few data of the line of railway and the machinery may not be uninteresting. When finished, there will be, in length, 9,200 feet of open pipe; the close pipe forming the connection with the air pipe is upwards of 400 yards. The engine is 100 horse-power—to be worked on the expansive condensation principle. The air-pump is a double stroker; its diameter sixty-seven inches; the

diameter of the tube or open pipe fifteen inches. The station at Dalkey is seventy-six feet higher than that at Kingstown; the elevation varies—1 in 57 being the greatest, 1 in 240 being the least, and the main ascent being 1 in 115. It is computed that the train will descend from Dalkey by its own gravity, at the rate of from thirty to thirty-five miles an hour. The sharpest curve is only 547 feet radius.—*Dublin Pilot*.

Another trial has taken place in the presence of the Lord Lieutenant, with still more signal success than the experiment before recorded. Two carriages ascended at the rate of twenty-five miles an hour, in three minutes, and returned down the inclined plane, by their own momentum, in five minutes. A rate of fifty miles an hour may be easily obtained with perfect safety, with the impossibility almost of danger. Young as the railway system is, this most triumphant experiment will have the effect of working a complete revolution in locomotion.—*Dublin Evening Post*.

DESIGNS FOR A COTTAGE.

TO THE EDITOR.

SIR,—I enclose you a design for a cottage intended to be built with limestone (the only material here) in random courses, the chimney stacks, window and door jambs, &c. to be tooled rough. The roofs of the bay windows lime-stone built into the walls; the chimney breasts and flues fire-bricks; the flues of living room or kitchen, and parlour, and the rooms over them, to be carried into the

wall between those rooms. *a*, staircase, 10×10; *b b b*, closets, the bottom one for coats, hats, or a water-closet; *c*, parlour, 16×14; *d*, living-room or kitchen, 15×13, without the bay; *e*, pantry, 12×6; *f*, back kitchen, 12×9; *g*, steps to cellars, to be sunk under the pantry and back kitchen, and arched over; *h h h*, bed rooms. Perhaps it would be advisable to put the pantry door from the back kitchen and the living room or kitchen fire-place, where the pantry door is at present shown on the plan. Your obedient servant,

Ruthin, 18th August, 1843.

J. H. C.



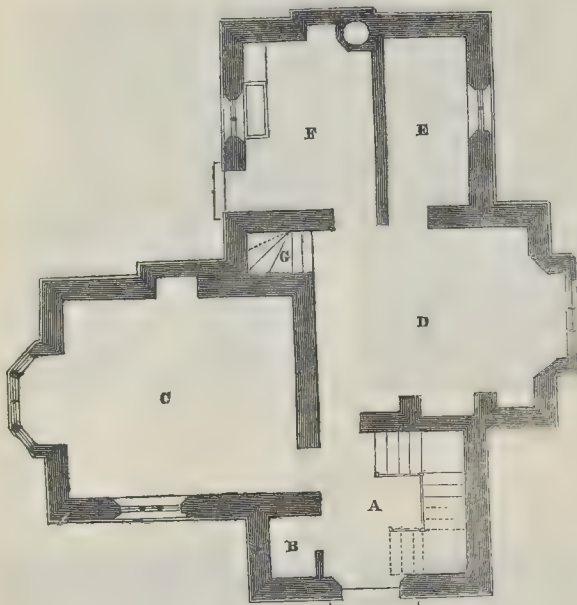
Entrance Elevation.



Side Elevation.



Chamber Plan.



Ground Plan.

THE SMOKE NUISANCE.

THE report of the select committee has appeared. It is not by any means a clever document, and will keep, as the phrase goes, until a summary of the evidence shall have been laid before the reader.

The Mining Journal of Saturday proceeds with the evidence of Mr. Dircks, who

Explained how the supply of air required for the combustion of the gases evolved in the furnace, if admitted by a separate orifice, to a certain extent regulated itself, in the same manner as the supply of air to the centre of the argand gas-burner regulates itself, whether more or less gas be allowed to pass through the numerous small orifices for combustion. The object being to catch the gases while at their high temperature, experience has shewn that the best place for the admission of the air is behind the bridge. Q. Do you think there is a

great difference between the argand plan and the other plans which have been recommended? A. There is a great difference, so far as relates to the plans which admit air, but do not admit it in a divided form.—Q. Admitting the air in jets? A. Yes; it is merely the principle upon which we burn gas. When we burn gas, we admit it in jets to the air; in the furnace the gas is in a body. We ought, as far as theory goes, to divide the gas into jets in the furnace, but it is a chemical fact, that, although you reverse the principle, and bring the air into jets, the action is the same.—Q. It comes to the same thing, then, whether you put a jet of air upon the gas, or a jet of gas upon the air? A. Yes; a jet of air in an atmosphere of coal gas gives a flame precisely in the same manner as a jet of gas into the atmosphere.—Q. Dr. Ure has stated that it makes no difference whether you admit hot or cold air? A. On chemical principles it makes no difference. It is better to admit the air at the atmospheric temperature, for the simple reason that

it then contains the largest measure of oxygen. The coal gas requires a certain measure of air; if you expand that measure by heating it, you cannot get the same quantity in the same space.—Q. You are aware that a jet of hot air upon a fire vivifies the flame? A. The conditions are different; you there apply the hot air to the solid fuel—here we are speaking of gaseous combustion.—Q. If this jet of hot air has such an effect upon the combustion, why should it not upon the gas, which emanates from the combustion? A. That is a very important question, in reference to the application of hot air to a furnace. By heating the air, you increase its bulk, and every cubic foot of air will thus have less oxygen in it, as a matter of course—the consequence is, that to introduce the same weight of air, when in a heated state, you ought to apply the blast, but if you admit it only by atmospheric pressure, you will not have the same quantity of oxygen. With respect to the objections raised by manufacturers, the witness observed, that so many plans have been before the public during the last twenty years, that there is a general impression that they are all failures, and as manufacturers adopt plans for their own benefit, rather than to benefit the neighbourhood, they must have a return. It is a prevailing opinion, that there is no economy in the plans recommended, yet the combustion of the coal gas, when effected by a judicious admission of atmospheric air, cannot fail of being economical. There are many modes of getting rid of smoke; a prevailing one is the placing the coal in front; a slow distillation then takes place, and the coal gas passes over a space of red-hot fuel from two to three feet long. That cannot be economical; it is based on a wrong principle. It is a false principle, as Dr. Ure says; but, where there is an entire combustion of the gas, by giving it air, there must be a saving. But air may be given injudiciously, in two large bodies; laying the fuel in front of the furnace is one plan by which there would not be heavy black smoke, but that is no proof of economy—that is one great cause of the fallacy. The plan of introducing steam into the furnace the witness had seen. It was at first supposed that a decomposition of the steam took place, and that its hydrogen and oxygen became available. They may do so slightly, but, if there be any value in the plan, it is, that it creates a current or blast in the furnace. The jet of steam passing into a furnace forced the air, which would not otherwise have passed so freely. If smoke be once produced by imperfect combustion, it will take fuel to get rid of it; in the manner described, by a jet of steam, it will never be attended with economy. The prevention of smoke by complete combustion is attended with economy, for then smoke is never formed. The reason that coal gas has a colour when first evolved from coal is owing to its impurities; it has a great body of coal-tar mixed with it; it is, in fact, though called smoke, but impure gas.—Q. Such smoke must be made before it comes in contact with the orifices? A. It is very easy to prove that it is all coal gas. It is as much coal gas in the furnace as if you took the lid from a gas retort in the gas works. The witness explained, that if too much air passes up through holes in the fuel on the bars smoke will be made.—Q. The system by which Mr. Williams proposes to consume the smoke is not one which requires an addition of fuel, is it? A. No.—Q. Does it not admit the air beyond the bridge, and, by a certain distribution of that air into the gases, consume those gases? A. The general impression is, that what you have in the furnace is smoke, but it is not so; it is gas, and it is that gas to which the jets of air are given. You get the combustion of the gas, and of course you get a higher temperature.—Q. Then, without an addition of fuel, you get a considerable increase of heat, and at the same time you get rid of the nuisance? A. You get an increase of heat and you get rid of the nuisance decidedly—that is the source of economy.—Q. Therefore, it is an erroneous impression to say that you get a furnace to burn its own smoke; it ought to be that you get a furnace to prevent the smoke, not to consume it; whereas, the common idea is that the smoke is to be generated, and by passing over the fire is to be consumed. That is an improper expression according to Dr. Ure and Mr. Williams. Is it to be understood that that is your opinion? A. Just so; you must consume the gas in its nascent state, and not let it get to a state of smoke.

The next witness examined was Dr. Reid, but as the abstract of his evidence is not complete, we postpone notice of it till next week.

Extensive alterations are being carried into effect at the General Post Office, Aldersgate-street, in consequence of the great increase of business in the money-order department, on which account two large rooms are in course of erection.

MASONS' MARKS.

THOUSANDS of our readers, and if all who ought to read our work read it, at least sixty thousand—for there are upwards of sixty thousand masons in Great Britain—will readily recognize the meaning of the words at the head of this article, while masons' marks as a phrase, and in themselves, will be to many a mystery and hieroglyphics; but this is the title we choose to give to a brief notice of a subject which we must at a more leisure period more largely enter upon. We have been reading two published letters of Mr. George Godwin's on "Certain Marks discoverable on the Stones of various Buildings erected in the Middle Ages," which letters are the subject of a communication by that gentleman to the Society of Antiquaries, through Sir Henry Ellis—all honoured names, and not least so that of the author of these letters. Mr. Godwin is yet but a young man, but he has, by the indefatigable and earnest exercise of a fitting talent, managed to associate his name with some of the most interesting researches and doings in art that have engaged our attention for the last seven years; and we sincerely hope that his future career may be the appropriate continuance of so much promise at setting out. In these letters he brings to view some 160 specimens of masons' marks, from various edifices of the middle ages, from Gloucester, Bristol, and Cologne Cathedrals, from various abbeys and churches in England and on the Continent, and from Punic inscriptions found upon the site of Carthage. We could say a great deal, and there is much to be said on this interesting subject, but for the present must confine our selves to an extract from Mr. Godwin's second letter, headed by the dedication cross taken from his work as from Furness Abbey.



LETTER II.

DEAR SIR,—In the month of December, 1841, I had the pleasure of laying before the Society some observations on the fact, that the stones both inside and outside numerous ancient buildings in England and France, bear, in many cases, peculiar marks or symbols, apparently the work of the original builders. Since then I have had an opportunity of examining the Cathedral of Cologne, and some other sacred edifices in that city, where I found many similar marks. Copies of some of these, half real size, I beg leave to forward with this letter, in order that they may be compared with the diagrams previously sent.

In length they vary from $1\frac{1}{2}$ to 2 inches. They are not so deeply cut in as those already spoken of, nor are they formed by so wide a line, but nevertheless they are all remarkably clear and distinct. More order is perceptible in the position of the marks in the interior of this cathedral than I have elsewhere observed; for example, they appear with considerable regularity up the centre of the four chief members of each of the great clusters of columns dividing the nave and aisles; and they commence at a certain height from the ground, nearly uniformly.

Monsieur Didron, of Paris, it seems, has communicated a series of observations on these marks to the *Comité Historique des Arts et Monuments*. He has found them at Strasburg, Spire, Worms, Rheims, Basle, and elsewhere, and believes he can discover in them reference to distinct schools, or lodges of masons. The marks collected by M. Didron divide themselves, according to his opinion, into two classes, those of the overseers, and those of the men who worked the stones. The marks of the first class consist generally of monogrammatic characters, and are placed separately on the stones: those of the second class partake more of the nature of symbols, such as shoes, trowels, mallets, &c. It is stated that at Rheims, in one of the portals, the lowest of the stones forming one of the arcades, is marked with a kind of monogrammatic character, and the outline of the sole of a shoe. The stone above it has the same character, and two soles of shoes; the third the same character and three soles and so all round the arcade. The shoe mark he found also at Strasburg, and no where else, and accounts for this by the fact, that parts of the

cathedral of Rheims were executed by masons fetched from Strasburg.

The Committee either have published, or are about to publish, a set of instructions to their correspondents on this point, with plates of the marks already collected, in order that they may obtain additional information, and means of comparison.

Strengthened by this proceeding on their part in my belief before expressed, that the observation and collation of these marks may ultimately aid in elucidating the history of the Free-Masons, I feel encouraged to bring the subject again before the Society, which otherwise I should not have done.

The lamented Mr. Rokewode, in a paper on the dedication and consecration of churches, printed in the 25th volume of the *Archæologia*, observes that "the ancient altar-stone, known by the crosses graven in the centre and at the angles, is now frequently to be found in our churches, generally applied to sepulchral purposes. The crosses upon it were intended to mark the spots anointed with chrism,—and if I do not mistake, this was the object of the crosses once inlaid with metal, cut in the external walls of some churches, as in the cathedral of Salisbury, and the churches of Edinboro in Wilt, Cannington in Somersetshire, and Brent Pelham in Herts. It may also be observed, that on one of the Norman pillars in New Shoreham church, are two Jerusalem crosses, probably graven on the occasion of the dedication."

Mr. Sydney Smirke, in a paper which follows the last quoted, and illustrates it from 'the church of St. John at Syracuse, refers to a pontifical printed at Rome in 1595, and now in the British Museum, where the Bishop is enjoined to mark with his thumb dipped in the chrism, twelve crosses on the walls of the church and others on the door, and altar. It further provides that these crosses are to be at the height of 7 feet 5 inches above the floor.

I do not quote these observations with the view of shewing an immediate connection between any religious ceremonies and the marks in question. They may, however, be deemed to bear, although slightly, upon the subject; and therefore they are introduced; the more so too, perhaps because in searching for marks at Furness abbey (where they abound), a large cross, 14 inches high, and 14 inches wide, was found, cut on the external face of a stone, at the east end of the church, as represented at the head of this extract.

The marks of which we are especially speaking, it can perhaps hardly be doubted, were made chiefly to distinguish the work of different individuals. At the present time the man who works a stone (being different from the man who sets it), makes his mark on the bed or other internal face of it, so that it may be identified. The fact, however, that in the ancient buildings it is only a certain number of the stones which bear symbols,—that the marks found in different countries (although the variety is great), are in many cases identical, and in all have a singular accordance in character,—seems to shew that the men who employed them did so by system, and that the system, if not the same in England, Germany, and France, was closely analogous in one country to that of the others.

Moreover, many of the signs are evidently religious and symbolical, and agree fully with our notions of the body of men known as the Free Masons.

With reference to the religious character of associated masons in very early times (times much earlier than any of the works already mentioned belong to), I am induced to allude to a curious MS. account of the proceedings of four sculptors who worked "in the name of the Lord." It is in No. 91 of the *Arundel MSS.* at the British Museum, described as "*Sanctorum vite miracula, et martyria*," and is to be found at folio 218, headed, "*Claudii Soisamp, gius*." It commences thus: "At the time Diocletian was Emperor, various metallic substances were cut by the Pannonians from the mountains in his presence. It came to pass that when he had collected all the workers in metal, he found amongst those endowed with great skill in art certain men named Claudius, Castor, Simphorianus, and Nicostatus, who were wonderful in the art of masonry. These men were secretly Christians, observing the commandments of the Lord, and whatsoever work in the art of sculpture they performed, they did it in the name of our Lord Jesus Christ."

Further on, it proceeds: "At the command of Diocletian, a porphyritic shell with pomegranates and foliage, was perfected by the hands of Claudius, Simphorianus, Castor, and Nicostatus, and they were brought under the notice of the Emperor. And he was pleased with all things, and made them many presents. Then said Diocletian, I desire that some columns with foliated capitals should be carved out of the porphyritic mountain under the direction of Claudius, Simphorianus, and Castor. When the philosophers heard this they were vehemently indignant because the command of Diocletian provoked them. Coming, however, to the

mountain, they marked out the portion of stone which should be cut away. Then the artificers in masonry prayed, and made the sign of the cross of Christ, and giving directions and setting to work, they began to cut the stone for the neck of the columns, and they worked at it daily for three months. When, however, one wonderful column had been produced with perfect art, the philosophers said to Claudius and the others, Ye who are enriched with gifts, give your skill to the shaping of another column. Wherefore, replied they, do ye wish to learn the art from us? Still, in the name of Our Lord Jesus Christ, in whom we trust, we will shape this other column like the first. And giving their labour with the utmost diligence, within twenty-six days they had cut the other column. Then the philosophers indignantly exclaimed, These mysterious words can only pertain to art-magical."

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1481).—Windows—Due Assessment in 1834-5—What is—Armorial bearings—What are.

A party was assessed for the year ending 5th of April, 1835, for nine windows; he had opened eleven since; charge increased in 1840 for twenty-two windows, that appearing to be the then number: Held legal; as appellant did not account for the two windows, or shew that they did not exist in 1834-5.

The impression of a thistle on a common pencil-case, with the motto "dinna forget," are chargeable as armorial bearings when used.

At a meeting of the commissioners acting for the borough of Wigan, in the county of Lancaster, in execution of the acts granting the duties of assessed taxes, held the 15th September, 1840, for hearing appeals against the first assessment of the said duties, for the year 1840, ending the 5th of April, 1841 (48 Geo. 3, c. 55, sch. A.)—

Mr. Edwards, of Wigan, aforesaid, draper, appealed against an assessment in respect of the windows of his house, the number charged being twenty-two; and also against the charge of 2l. 8s. for armorial bearings sch. (K.)

The appellant stated that he resided, and was tenant of the house in question in 1834. That he then carried on business under the firm or style of Edwards and Co., and was rated to the relief of the poor under that title; that he was then assessed for nine windows, and has continued to be so assessed.

That by error or mistake, the name Marsden and Co. was inserted in the assessment of 1834, instead of Edwards and Co. That the assessor for that year made out a bill in the name of Marsden and Co., and delivered it to the appellant, who, without observing the mistake in the name, paid the tax accordingly.

That in pursuance of the privilege granted by the Act of 4 and 5 Will. 4, c. 54, s. 7, he has since opened eleven windows, for which he claims exemption.

The surveyor conceived, that as the appellant's name did not appear in the assessment for 1834, he was not entitled to the benefit of the before-mentioned Act; and further, that the house in question was not duly assessed in 1834; the number of windows therein in the present year, 1840, being twenty-two, and the appellant having, as before stated, opened eleven windows, would leave eleven windows in 1834, whereas the assessment in that year was for nine windows only.

The appellant also claimed to be exempt from the charge of 2l. 8s. made upon him for armorial bearings, as the seal upon which the surveyor grounded the charge was not the arms of the appellant or of any other person. That he does not make a practice of using any device, crest, or arms whatever, but has occasionally sealed letters with a common pencil-case, upon which was the impression of a thistle, and the motto "dinna forget." An impression from the seal accompanies the case. We, the majority of the commissioners present, having some doubts as to the appellant's liability, directed the assessment to be reduced from twenty-two to nine windows, and also relieved him from the charge for armorial bearings; but the surveyor expressed his dissatisfaction with our decision, and requested a case, both as to windows and armorial bearings, to be stated for the opinion of the judges.

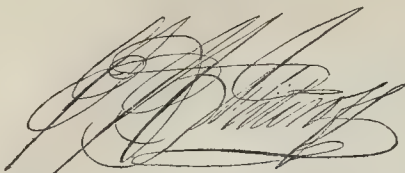
Witness our hands the 4th day of February, 1841. WILLIAM LAMB. BENJAMIN POWELL.

18th May, 1841.—We are of opinion that the determinations of the Commissioners is wrong.

J. PATTERSON. T. COLTMAN. W. WIGHTMAN. —Justice of the Peace.

FERINTOSH.—The foundation-stone of the free church in this parish was laid on Tuesday week, when the devotional services were conducted by the Rev. Dr. Macdonald, the venerated pastor.

ENGLISH ARCHITECTS.



THE fac-simile at the head of the column we have traced, by permission, from a receipt for monies paid at the exchequer to Henry Flitcroft, a pupil of Sir Christopher Wren, and one of those useful and industrious individuals of moderate talent, whom the great architect had the judgment to select as assistants in carrying forward the numerous works in which he was engaged; a class neither aiming or pretending to rival their instructor and patron, yet professionally capable of important undertakings. Flitcroft was fellow-clerk with Hawksmoor, and it is remarkable that, although both afterwards held official situations, and erected several churches in the metropolis, the sources of information usually referred to are silent respecting them; they were known only as performing certain public duties, and as builders of certain edifices; it is chiefly in the latter capacity that a recollection of them is interesting.

Henry Flitcroft was architect of the church of St. Olave's, Southwark, within these few days nearly destroyed by the fire at Topping's Wharf; that edifice is supposed to have been built from an unemployed design of Sir C. Wren, but in the absence of certainty as to the truth of such surmise, must be cited as a creditable example of the talent of the actual builder. St. Olave's was one of those plain, unostentatious piles, sufficiently appropriate and commodious for the devotional requirements of the numerous and highly respectable congregation frequenting it, but without further pretension to particular notice. The site has been occupied by successive churches, dating from six or seven centuries back; the first of which, in conformity to the immemorial custom of dedication, was named after St. Olave, or Olaf, whose martyrdom (which occurred probably before the Conquest) for religion's sake, by the hands of his Danish countrymen, had been commemorated in the Roman calendar, and this selection of a patron arose, no doubt, from some spot in or near the parish having been the scene of his suffering. St. Olave's was a very interesting locality in the olden time; extending to the drawbridge that, in the reigns of the Henrys and Edwards, barred the free passage of London Bridge. It was of course the only avenue of approach by land to the City and Westminster, and must, as such, have been the scene of many a hostile demonstration as well as stately pageant. The mitred clergy were partial to the Surrey side of the city defences; here the Abbot of Lewes had a house, upon or near the spot where now stands the King's Head Inn; and others of the same dignity were domiciled in St. Olave's, during their attendance on the Parliament or their diocesan of Canterbury. If our recollection serves us at the moment, the first bishops of Rochester also had a palace on the Surrey side, and one of the Edwards a noble house at his manor of Kennington.

Whatever doubt may exist as to originality on Flitcroft's part with respect to the design for St. Olave's, he has indisputable claim to the plan and building throughout of the church of St. Giles-in-the-Fields. This edifice is familiar to most of our readers, and is a fair example of Wren's school in second-rate

churches; the architect began it the year following the completion of St. Olave's, viz. 1730, and finished it within five years, at a total cost of ten thousand pounds. Interiorly, St. Giles's presents an agreeable variety of the style which prevails in the new growth of churches consequent upon the great fire of London; in this instance the Ionic order is adopted, and the enriched ceiling, wrought in square panels, enclosing circles with centre ornaments, has considerable merit. We take the opportunity of offering to the notice of our readers a genuine piece of criticism which followed close upon the completion of St. Giles's, and appeared in the Critical Review of 1735. We find little to carp at in the general opinion of the writer, except the flippant manner in which innovation upon the position of churches towards the cardinal points, sanctioned by universal accord and practice, is advocated; whatever of ancient custom in matters of religious feeling can be preserved without exciting dissent is valuable, and this nearly solitary feature of unity we would not see disturbed. The gentility of a steeple is, so far as our limited experience extends, a quality hitherto undefined. "The new church of St. Giles's is one of the most simple and elegant of the modern structures; it is raised at very little expense, has few ornaments, and little beside the propriety of its parts and the harmony of the whole to excite attention and challenge applause; yet still it pleases, and justly too; the east end is both plain and majestic, and there is nothing in the west to object to but the smallness of the doors and the poverty of appearance that must necessarily follow; the steeple is light, airy, and genteel, and argues a good deal of genius in the architect, and looks very well in comparison with the body of the church, and when it is considered as a building by itself in a distant prospect. Yet after all I have confessed in favour of this edifice, I cannot help again arraigning the superstition of siting churches due east and west, for in compliance to this folly, the building before us has lost a great advantage it might otherwise have enjoyed; I mean making the east end the front, and placing it in such a manner as to have ended the vista called broad St. Giles's; whereas now it is nowhere to be seen with ease to the eye, or so as justly to comprehend the symmetry and connection of the whole."

With the exception of the five structures named there is reason to believe that the labours of Flitcroft were limited to execution of the ordinary duties of supervision. He was many years contemporary with N. Hawksmoor and William Kent, in the service of the Board of Works, as clerk of the works for St. James's, Whitehall, and Westminster, at a salary of £90 per ann.; Kent (the architectural decorator, landscape gardener, &c., so highly patronized by the Earl of Burlington), being *master mason* under the same board, at £200 per ann.; and Hawksmoor secretary at £100 per ann. Of the latter we gave a sketch in a former number. The works of William Kent, whose style prevailed to some extent, and of which examples are still fresh, will form the subject of a future notice.

mises was laid down by Mr. Perkins. Messrs. Burbridge and Healey, of Fleet-street, who, I believe, are licensed by Mr. Perkins for that purpose, are the gentlemen who constructed the apparatus.

I remain, yours, &c.,
J. P. MARSH.

8, New Burlington-street,
August 29, 1843.

[The foregoing came to hand just as we were closing for the press.—ED.]

WARMING AND VENTILATION.

THIS subject, if not becoming too *hot* for us, and threatening a breeze from which we must somewhat shroud ourselves or escape, bids fair to absorb too much of our tenement for experiment. THE BUILDER can afford, and it is its province to assign, a liberal portion of its countenance to that important section of the fraternity who take charge of the important subject in question, but our other brethren must not be *stoved out*, or *steamed* and *par-boiled* altogether against their will. In addition to Dr. Ramadge's letter, which is important in a twofold sense, and goes to prove that which we have asserted as to the superior part which THE BUILDER has to take in the question of PUBLIC HEALTH, we have Mr. Bernhardt and T. H. C. again, and, for the first time, we have Mr. Perkins in the field of controversy. Mr. Perkins' letter is, however, highly entitled to admission, and it shall have it; but we must defer it for a week. Meanwhile it behoves us to hasten to correct, from its statement, another error which Mr. Spencer appears to have fallen into of the same class as in the case of Mr. Bernhardt, and which he should be somewhat more cautious to avoid. It will be recollected that in Mr. Spencer's first communication, he stated Mr. Bernhardt's system to have been in use at the Custom House, and arguing upon this assumption as a fact, drew, and probably led others to draw, most unjust or at any rate incorrect inferences in regard of Mr. Bernhardt's system, for it turned out on explanation that this gentleman had had nothing whatever to do with the Custom House apparatus, and that it was totally contrary to his plan or principles. So now it also appears that Mr. Perkins, so far from having had the "personal direction" of the fitting and application of the apparatus at Mr. Bentley's establishment, as alleged by Mr. Spencer, did not even know of its existence till he read Mr. Spencer's letter in THE BUILDER. It is true that Mr. Spencer did, in the case of Mr. Bernhardt, make the apology, as he will no doubt do in this on being corrected; but it is rather hard upon any man to have currency given to prejudicial reports affecting his professional existence even for a week, when proper care would have sufficed to avoid falling into the mistakes.

POMPEIAN AND HERCULEAN PAPER-HANGINGS.

TO THE EDITOR.

SIR,—In No. 23, *Peregrine* informs us that he has had no reason to alter his opinion, and I am not at all surprised at this, for if he were, he would spoil it; and it is not yet a month old.

I stated certain facts which I know cannot be refuted, and as to our opinions, nobody cares about either, unless it be substantiated, though B. A. A. D. might be attached to each.

Let his observation about the "flack-line" pass with this notice: I shall do as I promised, unless some other person do it in the mean time; then, as the benefit would be the same, come from whom it may, that person may take the whole credit to himself, and as I am never disposed to quarrel with a man because he happens to be first in the doing of good, I shall be perfectly well satisfied.

Now, if a man take delight in the innocent and soul-invigorating pleasure of cultivating the flower-garden, does he not *twist up* the nasty, noxious, illshapen, and devil-created weeds (for mind, they were called into existence by the curse), and then he leaves them to perish, or destroys them with fire. When they are in blossom, they are most disgusting, for their smell is then most offensive, and even poisonous, and their bloom, as it is called, is a sort of burlesque, and their colours being what might very properly be termed the *neuter gender*. As food, even the beast of the field avoids them, and that most cautiously; and the work of extermination is continually going on against them, and one might almost believe that, as regards them, instinct is transferred to humanity, for they are uprooted by man, woman, and child.

Now, is all this done in *depreciation* of the pretty flowers? Oh no, it is that the violet, jessamine, the honeysuckle, and the others, may flourish in sweetness and beauty.

I am, Sir, your very humble servant,

JOHN BARR.

The Government has insisted upon the tunnels between Paris and Rouen being lighted, and given an order that all railroad companies shall light their tunnels.

TO THE EDITOR.

SIR,—I beg to hand you the enclosed note, which, in justice to Mr. Perkins, may I request insertion for in your next number.

I remain, Sir, very respectfully,
GEORGE SPENCER.

5, Hungerford-street,
August 30, 1843.

SIR,—We seem to have misled you (as appears by the tenor of your paper in THE BUILDER), in stating that the apparatus for warming these pre-

Literature.

Villa Rustica. By Charles Parker, F.S.A. Sprigg, Library of Arts, Great Russell-street.

THIS, the third division of Mr. Parker's work, is devoted to an exemplification of buildings intended for educational purposes, designed after the Italian manner; and has more than common claim to notice. A style which in so many hands has degenerated into the fanciful frippery, largely patronized in modern villa building, had need of rescue, and a better adaptation to the climate and landscape of England. The designs for schools given are as various in point of affording accommodation for numbers, as in degree and application of ornament; but there is, to our mind, a better feature of the work, namely the useful hints it affords for a more satisfactory carrying out of the Italian manner; in this respect even those who have passed through the routine of ordinary study, will find the "*Villa Rustica*" a valuable remembrancer.

Farmeries.

A work on this subject, with plans, is in progress for publication by Mr. Bateman, architect, of Leamington and Birmingham. From this gentleman's experience, and the circle of his employment, we may anticipate a useful work on a subject that most unaccountably has obtained a small share of the architect's attention, and none can much exceed it in importance.

PRESERVATION OF BUILDINGS FROM LIGHTNING.

TO THE EDITOR.

SIR,—The subject of the preservation of buildings from lightning is so very important, that I trust you will excuse my troubling you with a few observations upon it, in which, though there may be nothing new, yet being derived from actual experience, they may not be the less valuable to those who wish to know how an efficient conductor may be executed. Nearly three years ago I was requested to inform myself as to the best means of protecting the spire of a church, then in progress of erection under my immediate superintendence. The evidence given before a committee of the House of Commons, upon Mr. Snow Harris's conductors for ships, was put into my hands, and my task then became very simple. I shall not give any lengthened extracts from the report of the committee, my object being only to tell you what was done in the case alluded to. I should recommend any one wishing for information, to get the report itself, from which they cannot fail to learn much that is useful to know.

I found it there stated, as part of the evidence of Professor Faraday and others, 1st. That the conducting power of metallic plates would be but little diminished by their continuous solidity being interrupted, so long as the portions of the conductor remained in contact; but even supposing a slight opening in the rod of half an inch or an inch, no injury would be caused by the electricity leaping from one point to the other.

2nd. That when electricity finds a metallic rod sufficient to conduct it completely, it never flies to surrounding bodies inferior in conducting power.

3rd. The power of a metal rod for the safe transmission of electricity is in direct proportion to its area of section.

4th. A copper rod of half an inch in diameter has never been known to be fused or heated red-hot by an atmospheric discharge of electricity, and thus a standard of sufficiency is afforded. Upon these data I proceeded, and to $\frac{1}{4}$ inch copper spindle passing through the solid stone about 10 feet, and terminating in a foliated finial above a vane, I attached a continued series of $\frac{3}{8}$ inch copper rods, linked together, hanging loosely in the spire, passing through the luffers of the belfry windows to the outside, and thence enclosed in a chase in the tower wall down to the ground; hence I continued the chain in a small drain, and made it terminate in a cesspool, sunk for the purpose of draining the churchyard. Nothing could be more simple or easy of execution, or, at the same time, more effectual, of which I had satisfactory proof shortly after its completion. The heavy storm which on Sunday morning, January 3, 1841, injured the tower of Streatham church, is believed to have passed immediately over the spire in question. Within a furlong, a large tree was rent, and the masons' tools, in a shed not two hundred feet from the tower, were found scattered afterwards in all directions. A portion also of the wall of the adjoining blacksmith's shop was disturbed. I need hardly say that, on being waked

by the thunder, which was terrific, my first thoughts reverted to the conductor, and how I rejoiced in finding it had been proved and stood the test.

It is indeed surprising that the expense being so trifling, every spire in the kingdom is not furnished with such a chain. Surely the necessity of such a protection cannot be too strongly urged upon the attention of all churchwardens or persons in charge of sacred edifices, who, if not willing, should be obliged to do their duty, and then we should hear no more of beautiful spires destroyed or irreparably injured.

Ten or a dozen years ago, one of the finest spires in the kingdom (that of Rotherham Church) was struck, and much of it destroyed. I believe it has in some way been restored, but I very much question if in its original beauty, and I think it still more problematical whether a lightning conductor has been added. Any one who has observed attentively the spires in most parts of this country, cannot fail to have noticed in how many cases they have been topped and retopped; doubtless, in most cases, rendered necessary by similar visitations, which never would have happened had an efficient conductor been provided; but the recent case of St. Martin's Church ought to open the eyes and stir the active powers of all in charge of such buildings who are not wilfully blind or negligent. A timely expenditure of about 30*l.*, or perhaps less, would, in that instance, have saved the outlay of, I believe, 1,000*l.*

In a church now in progress from my designs, having a timber-framed spire, I propose to adopt a similar safeguard, and have made provision for hanging it in the same manner to the vane spindle. I use the copper rods, because the trouble of connecting them is so slight, and they may be more readily twisted about than would a continuous bar.

I fear I have trespassed too long upon your patience, especially after the letters that have been already published in your useful paper; but as mine states what has been done, and proved sufficient, perhaps it may also be useful, and that being your aim and end as well as my own, I have the less scruple in making what might otherwise appear a very unnecessary intrusion upon your time and space.

I am Sir,

your obedient servant and well-wisher,
London, Aug. 23, 1843. C.

THE PARISH CHURCH OF LEAMINGTON PRIORY.

TO THE EDITOR.

SIR,—As the clergyman of the parish, and the person who employed both Mr. Jackson and Mr. Mitchell, permit me to state what I consider each of these architects have a right to claim as their due in the design for the re-edification of the parish church.

1st. On my going to Mr. Jackson, I found him preparing a design for the remodelling of the parish church, under the impression, I believe, that this matter would be put up to competition, and the architect whose designs would be most approved of should be employed to carry them into effect. I told him that as the entire responsibility of the whole matter rested upon me, I would not consent to advertise for tenders, as I was aware old-established architects disliked such a mode of procuring business. I informed him, however, it was only a waste of time and perfectly useless for him to finish the design he shewed me, as it had neither clerestory nor centre tower, and its elevation was at most but about forty feet. I stated that under any circumstances no such design would be approved of by me, and being willing to do him a service, I took the opportunity of informing him what my views really were, namely, to have, in fact, a new, and I trusted, splendid church; with its lantern tower, spire, chancel, transepts, and clerestory. These ideas I requested Mr. Jackson to lose no time in putting upon paper, a brother clergyman assisting us as to the ground-plan, &c. This Mr. Jackson lost no time in doing, and he sent rough sketches to a friend of his own at York, to make a drawing in water colours from the same. This drawing, shewing the design of the whole, was exceedingly well done, and Mr. Jackson certainly deserves credit, so far as the procuring of this drawing.

2nd. As Mr. Jackson has become a complainant in public, I shall now state where Mr. Jackson did not satisfy his employer. It was one thing to procure a handsome perspective drawing, and another to make good working plans, of noble and correct proportions, from the same. This was the turning-point of the whole, and eminently required a practical man to do this well. I found, however, merely to mention a single point, that Mr. Jackson's working drawings shewed columns only twelve feet high but five thick in diameter. Now, such a mass of heavy masonry as this, and such heavy proportions as it involved, filled me with alarm as to the result,

and after due deliberation, and considering how entirely Mr. Jackson was going against his employer's views, nothing seemed to me (even if his demeanour and temper had been what they ought to have been) but to go elsewhere, as I could not take upon myself the responsibility of cutting his columns in *two*, while I added several feet to their altitude.

3rd. I then turned to my present architect, having told him I was quite decided and had finally made up my mind not to employ Mr. Jackson further, as I could not get from him what I wanted. I instructed him that I required Mr. Jackson's columns to be elevated, and only half their diameter retained, and to give me bold buttresses, lofty elevations, large and noble windows, also selecting, not the debased style of perpendicular, but its present period. Mr. Mitchell certainly undertook to say that he would give me what I wanted. I have given him a trial, and he is in all points satisfying me. In nothing is he following Mr. Jackson's plans. In fact they could not, in his estimation, be worked out at all without considerable alterations and amendments, and as I am sure you would be ready to secure for Mr. Jackson whatever credit can be given him, still I feel certain that you would be glad to do ample justice to modest and silent merit, and I now invite you or any gentleman whose judgment you can depend upon, to call at my house, when you can see the drawings I have rejected, and I doubt not you will at once perceive that in nothing are we following out the plans of Mr. Jackson. In truth, I would much rather have left the old church as it was than sanction such specimens of proportions as those which Mr. Jackson claims the merit of having executed, while the avowal, that I am now carrying them out under the superintendence of another architect, is altogether contrary to fact.

4th. And now with reference to the Cambridge Camden Society. In consequence of the manner in which Mr. Jackson is bringing myself and them before the public and in print, I shall feel it my duty not only to myself but to that society, to let them see the real drawings which Mr. Jackson can alone claim as his designs. If Mr. Jackson wanted the true opinion of the Camden, his course should have been not simply to forward them the noble idea of a cruciform church, which, with its lantern tower, and lofty spire and pierced clerestory, is older than the days of Poone or Wykeham, Waynflete or Islip. An abbey-like church they must praise, eye and feel it their duty to encourage. The design, however, of such a church being erected in Leamington originated with Mr. Jackson's employer, and as for a mere perspective sketch the Camden Society will doubtless be able to tell your complainant that the Vicar of Leamington need not go beyond the handy-work of some of the young ladies of his parish, who could easily have given a pretty water-colour drawing finished to a scale, on that scale being given to them. Where an architect was wanted, and where he could exhibit merit, would be in furnishing proper drawings from the perspective one, which would shew suitable proportions for columns, buttresses, windows, aisles, doorway, &c. Now, it was precisely here that Mr. Jackson failed me. I would have nothing to do with his ideas of proportions, or his selection of styles; and I can assure that architect, that the gentlemen of the Camden Society, when they find in what way he has procured their opinion, and how he has been using it against his employer, will feel it their duty to be careful how they in future receive his communications, while his entire conduct throughout is more and more convincing me I exercised a wise discretion in placing myself in the hands of Mr. Mitchell, who, I doubt not, were I to leave him to-morrow, knows too well what is due both to himself and his profession, needlessly to rush into print with insinuations against the clergyman of a parish who had given him for some months a willing employment in carrying out and restoring amongst us the old and elegant design of a cruciform church with all its suitable beauties and exquisite proportions. And I now can only assure you that "the pillars elaborately clustered," "the windows liberally moulded and enriched with tracery," which you were so good as favourably to notice, are entirely and altogether planned by Mr. Mitchell, and in no sense whatever can they be considered Mr. Jackson's. For I again repeat, that so far from my consenting to adopt Mr. Jackson's short and thick, and heavy columns, the attempt to force them upon me by defending their necessity, was the original cause of my ceasing to employ that gentleman as my architect. I feel it only due to Mr. Mitchell to make this statement, and requesting its insertion in your very interesting publication, to which I shall be thankful if you add my name as one of its subscribers, for the more it is known amongst the clergy, the more good will it do.

I have the honour to remain, Sir, your obedient servant,

THE VICAR OF LEAMINGTON PRIORY,
The Priory, Leamington, August 28, 1843.

WARMING AND VENTILATING.

TO THE EDITOR.

SIR,—A copy of the last number of your excellent paper having been forwarded me, in which my name has been introduced by your correspondent, Mr. Spencer, in the course of his remarks on warming and ventilation, I feel it due both to the public and myself to add my testimony to the statement made by that gentleman relative to the bad effects produced by the extremely improper means adopted in the Infirmary for Diseases of the Chest, Artillery-street, Bishopsgate-street, for heating the wards. The picture he draws is certainly not exaggerated. The total want of sewerage and ventilation on the premises of the institution, the highly improper practice of crowding several patients into rooms, the largest of which, for seven patients, is not more than 28 feet by 14 feet, and 8 feet high; the seclusion of air by stopping up the chimneys for the purpose of heating the atmosphere by means of German stoves of thin sheet iron, which are very often at a red heat, and emit an arid carbonaceous odour; the combination of the various smells emanating from the patient's skin, expectorations, dejections, food, bed-clothes, &c., the whole aggravated by the foul air conducted from the privies and cesspool below, through the funnel-shaped space extending from the bottom of the house to the roof, without any exit to the open air, present a group of circumstances which must have astonished your readers, many of whom will doubtless regard it as scarcely possible that an institution professing to receive consumptive and asthmatic patients, and to imitate the climate of Madeira! in the heart of London! and middle of this enlightened century! should exhibit such gross neglect or mismanagement, or something worse.

In justice to my own character, you will permit me to explain through the medium of your columns that I have from time to time urged the individuals who have taken on themselves the management of the institution, to provide suitable accommodation for the patients. So far from succeeding with them, I have been personally insulted for interfering, as they conceived, with matters that did not fall properly within my sphere. Under a sense of public duty I at length represented the state of the Infirmary to Sir James Graham and the Poor Law Commissioners. By the latter the case was referred to the Guardians of the East London Union, who sent a person to inquire into the correctness of my representations. That person, on their behalf, regretted that it was not in their power to interfere, but expressed his abhorrence and disgust at the filthy and every way unsanitary state of the premises. Several highly respectable called on me at the Infirmary, have expressed themselves in similar terms of mixed surprise and condemnation. That which renders the entire matter more reprehensible, is the flattering account lately presented to the public in what is styled the 29th Annual Report of the Infirmary,* a short extract from which I here beg to trouble you with. Speaking of the utility of a warm and equable temperature, in cases of pulmonary disease, the Report goes on to say that "it may be provided in this country; though the arrangements necessary for the purpose may not perhaps be equal in efficiency with the more natural remedy of removal to a southern latitude. Thus the idea suggested itself that an institution, in which the temperature of the air was duly regulated night and day, and having proper aid and superintendence, might be the means of mitigating pain and restoring the inestimable blessing of health to many of our suffering poor, and experience has proved it to be so. The trial was made by the establishment of this Infirmary in 1814, and has succeeded beyond expectation. These cheering results, whilst they hold out the strongest inducements to the supporters of so valuable an institution not to relax their exertions in its behalf, give it a powerful claim to the sympathy and assistance of the public at large, &c. &c."

Look on this picture, and on that drawn by your correspondent. I have no words strong enough to express my dissatisfaction with the painful contrast between the simple unvarnished facts, and the above delusive representation.

I am Sir, your obedient servant,

F. H. RAMADGE, M.D.
24, Ely-place, Aug. 29, 1843.

ARTIFICIAL GLAZING.—As a covering for flowers, &c., nothing can be better than the varnish or solution of caoutchouc, spread with a clean brush upon fine holland—not calico. When the linen is properly strained upon frames it is as tight as a drum-head, and is no contemptible substitute for glass;—indeed, its chastened light renders its sometimes preferable.

* This Institution has existed for 30 years, but there has been no Committee meetings for several years, nor Annual Reports, though this is styled the 29th Report.

TO THE EDITOR.

SIR,—Having observed in No. 27, an article upon varnishes as applied to wood, metal, &c., and possessing some architectural drawings which I should like to varnish (but not knowing how), perhaps some of your correspondents could enlighten me as to the mode of sizing the drawing and preparing it for the varnish, and also as to the best description of varnish to be used, as both should be perfectly colourless, the great fault in varnishing architectural drawings being their liability to turn yellow.

I remain, Sir, your most obedient servant.

D. V. S.

Wednesday, August 30, 1843.

NEW SOUTH WALES.

We have been favoured with the copy of a letter from Melbourne, New South Wales, addressed to a gentleman in Manchester, dated in December last, from Mr. Charles Laing, architect, who lately emigrated to that colony from Manchester. The document is full of interest, and for the gratification of our readers we publish the following portion of it:—

"For your information or any other person, I will give you a short description of the locality of this place. What is meant by Port Phillip, is an immense district of country forming the southern part of New South Wales. It is bounded on the east by the South Pacific Ocean, on the west by South Australia, on the north by the Sydney district, and on the south by Bass's Straits, which divides this country from Van Diemen's Land. The distance from this country to Sydney is about 600 miles. New Zealand is about 2,000 miles further to the eastward, and lies in 175 deg. east longitude. Port Phillip is approached from Bass's Straits into Hobson's Bay by a narrow inlet not more than a quarter of a mile wide, but at once expanding into a most magnificent bay about 50 miles long, in some places 20 and 30 miles wide, possessing deep water and safe anchorage. A pilot-station and lighthouse is erected at the heads or entrances of the bay, from whence you proceed due north 40 or 50 miles to William's Town, where a lighthouse is erected, and the Harbour-Master's Office, Water Police, and other Government Offices are placed here. After rounding a point of land, the ship anchors, and you are in Australia Felix or Port Phillip. The anchorage ground is due north, three miles from Melbourne. From the bay you are conveyed by a very pretty steam-boat called the *Vesta*, belonging to Messrs. Manton and Co., of this place, and imported by them from London, and built by Wm. Fairbairn and Co., of Blackwall. The bay is joined by the river Yarra-Yarra, a splendid river, not so wide as the Irwell, but much deeper, and deep up to the banks like a canal. Small crafts, such as brigs, schooners, &c., of two hundred tons, come up the river, up the Yarra-Yarra, to Melbourne, the capital of Port Phillip. I was very much struck, and most agreeably disappointed, with the appearance of Melbourne. Instead of finding a quantity of mud and wood huts on landing, a goodly town presented itself to my view—well laid out. The streets are spacious, being 22 yards wide for the principal ones, and 11 yards for the intermediate. The streets cross each other at right angles. Many excellent buildings are progressing, and the streets are being rapidly filled up. Collins-street is the principal thoroughfare. We have four newspapers published here, viz. the *Patriot*, *Herald*, *Gazette*, and the *Times*, of which I cannot speak very favourably. There are of religious establishments one Episcopalian Church, one Scotch Church, one Wesleyan Chapel, one Baptist, and one Catholic; a Mechanics' School of Arts, but not used for such purpose at present; a respectable Post Office; three banks, each issuing their own notes; and several public companies. There are two very good and substantial corn and flour mills in the town, one belonging to Messrs. Manton and Co., and another to Messrs. Allison and Knight, and a very small foundry: this is the total of our steam-power on land. I forgot to mention that Melbourne is proposed to be divided by the Yarra-Yarra, and called North and South Melbourne. It is North Melbourne that is now formed; South Melbourne is in embryo, and land reserved. The town is exceedingly well situated; the proximity of the Yarra-Yarra, with its never-failing supply of clear water, and its short distance from the sea, will ensure, to a considerable extent, health and facilities for the various mechanical operations man may be induced to bring forth. The meaning in the native tongue of the Yarra-Yarra is *flow-flow*, or overflowing. Several villages are forming in the neighbourhood, but go on slowly. The scenery is in many cases very beautiful, and wherever this beautiful scenery is, the land is cultivated; the reason is obvious; hill and dale give shelter to the crops, &c., from the hot winds which blow from the north very frequently during the

summer months, which are very hot indeed. I can compare it to nothing less than a hot flame blowing against your person. What do you think of 125 degrees of heat in the shade, which is a moderate estimation? When you take a vapour-bath at home, the heat seldom exceeds 120 deg.; in fact, a higher degree would be injurious, but in the sun, to those (as I have frequently) who are obliged to face it, it is distressing indeed. The usual way to prevent the annoyance of its full effect is to shut yourself in your house, close your sun-blinds, and keep as much air and light out as possible. By this means you get it over. But as the evening closes the thunder and lightning is terrific; you would think heaven and earth were coming together. The hot winds seldom continue more than one day, but they occasionally last for two and three days. House-rent, when I arrived, was exceedingly high. When we arrived in November last, we occupied a small cottage in the town, containing three very inferior rooms, viz. a small living room, a scullery behind, and a bedroom formed in the roof, for which we paid 17s. 6d. per week, or 45l. 10s. per annum—the same house could be got in Manchester for 8l. a year or less. I subsequently occupied one a short distance in the bush, for which I paid for six months, at the rate of 80l. per year, for four rooms, a detached kitchen and servant's room, with stable and garden—and was considered cheap. I now occupy a good house on the premises of the company, for whom I am manager, rent-free. But rents are considerably reduced—at least 25 per cent. Provisions were (but now reduced) considerably above their value—for instance, potatoes, 4d. per lb.; flour, 5d.; butter, 3s.; eggs, 5s. per dozen; a bottle of ale or porter, 2s. 6d. They are now just half the price, and beef and mutton can be bought of the best quality, and very fine, at 2d. per lb. Luxuries, such as wine and spirits, ale and porter, by buying a quantity from the merchants, can be bought nearly as cheap as in England, but the poor man cannot manage this at first; he must purchase by retail, and is charged accordingly. In a new place like this it would be difficult to say what it may come to in a commercial point of view; it is only six years since it became a settlement, and has now about 10,000 inhabitants in it. It is possible that it may overdo the matter, or, in other words, and to use a colonial phrase, it may have gone a-head too fast. I do not mean to say such is the case; but it is not improbable, and so long as the settlers can realize a profit upon their productions, Melbourne will always be a flourishing place. One thing I will mention here, and I think you will agree with me, that in all new colonies, agriculture and the production of stock is the first grand principle. Now the Government agents have been sending ship-loads of unfortunate operatives from the manufacturing districts. Spinners and such like men are not calculated for agricultural labour; the work is in itself too heavy for them, having always been employed in light labour, and from the very nature of their prior employment, cannot work—that is to say, to do a day's work with the spade, the hoe, the plough, or the harrow. Mechanics are equally the same; there is no field for their ingenuity, and what can they do? Many have been obliged, to save themselves from starving, to work upon the Government roads—men who at home could earn their 2l. and 3l. a-week. Men from the agricultural districts are what we require. Regular English farm servants can readily find employment at 40l. a-year and their rations—that is, meat, drink, and lodging. Every article that you are compelled to purchase is dear; but by a little experience it is found that we can purchase what we require at a moderate price, by attending auctions, &c., which are frequent enough. Money is dear—that is to say, a person wanting to borrow cash upon mortgage, for which he could have plenty at 4 or 5 per cent. in England, willingly pays 20 per cent.; and I have known 25 per cent. paid, and upon good security. In fact, I could guarantee 12 per cent. through any of the bankers here at once, and I have no hesitation in declaring that a person possessing 2,000l. per annum could realise 400l. per annum upon it. At home it is not worth more than 100l. You may say that on the other hand the expense of living would counterbalance the difference; but I assure you that I can live as cheap here as in England. Within the last few days Melbourne has become a corporate town, and I intend offering myself as "surveyor" to the corporation. I forgot in its proper place to give you the names of the wild animals of Port Phillip. There is the kangaroo, the kangaroo-rat, and the wallaby, of that tribe. There is also the native bear, the wild cat, the opossum, the flying squirrel, and the wild dog, a creature very like a huge overgrown fox or moderate-sized wolf; indeed, its habits are similar, making sad havoc among the sheep. Snakes also are numerous in the bush; their bite, unless immediate aid is procured, is fatal. They are not large, and are easily destroyed. I have met with

To any of our SUBSCRIBERS who are in possession of copies of Nos. 3, 4, and 8, in an unsoiled state, and who do not require them for binding up, we shall be happy to return the full sum of THREEPENCE in exchange for such Nos., they being now entirely out of print.

THE BUILDER,

NO. XXXI.

SATURDAY, SEPTEMBER 9, 1843.

It has fallen in our way to make a limited tour of the provinces since our last writing, and in such measure we have been enabled to ascertain the state of public feeling and action, in reference to building matters, and to collect some little more of building statistics to add to our previous stock—not that we have learnt much of any thing new, but we have gathered confirmation of that which was old and well known to us before. We find, as we averred at the setting out of our vocation as public journalists, and as we have had occasion to reiterate at many points of progress, we find the most extraordinary ignorance reigning between two classes of men whose dependence on each other is, or ought to be, more intimate and absolute than could be said of almost any two classes in the empire—we say is, or ought to be, for we are afraid that the sound and healthy action of the natural principle of dependence is strangely impeded or interrupted, and it is for us to examine into, to ascertain, and, if possible, to remove the cause. But where great impediments exist, the accumulation of long periods of misdirected efforts, mountains of opposing ignorance, these require great time, labour, and resolution, to remove. The two classes to which we allude as being, or requiring to be, more intimately connected and acquainted than hitherto, are the builders and the booksellers. The latter class are the privileged functionaries through whom the draughts of knowledge are to flow for the benefit and advantage of the builders; they hold the glass in hand through which many rays of the light of intelligence are to fall; and not knowing how numerous we are, how craving of knowledge, where we are seated, and the nature of the light that is to shine upon us, we are in effect debarred from our natural and lawful advantages. It is not to be said that the builders are to instruct the booksellers wholly in the administration of their office. A cry may be raised by the former, and it is being raised through us, which it behoves the latter to attend to. We, on the part of our class, say to the booksellers, Gentlemen, it is your province to transmit knowledge to us from the fund supplied to your hands; the high-roads and bye-roads, of which you are the trustees and toll-takers, are for our traffic as well as for the children of pleasure and frivolity, or the more serious sections of your customers. Trade knowledge is to us more essential than politics, pointless narrative, romance, or fiction; the solid bread of instruction in matters that pertain to our craft is at any rate as much to be desired by us as aerated waters, or inebriating wines, and infinitely better than the drugged and distilled extracts and gaseous fumes upon which the brains of so many are feeding. Pray, good Gentlemen Booksellers, take off the embargo of high tolls, and the prohibitions that affect our food, or at any rate give it free ingress and equal favour, so far as you are concerned, with the commo-

dities that may, for aught we know, be well suited to the stomach of many others, but which we do not so much affect. Consider it worth your while, and we will make it so, to expose your hills of cargo and consignment for our valuables, as well as for the trinkets and toys of the multitude; wherefore, in two words, should not THE BUILDER placard grace your door-checks as well as those of the mere chronicles of weekly gossip or idle fiction?

We said at starting with our "Precursor Number" that nobody thought it worth while to cater for the community of builders cheap books—that is, abundance of books are launched at every tide of your upheavings; the daily "flow" precedes the "ebb" with all the regularity and force of the ocean's waters; the quarters are hebdomadally defined, and not less so the full maturity of the moon by monthly issues; the full circle of our orbit is again marked by annual outpourings, but who sees, in the midst of all this, the daily, weekly, monthly, or yearly journal of building progress? Anybody and everybody is privileged to comment on architecture, albeit in a loose and passing manner; but as a class, entitled to have consideration and weight in the body corporate, social, or politic, Builders! (in which we include as usual architects) no one for a moment thinks of their claim, and yet, as we have urged so frequently before, builders are half a million at least of the male population of Great Britain.

We are drawn to make these remarks by the circumstance of the state of our circulation in Liverpool and Manchester, as well as in several other important yet secondary towns. We know how to distinguish between what may result from our own demerits and the imperfect knowledge of our workings, and we are free to state that not one man in five hundred of those who would read and desire to read THE BUILDER, is yet aware of its existence. In Liverpool and Manchester newsagents and booksellers look astonished, many of them, when they are asked, in this period of the thirtieth week of our workings, if they have or sell THE BUILDER, and it surprises us as much, in turn, as to walk into a coach-office in the same towns, or, which was the fact as to Manchester, to ask about a conveyance to Sheffield, and to be met by half information in reply.—"THE BUILDER!" is ejaculated—"Oh, yes, by the way," says one, "we had the people asking for it to-day, but we know nothing about it;" and "we have people frequently inquiring for it," says another, "but we have not had it," and the like. Now this is a state of things that we cannot permit any longer to continue.

We are going to aim at no revolution in publishing matters, but we are bent upon effecting a REFORM, or at any rate to promote the healthy and just working of the functions of the publishing executive. We must either have builders' booksellers out of the class of booksellers, or make them out of the class of builders; but we know there is no need of any constitutional change, or change of power—it merely requires a right direction of the existing power, and our plans are now to be propounded for effecting this necessary and salutary change.

And since the remarks we are now making are intended and are likely to fall before the observation of many of our craft for the first time,—we mean the professors or practitioners of the art of building,—we must, at the risk of being tedious to our many constant readers, reiterate, for the hundredth time, that we scruple not to plead strongly for the support

of our class, because we have sunk, or rather never entertained, many of the notions and views which prevail in the conduct of the ordinary class of publishing speculations. This Journal is the TRADE BOOK, not ours; we are more in the light of its honorary conductors, than its profit-making proprietors. Profit, no doubt, will ultimately flow from its workings, and reward those who deserve for their diligence and devotion, in their proper meed. But the grand object aimed at is profit to the class, in collecting, amassing, and distributing, sound information. The price must speak of this: that price we would not have enlarged, but the usefulness of the journal to every extent. Let every man, therefore, put his hand to it; it will be his treasury of strength, deriving from and returning it to him.

We have sold largely, and, considering what we have learnt on our Liverpool and Manchester mission, we almost wonder how and why. Our paper has found its way into corners, but not into crowds. Every quarter of the kingdom has made it a guest, and welcomed and entertained it hospitably; but it has had no public greetings, unless it be here in London. A large number is sold in London, and every day adds to the gratifying testimony of approbation with which it is received by the most learned of our body. Many numbers are despatched through the activity of some of the principal agents here, but these, it would appear, find their way into secret or quiet recesses. Manchester and Liverpool, that will, in all probability, take between them as many as our whole present impression of between 3,000 and 4,000, know little or nothing of our doings or our whereabouts; and the remedy, or rather the agent for the removal of this grievance, this double grievance, affecting ourselves, but still more our class, is the establishment in those places, as well as in many others, of corresponding editors or contributors.

We therefore invite,—and we do it without any mock gravity or pomposity, while we as seriously assume an importance equal to boards or committees of management,—we invite the formation of provincial offices of correspondence. We shall obtain these in their full number and efficiency, which we say to inspire the courage of the diffident and to damp the confidence of the few, for unfortunately there will be a few of the sneering and the cynical. We invite the studious, the observant, the diligent, and the talented of our provincial brethren in the architectural and building sections to join hands with us in the discharge of our common duty. There are many gentlemen in the towns we have mentioned and elsewhere, disinterested and right-hearted, with talent equal to all the requisition, who will advance the public good, and also, we trust, nay, we are assured, their own legitimate interests by such co-operation. We would appoint a provincial editor's office at some principal publisher's, where all business could be transacted in correspondence with our office here, and charge upon that editor, whoever he may be, the duty of superintending his district, as a centre like unto our own; and we now throw out the matter for experiment in Manchester and Liverpool, where we would begin first; we await only the offers and the proper testimonials of candidates as associates. The matter is not to be taken in hand lightly, a word which we utter by way of caution; character and right principle must sustain the officiant. It is no light matter to have to discharge the duty of reporting, counselling, communicating for our class in any district; but in proportion to the weight of the duty is the honour, the consciousness, if not

the public approbation, and that reward which the devoted servant of a liberal art most values and prizes.

Not to dwell longer, therefore, we sum up our purpose in two words: we want a professional associate as well as a publishing agent. Honour and profit are to be reaped by the right pursuivants. We bind ourselves to the best exercise of our humble judgment in deciding on the claims with which we may be intrusted. We are but the stewards of our class.

MR. WILSON'S REPORT ON FRESCO PAINTING.

The following are extracts from Mr. Wilson's report to the Commissioners on the Fine Arts, contained in the appendix to the Commissioners' second report, just delivered.

Mr. C. H. Wilson, Director of the Government School of Design at Somerset House, was in the course of last year employed by her Majesty's Commissioners on the Fine Arts to proceed to the Continent to collect information relating to the objects of the Commission. Having been furnished with the necessary instructions, he left England in August, and returned in January last.

The report printed in the appendix is the result. Having described "the state of middle-age frescos and other mural pictures," the "construction of the walls on which such paintings are executed," &c., Mr. Wilson makes the following representation regarding the

DURATION OF FRESCOS.

"The circumstances which must be taken into consideration in judging of the duration of frescos have already been adverted to. It has been shewn that where proper constructive principles have been attended to, and where the walls are of good and appropriate materials, the safety of the paintings is in a great measure secured, and it may be certainly proved that fresco is a very durable mode of painting, not surpassed in this respect by any other, if, indeed, equalled.

"But, independently of the most careful building, various causes may contribute to the deterioration or destruction of frescos, and, as these have been very distinctly described in the first report, it is not necessary to say much on the subject further than to state a few facts.

"Damp is the greatest enemy of this kind of painting; it ascends through the walls from the soil, and descends from ill-constructed or dilapidated roofs. In Venice, where the houses actually stand in the water, the external plastering falls off entirely to a height of 20 feet; in Milan, Padua, and elsewhere, I observed that paintings are obliterated on walls to a height of from 7 to 8 feet from the ground. The destruction of many fine works on roofs and on the upper part of walls is entirely to be attributed to culpable negligence or ignorance; this is painfully exemplified in the Duomo at Parma; the old insufficient roof over the dome still exists under the new leaded one, which has been added to save the wrecks of Correggio's works from final destruction. Many examples might be adduced of injury resulting to frescos from imperfect roofing, and, the fact having been recognised, precautions have now been taken after irreparable injury has been done. The tiled roofs of Italy have everywhere been a constant source of injury to frescos, but in some few instances precautions of an extraordinary nature have been taken to make the roof water-tight. At the Villa Maser flat tiles have been laid at right angles to the roof-timbers, the joints being filled with lime. These tiles represent the planking under slates in this country, and the ordinary roof tiles are put over them in the usual way; this makes an impenetrable but very heavy roof. The plan has lately been adopted in the Palazzo del Giardino at Parma; the frescos there by Annibale Caracci having suffered from damp. The Caracci have evidently been alive to the necessity of taking precautions against damp; the vault in the Farnese Palace in Rome, which is under an open *loggia*, is covered with lead; at the Palazzo del Giardino the upper surface of the vaults has been carefully plastered; but this has not sufficed.

"Some frescos by Allori, in the Palazzo Vecchio, at Florence, which are on a six-inch brick wall, have lately been destroyed by plastering the back of the wall. In the library at Siena the paintings on the vaults were ruined by some masons who mixed lime above them. All these facts prove the necessity of preventing by every possible means the passage of damp through the walls, and there is no difficulty whatever in effecting this.

"External frescos may never be executed in this country, but their preservation in some parts of Italy may encourage their adoption in corridors and porticos. Paintings are found to be well preserved on external walls turned to a favourable weather quarter. Thus, as at Genoa and Treviso, although frescos are nearly obliterated by the action of the weather on stone walls, it is to be observed that wherever they are protected by the projection of a roof or cornice, they are well preserved. External damp or sea air has no bad effect. The obliteration of external frescos in Venice cannot be attributed to this, since those at Genoa are preserved; and those in the Campo Santo, at Pisa, are doubtless destroyed by damp from the soil and roof. As has already been observed, that by Orgagna, in the same place, has not suffered at all from the action of the atmosphere.

"The paintings in the upper *loggia* of the Vatican have suffered severely, owing to the inefficient construction of the roof. Those beneath, from Raphael's designs, have been much obliterated, partly by damp (the corridor above having been left open till lately), and partly from their having been painted on an intonaco of lime and marble dust; they have also suffered in some measure from violence and mischief. To this last cause, unfortunately, the destruction of many valuable works is to be attributed, as a number of the buildings which should have been consecrated by the works of genius have occasionally served as quarters for the rude soldiery of ruder times, or even for the galley slave.

"Many fine works have been irremediably injured by the populace; even those in churches have suffered in this way, and those in cloisters have also been much injured by wanton mischief. It is a mistake to suppose that the natives of Italy are exempt from this disposition, which is sufficiently proved by the injury inflicted on many precious monuments of art in that country.

"Smoke has frequently been mentioned as a dangerous agent of destruction, but its effects can be removed. Thus, in the Palace at Modena there is a large hall the ceiling of which is painted by Franceschini. The woodwork in the lower part of the hall was entirely burnt some years ago, and the frescoed ceiling was completely blackened by the smoke, but was afterwards cleaned with complete success.

"The frescos by Guercino, at Piacenza, have been injured in a peculiar manner; birds getting into the dome have flown against and scratched them.

"It may be proper to mention the frescos of the Bolognese school in the Louvre at Paris, the climate of which resembles that of this country; with the exception of one, destroyed by the infiltration of water carelessly thrown on the floor above, those paintings are in a very good state."

Then follow descriptions of paintings in fresco by different masters.

The following interesting details on the "effect of coloured glass on paintings," and on "fresco-secco," conclude the report:—

EFFECT OF STAINED GLASS ON PAINTINGS.

"A few facts and observations connected with the employment of stained glass in rooms with paintings in them may not be unimportant, as an opinion has been expressed that windows coloured in any degree are incompatible with paintings in rooms so lighted. It rather appears, however, from many instances, that stained glass may be sometimes so employed with great advantage; and that the excess of light may be thus subdued, or otherwise modified, so as to produce the most pleasing effect.

"In the cathedral at Munich the windows are coloured to a certain height, and although the effect is far from pleasing, considered in itself, yet it is very useful as regards the pictures in the church, as the light is brought in from above in an advantageous manner.

"At Saronno, near Milan, there are two small frescos by Luini with a coloured circular window between. The pictures are lighted by a window on one side, and could not be seen at all but for the exclusion of white light by the coloured glass in the centre window. In S. Patrizio, at Bologna, there is an altar-piece under a window filled with richly stained glass; the picture is well lighted from an opposite window, but if the window over it had been of white glass, it would have been impossible to see the picture, which is very dark. The sun happened to shine through the rich hues of the window above, and I observed here, as I had previously remarked at Saronno, that the picture did not suffer in consequence.

"At Assisi, in the upper church, all the windows, one excepted over the door, are coloured, but in those which are painted, much of the glass is left white; the light is weak in this church, and it is thus apparent that it does not always answer to tint all the windows, even although pure light is partially admitted; but where the light is sufficient every window in a room with paintings may have a

certain proportion of stained glass in it, provided pure light be not altogether excluded. It may be objected that coloured rays will be thrown on the frescos when the sun shines, but white rays are quite as objectionable, and besides, frescos never should be placed where the sun can shine upon them, as, like other pictures, they fade sooner or later under its influence; coloured glass in such a case might be an advantage, and the inconvenience from the coloured rays would be temporary."

FRESCO-SECCO.

"Certain processes of painting allied to fresco having been referred to in the foregoing statement, it may be desirable to add a brief account of them.

"The early mural pictures, although commenced in fresco, were, as before observed, usually finished in distemper, and the vehicle employed was a mixture of yolk of egg and vinegar. This mode of painting was adopted also on panel and on canvas; and it is probable that many Venetian pictures, supposed to be entirely in oil, were painted in this manner, and then glazed and finished with oil colour.

"There can be no doubt of the durability of this mode of painting on walls, as there are many well-preserved examples of it by the early masters; but I am unable to quote any instance of the successful adoption of the process in modern times. Professor Overbeck informed me that he painted in this manner at Assisi, but that it was necessary to lay a ground of whitening on the wall in the first place—a process which is manifestly objectionable, and not in accordance with ancient practice.

"An Italian artist informed me that it is necessary first to give the wall a coat of strong size, and then to give it a second coat mixed with the yolk of egg and vinegar.

"Another mode of painting, of which there appear to be a few early examples, and of which there are many later ones, is called by the Italians *fresco-secco*. I was informed that a large painting by Orgagna, in the church of Santa Maria Novella, is in *fresco-secco*. I examined it, but hesitate to pronounce an opinion.

"The later masters painted extensive works in this manner: the ceiling of the great hall in the Barberini Palace, in Rome, appears to me to be in *fresco-secco*; and in Rome, Florence, and Genoa, the ceilings of most of the palaces are covered with paintings executed in this manner; it is the mode of painting still adopted in Italy for nearly all decorative purposes, is easy of execution, and unquestionably durable, whilst it is certainly the most economical process which can be followed.

"Fresco-secco has been practised for some time in Munich; the ceilings of corridors and loggias, and those of staircases, are thus painted in the palace; and the Chevalier von Klenze, who first introduced the process at Munich, is satisfied with the experiments which have been there made with it.

"The following is a description of the method. The plastering of the wall having been completed, and lime and sand only having been used for the last coat, the whole is allowed to dry thoroughly. When a wall is intended to be painted, the surface of the lime is rubbed with pumice-stone, and on the evening of the day preceding that on which the painting is to be commenced the plaster is thoroughly washed with water, with which a little lime has been mixed. The wall is again wetted next morning, and then the cartoons are fastened up and the outline is pounced. The artist then begins to paint. The colours are the same as those used in *fresco-buono*, and are mixed with water in the same way, lime being used for the white.

"If the wall should become too dry, a syringe, having many fine holes at the end, is used to wet it. Work done in this way will bear to be washed as well as real fresco, and is as durable; for ornament it is a better method than real fresco, as in the latter art it is quite impossible to make the joinings at outlines, owing to the complicated forms of ornaments; on this account walls thus decorated in real fresco present an unsatisfactory appearance. The joinings are particularly observable in the loggie of the Vatican.

"Painting in *fresco-secco* can be quitted and resumed at any point. The artist need not rigidly calculate his day's work, and can always keep the plaster in a good state for working on. But whilst it offers these advantages, and is particularly useful where mere ornamental painting is alone contemplated, it is in every important respect an inferior art to real fresco. Paintings executed in this mode are ever heavy and opaque, whereas fresco is light and transparent. *Fresco-secco* has been chiefly adopted by late and inferior masters, and none of the works executed in this manner are of great reputation. The early pictures, which are designed by the Italians as works in *fresco-secco*, are not probably executed in this manner. The method may have been adopted in repainting parts, and this may have led to the idea that entire works were thus executed.

"Fresco-secco is extensively used in Italy at present, and with great success: the chiaro-scuro decorations executed in this manner are excellent; but I found that at Milan, where I had an opportunity of examining some specimens, it did not bear washing like the Munich process. The method seemed the same, but the result differed in this respect, and I had no opportunity of seeing the actual process of paintings executed in this mode, in any other part of Italy.

"At Genoa, where the paintings in the churches and palaces have no claim to be called frescos, although generally so described, a compound process has been followed in their execution. They were all commenced, or partly commenced, in fresco, but were finished in distemper, and size has been used or mixing the colours, and they can easily be removed by washing. The object of the Genoese artists has been to supply the fancied deficiencies of fresco-painting in point of colour; but, although they have succeeded in making use of vermilion, brilliant green, and bright yellow, they have not produced satisfactory works of art. The paintings are garish and out of harmony; the colours subsequently added in distemper do not harmonize with those previously used in fresco, and the general effect is totally devoid of that transparency which is distinctive of good fresco-painting. The Genoese have brought fresco down to the level of mere size-painting; and the works which they have left are proofs of the danger of carrying the practice of retouching too far.

"In the Doria Palace instances occur in which it may be observed that the entire picture was not repainted in fresco and then retouched in distemper, but that portions were painted in fresco, and then, at plaster being allowed to dry, the remaining portions, not previously touched when wet, were repainted and finished in distemper. Pierino del Vaga, perhaps Fontenone, who painted in the same place, may have introduced this practice as well as others equally objectionable.

"CHARLES H. WILSON."

PUBLIC MONUMENTS.—The question which Mr. E. B. Peck lately propounded to Sir Robert Peel respecting the public recognition of the labours of eminent civilians, appears, from the subjoined letter, pressed by the Premier to Mr. Eastlake, as Secretary of the Commissioners on the Fine Arts, to be likely to lead to some practical results:—

"Whitehall, August 17, 1843.

SIR, A proposal was recently made in the House of Commons, that the Commissioners should be empowered by her Majesty to inquire the best means of doing honour, by public monuments in sculpture or painting, to be erected at public charge, to the memory of men entitled to gratitude of their country by eminent civil, military, or scientific services. I was unwilling to give to the Commissioners a general inquiry of a nature, not immediately connected with the object for which the Commission was appointed, but I willingly undertook to recommend to her Majesty to give to the Commissioners full authority to consider whether there is a portion of the service of the accommodation of the House of Commons or of the buildings connected with it, which could with advantage and economy be allotted to the reception of monuments, and to those to which I have before adverted, and to their opinion to her Majesty, not only in regard to the particular site of such monuments, but in the event of an appropriate site being found, to the House of Commons being recommended by the Commissioners, with regard to the names, generally, which should govern the selection of the names to be honoured by so distinguished a record of national gratitude, and to the mode of combining the public acknowledgment of the services with encouragement to the arts of sculpture and painting. I am empowered by her Majesty to send the subject to the consideration of the Commissioners, and to give them her Majesty's authority for entering upon it.

I am, &c.
(Signed) ROBERT PEEL.
Eastlake, Esq.

FRESCOS AT BUCKINGHAM PALACE.—GARRICK, the fresco embellishments, concerning which some remarks were made last month, were not yet finished, or, we believe, commenced. They were undertaken by Mr. Eastlake and his assistants. It will be readily conceived that the incident to his office as Secretary to the Commission has hitherto prevented Mr. Eastlake from performing his portion of the task. However, now that the "second report" has been delivered, and all preliminary arrangements have been made, a relaxation from labour may be expected. Mr. Eastlake to his profession—from which he will be spared, even for the great purpose of the foundation of "National Art"—*Art Union*.



HINGE TO CRYPT DOORWAY, WELLS CATHEDRAL.

TO THE EDITOR.

SIR,—In pursuance of our promise to send original sketches illustrative of interesting subjects, I beg to forward a drawing by one of our members, Mr. Edwin C. Sayer, and whose description of it is subjoined. It was made on the spot a few months back.—I remain, Sir, very obediently yours,
JAMES WYLSON, Hon. Sec.,
B. A. A. D.

The above drawing represents the upper hinge on the door opening into the Crypt of Wells Cathedral; it is of the thirteenth century, and offering a variation in the iron-work of that time, must be considered interesting. There are three hinges on the door, which is not shown in Britton; but a general notion is given of it in Carter,

ON PLANE METALLIC SURFACES AND THE PROPER MODE OF PREPARING THEM.

THE extensive class of machinery, denominated *tools*, affords an important application of the subject. Here every consideration combines to enforce accuracy: it is implied in the very name of the planing-engine, the express purpose of which is to produce true surfaces, and it is itself constructed of slides, according to the truth of which will be that of the work performed. Moreover, when it is considered that the lathe and the planing-engine are used in the making of all other machines, and are continually reproducing surfaces similar to their own, it will manifestly appear of the first importance, that they should themselves be perfect models.

There is, it may be affirmed, no description of machinery which does not afford an illustration of the importance belonging to truth of surface, and at the same time, of the present necessity for material improvement; nor is there any subject connected with mechanics, the bearings of which on the public interests, whether manufacturing or scientific, are more varied or more extensive.

The improvement so much to be desired, will speedily follow upon the discontinuance of grinding; recourse must then be had to the natural process. The surface-plate and the scraping-tool will come into general and constant use, affording the certain and speedy means of attaining any degree of truth which may be required. A higher standard of excellence will be gradually established, the influence of which will diffuse itself throughout all mechanical operations, while, to the mechanic himself, a new field will be opened, offering ample scope for the exercise of skill, both manual and mental. The subject will be best elucidated by a description of the process.

There are two cases for consideration in reference to the preparation of surfaces—the one where a true surface-plate is already provided, as a model and test of the work in hand, and the other, where an original surface is to be prepared. The former case is that which more frequently occurs in practice; and here the method to be pursued is simple,

requiring care rather than skill. Colouring matter, such as red ochre and oil, is spread over the surface-plate as equally as possible. The work in hand having been previously filed up to the straight edge, is then applied thereto, and moved slightly to fix the colour, which, adhering to the parts in contact, afterwards shows the prominences to be reduced. This operation is frequently repeated, and, as the work advances, a smaller quantity of colouring matter is used, till at last, a few particles, spread out by the finger, suffice for the purpose, forming a thin film over the brightness of the plate. A true surface is thus rendered a test of the greatest nicety, whereby the smallest error may be detected. At this stage of the process, the two surfaces must be well rubbed together, that a full impression may be made by the colour; the higher points on the rising surface become clouded over, while the other parts are left more or less in shade. The dappled appearance thus produced, shows to the eye of the mechanic the precise condition of the new surface in every part, and enables him to proceed with confidence in bringing it to correspond with the original. Before this can be accomplished, however, a scraping tool must be employed, the file not having, even in the most skilful hands, the nicety and precision requisite to complete the operation. In this, as in almost every other mechanical operation, experience is the best and most certain guide to indicate when to exchange the one for the other. It will be found that when the parts to be operated upon have become to any considerable extent subdivided, scraping is much the more expeditious method. The scraping-tool should be made of the best cast steel, and carefully sharpened to a fine edge on a Turkey-stone, the use of which must be frequently repeated. Worn-out files, of the best quality, may be converted into convenient scraping tools. A flat file, with the broad end bent and sharpened, will be most suitable to commence with, and afterwards a three-sided or triangular file, sharpened on all the edges. It must be a matter of discretion, as before remarked, how far to proceed in working up the minute detail; but, as a general rule, it is absolutely essential that the bearing points, whether more or less numerous, should be equally distributed, and an uniformity of character preserved throughout. This rule should be carefully observed

during the progress of the work, as well as at its conclusion.

In order to insure the equal advance of all the parts together, particular attention must be paid to the colouring matter, as well to the quantity employed, as to its equal distribution. If too small a quantity be used in the first instance, it will afford little or no evidence of the general condition of the surface, as it will merely serve to indicate the particular points which happen to be most prominent, and to reduce them in detail, would be only a waste of time, so long as they are considerably above the general level.

When the surface is finished, if it be rubbed on the plate without colour, the bearing points will become bright, and the observer will be enabled to judge of the degree of accuracy to which it has been brought. If it be as nearly true as it can be made by the hand, bright points will be seen diffused throughout its whole extent, interspersed with others less luminous, indicating thereby the degree of force with which they respectively bear.

In getting up a surface of considerable extent, it is necessary to take into account the strain to which the metal is subject from its own weight, and the length of time required to produce the full effect on the external form. It will be found, for example, that after a piece of metal has remained for some days in one position undisturbed, it assumes a form different from that which it had while undergoing preparation. Hence it is desirable to provide for the work, while in hand, similar support to that which it will have when applied to its intended use.

Another disturbing cause is the unequal contraction of the metal in cooling when originally cast. The mass assumes a curved form, and is pervaded by elastic forces counteracting each other. These continue in permanent activity, and any portion of metal, taken from any part, tends to disturb the balance previously established. It remains now to consider the second case proposed—viz. how to prepare an original surface. A brief description of the proper mode will still further illustrate the case already considered, and will also show how surface-plates are to be corrected.

Take three plates of cast-iron, of equal size and proportionate strength. The metal should be of a hard quality, and the plates should also be well ribbed on the back to prevent springing, and each of them should have three projecting points on which to rest, placed triangularly in the most favourable positions for bearing. The object of this provision is two-fold—1st. To secure the bearing of three good points, before the plate suffers any strain from its own weight; and, 2nd. To insure the constant bearing of the same points. The plate would otherwise be subject to perpetual variation of form, owing to the irregular strain occasioned by change of bearing. A provision of this kind is equally necessary, while the plate is undergoing the operation of surfacing, and when it is subsequently used as a model.

In fixing the plates on the table of the planing-machine, care should be taken to let them bear upon the points before mentioned, and to chuck them with as little violence as possible to the natural form, otherwise they will spring on being released, and the labour of filing will be increased in proportion. It is proper also to relax the chucks before the taking the last cut. With these precautions, if the machine itself be accurate, and the tool in proper condition, the operation of planing will greatly facilitate the subsequent processes.

The plates are next to be tried by the straight edge, by a skilful use of which, a very small degree of inaccuracy may be detected.

Let one of the three plates be now selected as the model, and the others be surfaced to it with the aid of colouring matter. For the sake of distinction, they may be called Nos. 1, 2, and 3. When Nos. 2 and 3 have been brought up to No. 1, compare them together. It is evident, that if No. 1 be in any degree out of truth, Nos. 2 and 3 will be either both concave or both convex, and the error will become sensible on comparing them together by the intervention of colour. To bring them to a true plane, equal quantities must be taken from both in corresponding places. When this has been done with all the care and skill the mechanic may possess, and Nos. 2 and 3 are found to agree, the next step is to get up No. 1 to both, applying it to them in immediate succession, so as to compare the impressions. The art here consists in getting No. 1 between the two, which is the probable direction of the true plane. It is to be presumed that No. 1 is now nearer truth than either of the others, and it is, therefore, to be again taken as the model, and the operation repeated.

It will be observed that the process now described includes three parts, and consists in getting up the surfaces to one another in the following order:—

1st. Nos. 2 and 3, to No. 1.

2nd. Nos. 2 and 3, to each other.

3rd. No. 1 to Nos. 2 and 3.

These parts compose an entire series, by repeating

which a gradual approach is made towards absolute truth, till further progress is prevented by inherent imperfection.

In the earlier stages the operation may be greatly expedited by judicious management. It has been already remarked, but it cannot be too often repeated, that the general outline of the surface should be solely regarded in the first instance, and the filling up deferred till after general truth has been secured. By this method, the first courses of the series will be short, and the progress made will be both more speedy and more sure, the minutest detail being gradually entered upon, without the risk otherwise incurred, of losing previous labour. As, however, the surfaces approach perfection, the utmost caution and vigilance will be necessary to prevent them from degenerating; and this will inevitably happen, unless the comparison be constantly made between them all.

In the use of the surface-plate, especial care should be taken to prevent unnecessary injury, whether superficial or from straining. It should also be occasionally submitted to careful correction. In no other way can a high standard be steadily maintained.

It will be found convenient to set apart one plate for the purpose of correcting others, allowing it to remain entirely undisturbed; otherwise it would be necessary, at every revision, to repeat the process for obtaining an original surface, and a considerable loss of time would thus be occasioned.

A mistaken idea seems to prevail amongst mechanics, that scraping is a dilatory process, and this prejudice may tend to discourage its introduction. It will be found, however, to involve the sacrifice of less time than is now wasted on grinding; but were the fact otherwise, it would not be a valid argument against the preference due to the former. Nevertheless it is worthy of observation that, in this instance, as in many others, improvement is combined with economy, since there is not only an incalculable saving effected by the improved surface in its various applications, but there is likewise a positive gain of time in the preparatory process.—*Penny Mechanic.*

CHURCHES UNDER REPAIR.

THE repairs and restorations of the fine old church of St. Mary Magdalene, at Taunton, are in active progress. The noble columnar arch, hitherto obscured by the organ, at the western entrance of the church, has been preserved, deemed from its obscurity, and now presents, in connection with the ornamental roof, a beautiful feature in the edifice. The organ will be replaced; but by a lateral arrangement of the pipes, the surrounding architecture will be but partially suppressed. Some stained-glass windows, by Mr. Ray, contribute to the embellishments.

The restoration of Portsmouth church is in progress. One of the four lofty Norman arches, the only one remaining, which formerly supported the square tower, has been uncovered. It will be a work of labour to restore the tracery and ribbing which adorned it, as at present nothing but the plain stone outlines remain, and all the ornamental parts were swept away in 1698. The monuments of the Duke of Buckingham and others at the eastern end have been removed, and a Norman arch, with deep set window, in excellent preservation, discovered. Through this window, during the troubles of the Reformation, the officiating priest was shot at by a Lollard. A large circular-headed recess is also apparent in the northern transept, but whether it contains a window, or was one of the ancient shrines, is as yet unknown. If the large Norman arch be restored to match the two smaller side ones, the incongruous Corinthian cornice above it must be removed, by which a much greater appearance of elevation will be obtained.

Extensive repairs are in progress in St. Mary's church, Reading. During the course of last week three very ancient sedilia, of the early English architecture, were discovered in ruins behind the wainscoting on the south side of the chancel; the fresco painting at the back of them, and the encaustic tiles, being still in excellent preservation.

In St. Paul's church, Westminster, near Bristol, a new altar-piece has been erected in the perpendicular style, and in Painswick stone. The carving is exquisite; in all the spandrels are foliated; the buttresses terminated with crockets and pinnacles, and two handsome canopies with finials. The whole is appropriately decorated with the Tudor rose, portcullis, &c. The decalogal plates, executed in London by the celebrated Mr. Willement, are made to resemble tables of brass, and the letters are beau-

tifully designed in the ancient illuminated character. Mr. Henry Rumley, of Bristol, has superintended this work.

A very superb and magnificent font of Caen stone is just fixed in Exeter Cathedral. It has been wrought by Mr. Rowe, of St. Sidwell's, from a design drawn by Mr. Hayward, architect to the Diocesan Church Architecture Society. The basin, which is of the largest size, and capable of affording immersion to the infant neophyte, presents an exterior of very close and elaborate carving, enriched with a Latin inscription, engraved with singular neatness and precision. The pedestal is divided into eight niches, in which appropriate figures will be placed. This font is the gift of the Rev. Canon Bartholomew, and when completed, is expected to cost very little less than 100*l.* Mr. Rowe is executing another font to be placed in Broadcliff Church, the exterior carved in quartrefoils and roses.

The font of Harrow church, Middlesex, which for some forty years has been superseded and lain in a neighbouring garden, has been lately replaced. It is a fine Norman bowl, and being repolished has a handsome appearance. Hone, in his "Table Book," has represented it in its scene of retirement.

A stained-glass window has just been completed in Beckington church, near Frome. It is composed of three lancet openings, in the centre of which is the subject of our Saviour bearing his cross, from the celebrated picture at Oxford. This side compartments, designed by Mr. Owen Carter, architect, of Winchester, are of rich ornamental work. The whole is the production of Mr. Lygo, of Winchester. J. Hambrough, Esq., of Steeplechase, Ventnor, who built and endowed the church at his own expense, has, with his usual munificence, determined to have new side galleries erected at his own cost, which galleries will contain about two hundred additional sittings, and the whole are to be entirely new and unappropriated, for the use of the poor in the district.

On the morning of Whit-Tuesday, the church of Titmarsh, in Northamptonshire, was re-opened by the Bishop of Peterborough after having undergone the following other repairs:—1. Throwing open the western tower, thereby gaining one hundred and eighty seats for children, and throwing open to view a beautiful decorated window arch. 2. Building a new vestry-room on north side of the church. Paving and fitting up with free seats a chantry belonging to Pickering family, and given up to the parish by J. Pickering Orde, Esq.—*Gentleman's Magazine.*

LONDON IMPROVEMENTS.—Mr. Barry has completed the internal decorations of the Travellers' Club, which have been suggestive of much criticism. The arabesques are executed by Sang, a German, and some of them possess considerable merit. The erection of the new attic gives a very picturesque effect to the exterior, and to the group of which the Travellers' seemed, until this alteration, to be sunk. The new Conservative Club in James's-street is progressing apace, and is likely to be a magnificent feature in that palatial neighbourhood. Paternoster-row is to be invaded by the architectural splendour of the Religious Tract Society, having authorized the construction of a new building, which is now far advanced, and will become a stone column and pilasters, and will be a temple of piety, which we presume is to be.—*Globe.*

THE MILTON TABLE.—Our readers are aware that a tablet has been inserted in the exterior of Allhallows church, Broad-street, Chancery, commemorating the birth of Milton in that parish. It is a pity that this practice is not more extensively carried out in London, as it is abroad. We mention a few instances: the birth-place of the poet might be commemorated in Lombard-street; East Smithfield; Lord Bacon's house in Strand; Sir Thomas More in Milk-street; Shakespeare in East Smithfield; Byron in Fleet-street; Gray in Cornhill; and John Milton in Fleet-street.—*Polytechnic Review.*—Lord Byron born in Holles-street, Covent Garden square.

FRESCO PAINTING.

This branch of art seems destined to experience a revival in England under impulses and circumstances which have been denied, in a national point of view, to other and sister departments of historical commemoration. The standards of excellence in fresco are those efforts of the great masters which adorn the ecclesiastical, and some of the palatial edifices of Italy, and include all names of the greatest celebrity among painters, from the middle of the fifteenth to the close of the seventeenth centuries. The frescos of Michael Angelo and Raffael in the Vatican are familiar from description, and in magnitude, conception, and execution, undoubtedly surpass previous or contemporary examples; but though these have been most frequently seen and admired, the principal churches throughout the papal dominions exhibit the same mode of adornment. A style so productive of grandeur and effect, and harmonizing so perfectly with a ritual essentially commemorative, was cultivated with an assiduity proportioned to its importance; it is indeed to the devotional feeling of past times that we are indebted for the resuscitation of the arts, and through genius and talent, sought and fostered by the munificence of the Roman hierarchy.

The practice of painting in fresco the walls of churches extended to Britain at the early period, and when the artist had not ability to execute pictorial representations, gilding and colour in various fanciful patterns was substituted; remains of which are still visible in some of the older Norman structures. The style itself was co-extensive with the religion that adopted it, differing only in quality according to the capabilities under which it came into use. It was about the time that the Italian and Venetian churches had become replete with these splendid decorations that the reformed religion acquired vigour; and England, the centre of the anti-papal movement, produced in the sequel a genus of fanatics, who, warring not only with ancient altars, but with the throne, succeeded in overthrowing them. The arts, devoted as they had been to church decoration, were now to experience the fury of a crusade directed to the extermination of all similitudes of the human figure; sculptures, carvings, and paintings, whether effigies of kings or saints, whether portraits of emperors or of national achievements, met indiscriminate destruction; art sank with the spirit, and we may say growing refinement, that had been levelled and trodden upon, and for a long season abandoned a country which, we trust, is now to become and continue her favourite seat. It may not, we think, be reasonably objected that these introductory paragraphs have little bearing upon fresco painting; the plain and intelligible understanding we desire to convey on subjects of immediate interest applies here in an especial manner; the encouragement of art, the estimation and reward of its professors, and solicitous reservation of the objects of their labours, are evidences—the strongest evidences—of a feeling which assuredly extends to an exercise of amenities and benevolences which serve to distinguish, and go far to unite a people.

The restoration of Charles II., whose habits had been formed after the French models, fought in those vitiated tastes and manners which his reign was notorious; the grosser licence and indulgences of the court of his nephew Louis XIV. were adopted, but unaccompanied by a single trait of the redeeming purity evinced by that monarch. Hence, in error architectural decoration, the short-lived school beginning with the works of Sir Christopher Wren, and closing, or nearly so, with those of Thornhill at St. Paul's, and the old hall at Greenwich. To pass over the depressed state of art during the reigns intervening between that of Charles II. and the accession of George III., during which inter-portrait painting alone was encouraged and remunerated, we arrive at the period when, by royal favour, the often-mooted project for establishment of an academy of painting was realized. The first president of that institution, Sir Joshua Reynolds, had certainly the merit of being the founder of English oil painting; his plan of teaching, arising from his discourses, was impressive and calculated to raise the art, though the deficiencies of his skill fall short of the excel-

lence he has so well described in others. The advantage of a protracted residence at Rome had afforded him facilities for study, and he held up the magnificent productions of Michael Angelo and Raffael as models for emulation. Michael Angelo, whose name was the last word pronounced by Reynolds from the chair of the Royal Academy, was the idol of his professional worship, and with abundant reason, as the instigator of that great style which is alone worthy of adaptation for commemorative purposes. But although the president reiterated the merit of these works, applying to them the proper term "Frescos," he appears to have done so merely to designate the mode in which they were executed, and without any idea, or hint, of the desirableness of cultivating that species of painting in England; neither has it been suggested from the academic chair by any of his successors; in truth, the particular manipulation, to set aside the comparative effect of colours, may not be magically arrived at. It is the institution of a new school; the revival of an art, so far as England is concerned, which painting in oil had entirely superseded. The requirement of appropriate decorations for the new Houses of Parliament has, however, afforded a singularly favourable opportunity for testing the practicality and fitness of the style, and Mr. Barry, though not uniting in his own person all the qualifications of a Michael Angelo, most liberally avails himself of the great occasion in hand to associate the *élite* in auxiliary departments of art; his first invitation has produced the cartoons, an assemblage of efforts giving earnest of future eminence to many names, and removing many doubts as to the amount of latent talent awaiting a stimulus for action.

With respect to the art itself we have heard and read remarks highly unfavourable to its prosecution; of a long novitiate to be passed in its cultivation; of the unsuitableness of climate, of our partiality for exuberant colouring, of the inadequacy of our structures to the reception of examples in this "gigantesque art;" and, lastly, general observations upon the mediocrity of judgment which rules among the vast majority qualified, in a pecuniary sense, to promote the establishment of a high standard of taste. We are not disposed to question the existence of superlatively qualified critics, gifted (it may be) with a presentiment of limits that shall circumscribe and fetter native genius; we find them in other than the more elevated precincts of the fine arts; the legitimate province of criticism as a corrective is generally deferred to, but as a barrier to successive efforts of the thousand, or of the million, its overstraining is to be deprecated. While there may be a few individuals well-informed on the subject of fresco painting, there is much disagreement as to the manner in which examples in many countries were executed. The so-called frescos of Egypt, on the walls of temples and tombs, and those at Pompeii, Herculaneum, Stabia, and the baths of Titus, probably owe a modified preservation to climate, and not to the peculiar manipulation, which constitutes fresco. The ancients were well acquainted with the practice of painting in distemper and water-colours on stuccoed walls, and especially so with the preparation and use of hard, transparent varnishes, proper to the embellishment and preservation of such works; the Italian manner, with an energetic handling of events which sparkle on the pages of British history, and invite a transfer to the palaces and halls of her princes, legislators, and nobles, and of many a deed of individual patriotism or gallantry, which demands commemoration at the hands of British artists. Such works will at once excite a love of art, and an extension of the support due to its professors; and will any critic say that these are not objects worthy the solicitude of a government, and right worthy the cost that may be incurred in promoting them? The peerless imagination of a Michael Angelo, and the exquisite contours of a Raffael may be wanting, but the generous call will meet response from voices loud and musical, from forward spirits to be revealed in embodyments of the sublime and beautiful; and from a still larger class, useful in proportion to its extent, and amongst which genius dwells and revels independent of academic rules. The Burnses and Bloomfields of paint-

ing, though falling short in right conceptions of Milton or Shakspeare; of Norman chivalry, or the wars of the roses; ancient feats of daring, or the tortuosities of modern diplomacies, will be drawn from obscurity to distinction and reward.

BRITISH ASSOCIATION OF ARCHITECTURAL DRAUGHTSMEN.

SIR,—I have read with pleasure the circular stating the objects of the B. A. A. D., but with all due deference to the members, I beg to suggest that the society should be more extended in its members, and also in its views. Why should not original designs be allowed in object No. 2, of their regulations? as this would tend to bring out latent talent, and would shew to the world that architects and builders have been indebted to this class for something more than mere drawing; would oblige the draughtsman himself to think upon these matters, and thus carry out one object of the society, viz. to make themselves more useful to their employers, and consequently enhance the value of their services.

In giving drawings of buildings executed, it would be well that the artist should send a written description of the same, with sketches shewing any improvements in design he may consider could have been made; this would be good practice for himself, would cause discussion, and consequently improvement to all the members present when his productions are exhibited, and it should be open at any time to any member to make such alterations and suggestions, by sketches or otherwise, as they may think proper; by these means many new ideas would arise and be permanently fixed for reference when occasion may require them.

As an example of what may be done in this way, take one of the plain elevations of houses in Wimpole or Harley streets, they being generally of fair proportions, ready to your hands to receive decoration, with a bold rustic basement and entrance doors, architraves to the windows, massive balconies, throwing deep shadows, and enriched cornices; many of these residences would give grand elevations, and I think there are many of the noblemen and gentlemen living in those houses who, if they were aware they could be made handsome at a moderate outlay, would embrace the opportunity of doing so.

There is a doorway to a house in Berners-street, Oxford-street, occupied by Mr. Knight, by Sir William Chambers, the boldness and style of rustic I should like to see introduced into elevations of street houses; but columns on no account should be used as main features, as the frontages are too limited.

With regard to the extension of the members, why should not almost every description of draughtsman be included, those engaged in manufactures, such as upholsterers, cabinet-makers, decorators, and others? this would give a variety to the collection of drawings, and by being associated with architectural draughtsmen, would give them an opportunity of improving their taste in composition, and thus, through them, disperse a knowledge of architecture amongst the masses, and until the people are better informed on this subject it cannot be hoped that architecture can flourish; there is much to be done in the improvement of the ordinary dwelling, in its internal decoration, furniture, ventilation, and general arrangements of the plan.

In consequence of there being no place for the exhibition of architectural drawings, except at the Royal Academy, which is very limited, I should hope that one of the main objects of the society would be, after it is established, to have a public exhibition, on a broad and liberal principle, admitting every drawing sufficiently well done, including furniture and fittings, as then we might hope that the subject would draw the attention of the ladies, and having once brought them to think and inquire into the principles of architecture and furnishing, we shall find them our best patrons.

These few remarks are penned on the spur of the moment, for the consideration of the members, by one of the fraternity, with every wish for the success of the society so well begun. B.

SOMERSETSHIRE.—On Thursday, the 17th inst., the first stone of a new church was laid by the rev. the special commissary of the diocese of Bath and Wells, at Chantry, in the parish of Whitley, near Frome, Somerset. We understand that no less a sum than 8,000*l.* has been devoted to the object of building and endowing this sacred edifice, to which a school is to be attached by James Fussell, Esq., of Chantry-house, in whose ground it is to stand. The plans are furnished by Messrs. Scott and Moffat, and represent a very beautiful specimen of the decorated period.

DESCRIPTION OF THE CHATEAU D'EU.

Eu is chiefly remarkable on account of its Chateau, belonging to King Louis Philippe, who inherited it with the Comté d'Eu from his mother, daughter and heiress of the Duc de Penthièvre. His Majesty spends here in retirement a few weeks of every autumn. It is a low building of red brick surmounted by high tent-shaped roofs of slate, like the pavilions of the Tuileries, and is without architectural beauty. It was built in 1578 by Henry of Lorraine, Le Balafre Duc de Guise, on the site of a castle which had belonged in turn to the Lusignans, the Briennes, the Artois, the Cleves, and the St. Pols, and which was burnt down by Louis XI. (1475), to punish the treachery of the Comte de St. Pol. It has been much augmented by the present King, and splendidly fitted up, the walls being clothed with a collection of historical and family portraits, including those of the Royal Family and the various lines of the Counts of Eu, to the number of 1,100. Many of them are copies, others are mere furniture pictures; yet the collection is highly interesting, and the formation of it seems to have given rise to the grander gallery of Versailles, which this resembles on a miniature scale. There appears to be no other arrangement than that of making a certain number of pictures fit into certain spaces; names, dates, nations, and families are intermixed, and the walls are covered with them from the top to the bottom of the house.

As the pictures are chiefly valuable in an historical point of view, not as works of art, and as every one bears its name on the frame, it is useless to enter into long details, which would merely be to give a list of the most eminent names in French history. A few, however, are here noted down, as possessing some peculiar interest:—The Regent Duke of Orleans, by Mignard; Napoleon and his father, Charles Buonaparte. There are several portraits of the frivolous and Ambitious Anne Marie Louise de Montpensier, called sometimes La Grande Mademoiselle, who, after having aspired to the hands of her cousin Louis XIV., of the Grand Condé, of Charles II., and of the Emperor of Germany, was content at last to be married to Lauzun, a simple gentleman, and endured from him, according to report, the insult of being ordered, by the undignified appellation of "Louise d'Orléans," to draw off his boots! She often resided in this chateau; and one of these likenesses, at the age of 43, in which she is drawn holding her father's (Gaston Duc d'Orléans) portrait, is mentioned by her in her *Mémoires*. Her bedroom was that occupied by the present Queen. Some of the drawings in the Cabinet de la Coquille, on the first-floor, are by her. She became possessor of Eu by purchase from Mademoiselle de Guise, the last descendant of that family in a direct line, 1661. She bequeathed it to the Duc de Maine, natural son of Louis XIV., by Madame de Montespan, in the vain hope of ransoming Lauzun, her husband, from the Bastille. She first commenced the historic gallery of portraits at Eu, and her collection forms the groundwork of that still existing. At the back of one of the portraits of herself there is written by her own hand, "Bergere allant à la faite du Village voisin." Portraits continued—of Louis XVI., Marie Antoinette, his Queen, the Dauphin their son, who died in the Temple, and all the other members of their family; those of Louis Philippe and his family occupy the *Salon de Famille*:—the most pleasing and interesting is the Princess Marie of Wurtemberg, the sculptor of the admirable statue of Jeanne d'Arc. There are two portraits of Louis Philippe Egalité (died 1793), one as a young man in civic dress, the other in uniform, by Sir J. Reynolds.

One of the most superb and interesting apartments is the Galerie de Guises, filled with portraits of that remarkable family, who once owned this chateau; among them, Claude de Lorraine, with the armour and sword with which he fought at Marignan; François de Lorraine, Duc de Guise, who was wounded in the face before Boulogne by an English lance, and who endured the pain of having the lance head extracted from his cheek with a pair of

pincers, while the surgeon rested his foot on the duke's head to obtain a purchase. He was the successful defender of Metz against Charles V., and the capturer of Calais from the English; he was killed by the poisoned bullet of Poltrot, 1563. His son, Duc Henri Balafre, so called also from a wound in his cheek received from an arquebuse at the battle of Dormans. He began to build the Chateau d'Eu 1578; he was the chief of the Ligue, the hero of the Journée des Barricades, and the murderer of Coligny on St. Bartholomew's night. He was assassinated by Henri III. at Blois (Route 53), 1588, together with his brother, the Cardinal de Guise.

Marie de Lorraine, daughter of Duke Claude, Queen of James V. of Scotland, and mother of Mary Queen of Scots; Queen Mary herself in her widow's weeds of white (Royal mourning); Catherine, Duchesse de Montpensier, sister of Le Balafre, who revenged his death by instigating Jacques Clement to assassinate Henri III.; the Duc de Mayenne, brother of Le Balafre, commander of the armies of the Ligue against Henri IV., Henri II. de Lorraine, Duc de Guise, conqueror and viceroy of Naples after Masaniello's rebellion.

Of Louis XIV. there are several likenesses, also of his family, his mistresses, his generals, his court; and even more of Louis XV. In the billiard-room are Charles I. and II., Oliver Cromwell, Queen Elizabeth, Joan of Arc, and Agnes Sorel.

The superb Salle des Rois is so called because filled with portraits of kings and queens only. Here are Marie de Medicis, by Van Dyk, given by herself to Mademoiselle de Montpensier, and Henri IV.

In the King's Cabinet, among portraits of his own family, including his father, are Madame de Genlis, his preceptress, Pamela, afterwards Lady Fitzgerald, and Madame de Lambelle, who was murdered in 1793.

The small chapel, a mixture of Gothic and Italian in its decorations, has some modern painted-glass windows from Sevres; one is a portrait of St. Amelie, after a picture by Paul de la Roche.

The park or grounds are less attractive than

the palace, being a wilderness of trees, mostly weedy elms, planted in rows with angular terraces; a gloomy canal, and muddy circular ponds beset with willows. No advantage has been taken of the slopes of the ground—no taste shewn in laying out the brotherhood of alleys and formal parterres. Mr. Loudon might make something good out of it. Only on the left of the castle a few ancient beeches survive, beneath whose branches the Balafre Duc de Guise heard the suits of his vassals, and concerted plots against his sovereign. Here a small space has been railed in by the King, who has affixed this inscription:—"Ici les Guises tenaient conseil au XVI. siècle." At the extremity of the ground is a terrace overlooking the gap through which the Bresle, quitting the bare and dull valley, enters the sea, and the little village, Treport, is perceived at its mouth. On this terrace is a brick pavilion, fitted up by poor Mademoiselle, during the time she was banished to her estate at Eu by the tyrant Louis XIV., for refusing to marry the paralytic and imbecile King of Portugal. Louis Philippe has restored it, and ornamented it with pictures of the events of her life.

Treport, the port of Eu, three miles distant, is a fishing village of 2,265 inhabitants, having an old church with a fine portal. It is supposed to be the *ulterior portus* of Julius Cæsar.

There remain to be noticed at Eu the effigies of the Duc Henri de Guise Le Balafre, murdered at Blois, and of his wife, Catherine de Cleves, in the *Eglise du College*, originally of the Jesuits, who were established at Eu by Le Balafre. The church built out of the ruins of the old castle, as well as the monuments, were raised at her expense; they are rich in marble, but of no value as works of art. He is represented in armour, she in ruff and farthingale; there are duplicate effigies of both, attended by figures of Prudence, Strength, Faith, and Charity; Gillot was the sculptor. From the pulpit of this church, Bourdaloue preached his first sermon. On the Bresle, close to the palace, is a mill for making sea biscuits, established by an Englishman.—*Hand Book for France*.



DOORWAY IN SOUTH PORCH, THORNBURY CHURCH, GLOUCESTERSHIRE.

HOGARTH'S PICTURES.

TO THE EDITOR.

SIR,—The Fine Arts form but one great family, the members of which constitute so many links of the same chain, although, to our thinking, there exist two distinct sources from whence inspiration may be drawn, namely, the *physical* and every-day world that appears to us under an endless variety of forms, and strikes on our senses in a hundred different modes, borrowing at one time the sarcasm of irony, and at another, the touching simplicity which leads us to appreciate Nature's exquisite beauties; and the *symbolical* world modelled upon religious dogmas, and handed down by tradition from age to age, in which imitation plays but a secondary part, and objects are merely delineated to recal the ideas they are intended to convey. The artist here becomes a high priest, and acts under the direction of a religious instinct that points out what he is to inscribe on canvass, on stone, or on marble; the same religious inspiration guides him in all things—religion makes use of him as the faithful instrument of her ideographical writing, while she views the various *chef-d'œuvre* of art only as a solemn and lasting means of addressing posterity to the latest ages. For albeit we give the preference to these creations of the *symbolical* world that abound in the beautiful ogival structures that THE BUILDER is often pleased to reproduce for the instruction and amusement of its readers, we should think ourselves unjust were we wholly to overlook the productions of what we denominate the *physical* world, especially when the hand of a creative genius has set his stamp upon them; and on this account is it that we address you these few lines on the Hogarths discovered at Vauxhall, and brought to light and life again in the most felicitous manner by the conscientious and patient talents of the clever picture-cleaner, Mr. Gwennap, who may lay claims to the appellation of an artist.

On visiting the studio of Mr. Gwennap, in Titchbourne-street, Piccadilly, we examined several paintings worthy in all respects of the pencil that delineated "Marriage à la Mode," and all those charming pictures to which the public has free access at the National Gallery. "A Moonlight," "The Bonfire," and "The Bird's Nest," are the three leading pictures of this new collection of paintings redeemed from the smoke of the *fêtes* of Vauxhall, and which, thanks to Mr. Gwennap's renovating powers, have recovered, one its soft moonlight tints combined with the magical effects of a lamp that lights up the scene in the true Rembrandt fashion; the other, the bright glare and hot-looking effects of a fire; and the third, all the pure freshness of early morning. Mr. Gwennap has also renovated a "Judgment of Paris," attributed to Hogarth, in which the three goddesses, attired in the dresses of Louis the Fifteenth's time, are displaying their graces before a Paris, whom the painter has converted into a French *Pierrot*, no doubt intended as a double satire against the historical style, and the school of Watteau. This picture forcibly reminded us of a burlesque Judgment of Paris, painted by a French artist of some merit, M. Roehn, who has transformed Helen's lover into a cobbler, and the three goddesses into three saucy-looking peasant girls, who have applied to the Paris of the last to settle their respective claims to the possession of the neatest foot and leg. Although the French painter has imparted a great deal of *naïveté* and grace to his subject, he is, to our thinking, far surpassed by Hogarth in the personification of his figures. Those among your readers, Mr. Editor, who are fond of the fine arts, ought by all means to make a pilgrimage to Titchbourne-street, where they will find in Mr. Gwennap a well-informed dilettante and the most obliging of cicerones, who, besides the above mentioned, can shew them several other curious and interesting pieces, amongst which we particularly noticed a little sketch, sadly injured by time, but a gem in its way, entitled, "The Student;" and should any of the said visitors feel disinclined to follow the fashion of the day, and add their quota to the thousands who tender the pledge to Father Mathew, we only wish they would request Mr. Gwennap to shew them "The Debauchee," which "holds the mirror up to nature," and tells a "plain, unvarnished tale" with such startling and homely truthfulness, as to induce the most unbelieving to become a zealous proselyte to the great apostle of temperance. Surely, Mr. Editor, you will not refuse to promote so good an end, by inserting these few lines from one of your subscribers.

A MEMBER (though a silent one and without a diploma) OF THE TEMPERANCE SOCIETY.
August 16th.

A jetty, similar to that at Margate, is to be erected at Dover, in consequence of the inconvenience attendant upon the embarkation and disembarkation of passengers. A meeting was held on Friday at the Town Hall, and it was determined to commence immediately.



WINDOW IN THORNBURY CHURCH, GLOUCESTERSHIRE.



A NORMAN DOORWAY.

TO THE EDITOR.

SIR,—If you think the above drawing worthy of a place in your magazine, it is at your disposal. For my own part, I see no reason why doorways, &c. of less elaborate parts should not be engraved for

the benefit of the student as well as those splendid ones we meet with in various parts of the country.

I am, Sir, yours truly,

I. N. HAWTIN.

Bristol, August 21, 1843.

Literature.

De l'Art en Allemagne, par (Of Art in Germany, by) HIPPOLYTE FORTOUL.

[THIRD NOTICE.]

WE proceed to the author's account of architecture as it was made manifest in

THE TEUTONIC MIDDLE AGE.

"Whilst the Italians were constructing their churches and adorning their palaces with the relics of antiquity, architecture, which had penetrated to the north in company with faith, not finding on this soil virgin of ruins, those small columns that suggested the partition of the semicircular arch, took the more bold step of allowing its arcades to soar in full liberty, after a fashion that seemed emulous of the vast shadows of the German forest. The natural development of the religious genius in the west, the parallel progress of the science of construction, the knowledge of Saracen monuments which the Crusades had imparted, contributed, without doubt, to that happy corruption which substituted the ogival system for the Roman arch. A conjecture put forth by a man who died too early for science, M. Mazois, and to which I have heard M. Augustin Thierry lend the authority of his name and erudition, would furnish a more positive foundation to Gothic architecture, without excluding any of those influences which are ordinarily supposed to have developed the art of the middle ages. This conjecture, assuming a transformation which the example of antiquity and the inspection of several monuments and texts justify, makes the Gothic cathedral proceed directly from the Roman church, which itself is but an alteration more or less extensive of the Christian basilica; so that, in fact, it would establish the continuity of the great forms of architecture in the west. It is more than probable that at barbarous epochs, in the provinces comprised between the Somme and the Rhine, the difficulty of procuring stones, of hewing them and of fixing them, restored the use of wood in buildings, which was universally employed by the inhabitants of these countries before the invasion of Cæsar; in fact, the Gaulish carpenters, who had to imitate with materials familiar to themselves Roman structures, would naturally translate the semicircular arches of the porticos, the arcades, the windows, the vaults, by the ogive—the columns by clusters of small columns—the *oculus* by the carved rose—the circular chapels by polygonal chapels—the vast walls pierced with small windows, by small walls pierced with vast embrasures—the austere nakedness of the ancient basilica by the decorations, ever getting more angular, of the cathedrals. These translations undoubtedly obtained, and not unreasonably, much favour and esteem from the ancient Gallo-Roman peoples; and then, by the concurrence of divers circumstances since revived, they in their turn were translated into stone. Then it was that they rose from the small dimensions to which therefore they had been limited, to those gigantic proportions which, but for them, men would not have dreamed of, much less have compassed. Thus, then, construction in wood, which is the principle of Greek architecture, must be that of Gothic architecture also; thus Nature, according as she was interpreted by the Hellenic or the Teutonic genius, must have produced the most simple or the most complicated forms of human art. This opinion will never be very popular among the Germans, first, because it is too familiar, and then because it ruins certain pretensions to which their national pride is ardently attached. That which in France is vulgarly called the Gothic style, is designated on the other side of the Rhine, the German style; either of these phrases is too restricted, and it would be better to substitute, as do the Italians, that of Teutonic, which has a larger meaning, which designates the northern races in general, and which does not prejudice the geographical question as to the spot where the ogival system received birth.

"The architectural erudition of the Bavarian school could not well have abstained from producing a form so essential as that which is founded on the pointed arch. M. Daniel Ohlmüller, who was born at Bamberg in 1791, was the person commissioned to erect a small church in the old German style, as the phrase goes here. Where has he erected this monument? There is outside Munich, at a reasonable distance from the ramparts, on the other side the Isar, a village called Au; this village has been converted into a faubourg towards which the city stretches its arms as if to seize it. It is in this faubourg of Au, and in the midst of the pots of beer which working men there quaff, that Teutonic art has taken refuge. The church which M. Ohlmüller constructed at this spot under the invocation of St. Mary-of-Succour, is not entirely finished; when I entered it, people were employed in disguising the brick with that plaster, from which there seems no escape. The façade has one great merit, that of not exhibiting any ornaments

which are not the translation, so to speak, of some internal necessity. It is cut vertically into three sections by two ridges, the prominences of which announce the plan of the columns that divide the interim into three naves; the portal, which occupies the central section, is surmounted by a carved rose; each of the two extreme sections is pierced by an ogival window and a carved rose, the object of which is, as well companionship to the principal division, as the representation and illumination of the lateral naves. Above the three roses, small Gothic mouldings form a happy transition, and lead to the spire, single in its kind, like the portal, placed also at the centre of the façade, and delicately opened to send forth with ease the sounds of the bells which it shelters. On penetrating to the interior, I was much struck by the abundance in which the light is distributed, and also by a boldness in the launch of all the proportions that made me forget the contracted space which they occupy; the columns that divide the precinct are very graceful; the apside is rounded off; and, for the purpose of deceiving the eye as to the real dimensions, the choir is raised above the level of the church.

"I have not seen, however, that which will be most remarkable in this miniature cathedral; the nineteen windows are to be filled with most beautiful stained glass. At the moment in which I am writing they lie packed up for removal from a saloon, in which they were exhibited, to the church which they are to adorn. But though it was impossible for me to see them, I have seen some specimens so admirable, that I doubt whether the painters on glass of our day have any cause for envying the colourists of the fourteenth and fifteenth centuries. Before the year 1825, a citizen of Nuremberg, M. Franck, had successfully applied the process of the painters on glass of the middle ages; another inhabitant of that city, M. Schwartz, has since carried the labours of his countryman to perfection. The Messieurs Briserie, who have all along contributed so potently to the restoration of Christian art, have caused some small paintings on glass to be executed by M. Vörl, that are masterpieces of style and ability; I have seen some like them that are destined to ornament the windows of the romantic castle of Hohenschwangau, in which the energy of the tones and the complete transfusion of the colour are allied to those of compositions the most remarkable for character. The King of Bavaria has established in his porcelain manufactory a particular division for painting on glass, and has placed it under the superintendence of M. Gärtner, an architect, and M. H. Hess, a painter. The windows of the Teutonic church in the faubourg of Au, were executed there. May France soon produce the rivals of such beautiful works.

"One cannot help remarking the scrupulousity with which the Bavarians reproduce the monuments which they imitate. They give you bricks for marble and stone, it is true; but if they play tricks with the substances, the appearances are irreproachable. In France, and in the name of those principles of invention and liberty behind which they have entrenched themselves, the architects who have hitherto carried matters with a high hand in respect of their art, applaud themselves for remaining indifferent to those historic studies, in virtue of which a new generation has come to demand from them an account of the cold and equivocal taste that marks their monuments. Since the reign of Louis XV. there has been spread among us a passion for naked stone which was most singularly abused by the school of the empire. Even at this day we fancy we have done every thing when we have raised mere walls; and if, now and then, we attach to them some shreds of painted canvass, we are struck with admiration of our luxury and prodigality. The common-sense principle, that makes pre-existing wants the basis and rule of good architecture, ought not to be enforced with a rigour too Lacedæmonian; in art, as in philosophy, traditions have a considerable value, and should be suffered to enrich with all the treasures of human experience, the experience that is limited by a present necessity and mere dry logic. I have already spoken to you of a new school that is educating itself in ideas, more sound at once, and more comprehensive; there exist, without its bosom, distinguished spirits, whom the natural progress of the times is conducting to great thoughts, and who will assuredly make themselves room. Why is not their advent hastened? with their support, beyond all contradiction, it would be easy to surpass the German in learned combinations of historic forms, and, above all, in tasteful ornament; but now, it must be admitted, they have outstripped us. Their erudition can only be satisfied by correctness of manner in the monuments which they raise; this makes their works more complete, but also less natural than ours."

We confidently believe that much of what this last paragraph contains is true of our own country;—distinguished spirits are at work, though not united in a common school nor aggregated to a confederate sect, that will profit

by the learning and by the errors of our German kinsmen, and so establish a system of architecture, based as well on old historic forms as on the principles of invention and freedom, congenial with the exigencies of climate and the conditions imposed by materials at hand, which shall deserve the name of NATIONAL.

WARMING AND VENTILATION.

TO THE EDITOR.

SIR,—In your last week's paper (No. 29), there is a letter upon the subject of warming and ventilation bearing the signature of Mr. George Spencer, in which there are mis-statements in connection with my name which require refutation.

The letter professes to be an introduction to Mr. Spencer's own scheme for warming and ventilating; and this is commenced by bringing forward an example of what is denounced a failure in my system; a case in which Mr. Spencer acknowledges that no attempt whatever had been made at ventilation. Upon such points as these, however, I do not dwell, my present object being to correct the more serious inaccuracies into which Mr. Spencer has no doubt inadvertently fallen.

It is said that the apparatus the failure and inefficiency of which are fully described, had been erected in 1838 under my "personal direction" at the establishment of Messrs. Bentley and Co., in Burlington-street; but I beg to assert that I was never employed in its construction, and, moreover, that I knew not of its existence until the present occasion; and this fact, it is conceived, will exonerate me from all responsibility for any defects which may be apparent in the apparatus alluded to.

The principle of my mode of warming is also generally censured in the communication in question. I may, therefore, be permitted to add a few remarks in its defence; and in doing this, I would endeavour to remove from your correspondent's mind the impressions under which he seems to labour, by expressing my full concurrence with his views, that any room, by whatever means it may be warmed, should have ample provision for ventilation. Even if it be not warmed at all, ventilation is necessary for the comfort and health of the individual living in it.

I beg, therefore, to suggest whether your correspondent is not in error when he attributes the ill effects which are stated to have arisen from the use of the hot-water apparatus at Mr. Bentley's to this particular mode of warming, rather than to the absence of a proper ventilation.

The only object of this apparatus is to transmit heat from a furnace to the rooms of a building requiring to be heated; and I know of no other more convenient, more efficient, or more safe mode than this to effect that purpose.

Having, then, the power in this apparatus of transmitting and diffusing heat, it depends upon the knowledge and skill of the person employed, whether it be economically or judiciously applied so as to answer the purpose intended.

Mr. Spencer, in bringing forward this subject, might have selected some out of the numerous instances of complete success which this method of hot-water warming apparatus presents in various parts of London and elsewhere, when he would have been led to the conclusion that rooms may be and are warmed by these hot-water pipes without the prejudicial effects which he attributes to them; and, at the same time, exhibiting good specimens of ventilation, and great economy over the open fire-places.

Your correspondent evinces a laudable desire to be useful to your readers, and I shall look forward with interest to his promised "development of a system of warming and ventilating large buildings efficiently and economically."

I am, Sir, your obedient servant,
A. M. PERKINS.

No. 6, Francis-street, Regent-square,
Aug. 29, 1843.

ELECTRICITY GENERATED THROUGH THE AGENCY OF STEAM.—For a fortnight the Royal Polytechnic Institution is to be shut, in order that due preparation may be made for a series of experiments which are to be exhibited by an apparatus of an extraordinary character, which fully develops Mr. Armstrong's discovery of the power of generating electricity through the agency of steam. We shall avail ourselves of the earliest opportunity of making our readers acquainted with the truths that are developed. The directors are zealously and anxiously performing their duty to the public, and we trust that their efforts will be received as they richly deserve.—*Polytechnic Review.*

NORMAN ARCHITECTURE.

Nature, in her productions slow, aspires
By just degrees to reach perfection's height:
So mimic Art works leisurely, till Time
Improve the piece, or wise Experience give
The proper finishing."

SOMERVILLE'S "CHASE."

The style of architecture introduced by the Normans into England did not very materially differ from the last period of Saxon, the only difference discernible being in the magnitude and length of the buildings of the conquerors, for it must be remembered that Norman architects had been invited, and came to this country long before the Conquest; therefore it need not be matter of surprise there should be so little difference in the styles. It is an ignorance of this fact which has led many of our antiquaries to assign the date of a building as posterior to the Conquest, when, in fact, it was built anterior to it.

Waiving altogether any discussion as to the origin or invention of the erroneously called "Gothic" styles (a discussion which could hardly lead to any satisfactory results), I will remark, that however much our ancestors might have thought of fame in their own day, they did not seem to trouble themselves to publish it to future ages; and, as Mr. Milner observes, they were more anxious about being good than appearing so.

Almost immediately that William the Conqueror had taken possession of this country, he filled all the ecclesiastical benefices with his Norman followers, and they, having riches in abundance, soon set to work and pulled down most of the Saxon buildings of any consequence, and rebuilt them in a style of greater magnificence and extent; Saxon cathedrals, which before were only a hundred and twenty feet in length, now became extended under the Norman prelates to the length of six hundred feet, and old St. Paul's, in London, built by Mauritianus, was the enormous length of 690 feet. Such was the rage for building grand edifices at that time, that no less than twelve or fourteen cathedrals, nearly the same number of monasteries, and village churches without number, were erected in an incredibly short space of time.

The lay barons, for their own safety, were not behindhand in diligence: castles of a formidable aspect were soon to be seen in all parts of England; the store-house of human invention was ransacked for their service, and although the Norman castles cannot boast of the domestic comforts of the nineteenth century, yet they can lay claim to an originality of design and strength of purpose little inferior to the present time.

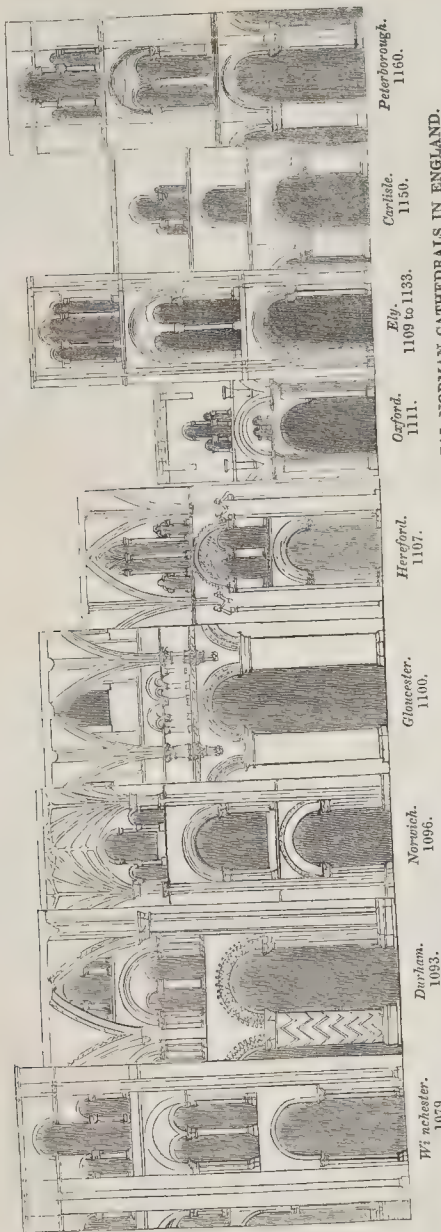
To quote a much-respected author in speaking of the style introduced by the Normans, and their rage for building, he says, "Such were the Normans at the time when they entered England, being without question the most valiant, magnificent, studious, enterprising, and religious people of the eleventh century; and, we must add, they were the very flower of Normandy and the neighbouring provinces, both in church and state, who crossed the sea and settled in our island. The Continent was despoiled to enrich England. Such being the character of the Normans, is it surprising that they should build such sumptuous edifices, such a bold deviation from any thing that had ever been done before?"

The general characteristics of the Norman style are boldness, both of the parts and of the whole, semicircular arches, sometimes with plain mouldings, but most frequently the mouldings are enriched with the zig-zag square billet, roll billet, or lozenge ornaments; and one great feature may be observed in the annexed engraving, taking one compartment—Winchester, for instance—the lower story has one opening, the second story two, and the triforium has three openings pierced in the wall, dividing the nave from the aisles; this is the case also with Durham, Hereford, Rochester, Oxford, Ely, Peterborough, and most of the abbatial and conventual churches.

The Norman style lasted about 150 years (allowing that its adoption in England was about thirty years anterior to the Conquest). The transition style, which succeeded it, was a kind of solidified conflict between two different kinds of arch, the semicircular and the pointed; but the latter finally conquered and reigned triumphant for a time; but that in its turn gave place to other styles, and it seems as though a complete war of stones, mortar, and novelty was kept up for a space of nearly five centuries, till finally the commotion ceased altogether.

In contemplating the interior of our Norman cathedrals, the mind is impressed with a feeling of the sublime, which later styles fail to excite, and it is not to association to which we must ascribe this feeling, but to the harmony and proportion of the parts to the whole, and to a certain manliness of character about it which inspires the mind with a religious awe.

J. L. C.



A COMPARATIVE VIEW OF (ONE COMPARTMENT IN THE NAVE OF EACH OF) THE PRINCIPAL NORMAN CATHEDRALS IN ENGLAND.

MR. BERNHARDT'S PATENT.

TO THE EDITOR.

SIR,—My object in writing to your journal was, to shew that flues, both horizontal and perpendicular, built in the thickness of walls for the purpose of warming and ventilation, were in use years before Mr. Bernhardt's patent, he having in his letters *claimed them as his sole invention. He has since acknowledged they were in use before* (and i. e. they are not his invention), thus contradicting his previous statement. Having thus gained the point I had in view, I wish to remark in reply to his last assertions, that if he had referred to my first letter, he would have found I had stated, that I did not know who was the inventor of the system shewn in the plan of the building sent you. For some reason best known to himself, such a straightforward

course he has not taken, being, I suppose, not adapted to his purpose.

The reply to the objections put forward by him is, that, after near sixteen years' trial, it answers admirably and suits the purpose intended (see particularly with the plans) without being open to any of them. As I am neither professor of warming and ventilating buildings, or curer of smoky chimneys, by an infallible method, or any other, I leave to him an open field to solicit orders, and for his full practice, assuring I do not envy him his "occupation," which, like that of *Othello* (if left to himself), will soon be "gone."

I am, Mr. Editor, your obedient servant.

T. H. C.

Ruthin, 26th August, 1843.

P.S.—I must beg of you, in fairness, to insert this answer to Mr. B.'s letter in *THE BUILDER* of this day.

SMOKE PREVENTION.

Report of the Select Committee of the House of Commons, appointed to inquire into the means and the expediency of preventing the nuisance of smoke arising from fires or furnaces, and who were empowered to report their opinion, together with the minutes of evidence taken before them, to the House.

The select committee having considered the matters to them referred, have agreed to the following report:—

In their endeavours to investigate the subject, your committee have deemed it expedient to call before them a variety of persons. They have received the evidence of the most eminent men in the science of chemistry, of practical engineers of high reputation, of leading master manufacturers and proprietors of steam-engines, and of the ingenious persons who had devised means and taken out patents for the prevention of smoke. The attention of the parties called to give evidence has been principally directed to the consideration of the following heads, on which their opinions were given:

1. Whether it was practicable entirely to prevent, or very much to diminish, the nuisance now so severely felt in large towns and populous districts, from the smoke of furnaces or of steam-engines.

2. Whether, if this were practicable, it would be advisable to take any steps to prevent the nuisance, as so doing might interfere with the property or interests of manufacturers, or of the proprietors of furnaces.

3. If, in the event of the two former questions being answered in the affirmative, they would recommend some legislative enactment to be framed to prohibit the nuisance of smoke.

In regard to the first of these questions, it appears from the whole of the evidence of scientific and practical men, including master manufacturers, that smoke, which is the result of imperfect combustion, may in all cases be much diminished, if not entirely prevented.

It appears to be the unanimous opinion of the witnesses conversant with the subject, that imperfect combustion arises from a deficiency of atmospheric air to mix with and act on the inflammable matter at a proper temperature, and under circumstances which must ensure its effective operation; that this admission of air properly regulated, is the great if not the only principle of preventing smoke which is generally applicable, and that all inventions for the prevention of smoke (except where the smoke has been separated mechanically by an artificial shower of water, produced in a flue constructed for the purpose), are only various applications, in different forms, of this general principle; even the flow or jet of steam which has been applied by some persons to prevent smoke in furnaces being merely a modification of this general principle, as, though steam may modify combustion, air must necessarily flow in with it, otherwise the combustion in the furnace is arrested.

The evidence before your committee further shews, that the admission of atmospheric air, under proper regulations, into the furnace, is productive of saving in fuel, by causing the particles of carbon which would otherwise rise in smoke and be wasted, to ignite, and thereby to increase the heat in the boiler.

It appears that the expense attendant on putting up whatever apparatus may be required to prevent smoke arising from furnaces is very trifling, and as some of the witnesses observed, the outlay may be repaid within the year by the diminished consumption of fuel. For additional information on this subject, your committee beg to refer to the evidence.

Several most ingenious patents and inventions for the prevention and consumption of smoke were laid before your committee, which, from the testimony of the proprietors of furnaces by whom they were adopted, appeared to answer the two-fold purpose of preventing smoke, and of lessening the quantity of fuel required.

The means of preventing smoke might also be applied to the furnaces of steam-boats, but such application would be attended with rather more expense than on land, from the occasional want of space and the setting of boilers in a steam-vessel. No doubt, however, existed in the opinions of those examined, that the pre-

vention of smoke could be accomplished in all steam-vessels.

The use of anthracite coal and of coke, as the means of preventing smoke, were not overlooked by your committee; but, being well known, need not be repeated here.

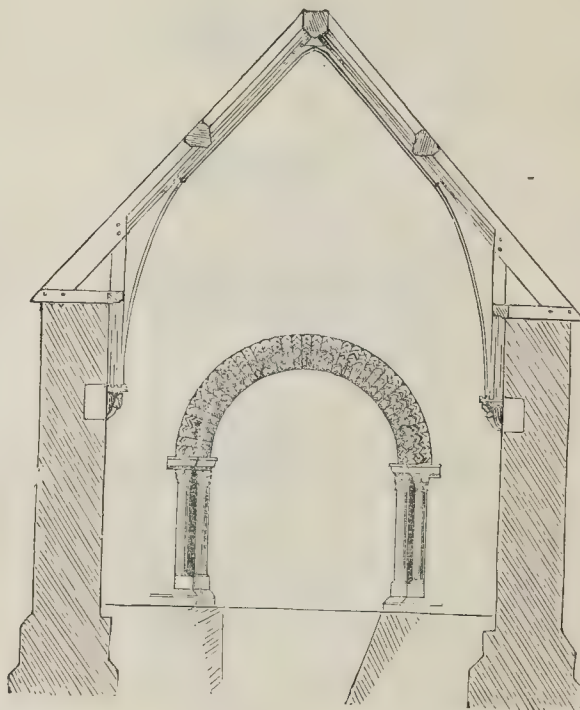
In reference to the last and most important point under the consideration of your committee, how far it will be expedient to frame some legislative enactment to lessen the nuisance from smoke, your committee, after a careful survey of the evidence before them, seeing that the evils arising from smoke are severely felt in all populous places, and are likely to increase in proportion as wealth and the use of machinery cause a greater extension of furnaces and steam-engines, come, without hesitation, to the conclusion that such a legislative enactment should be introduced without delay; and they trust that the perusal of this evidence will ensure cordial aid and co-operation, on the part of proprietors of factories, in accomplishing an object so essential to the well-being of the surrounding country and population,—an expectation which your committee feel justified in entertaining, by the knowledge of the laudable exertions which have lately been made with much success by the manufacturers and inhabitants of Leeds

and Bradford, in Yorkshire, for the prevention of smoke in those districts.

Your committee have received the most gratifying assurances of the confident hope entertained by several of the highest scientific authorities examined by them, that the same black smoke proceeding from fires in private dwellings and all other places, may eventually be entirely prevented, either by the adoption of stoves and grates formed for a perfect combustion of the common bituminous coal, or by the use of coke or of anthracite; but they are of opinion that the present state of knowledge on that subject is not such as to justify any legislative interference with these smaller fires.

In conclusion, therefore, your committee beg leave to recommend that a bill should be brought into Parliament at an early period of the next session, to prohibit the production of smoke from furnaces and steam-engines.

They indulge a hope that the matter will be thought of sufficient national importance to induce the government to bring in a bill; but in the event of their not doing so early next session, your committee recommend that the chairman of this committee should frame such a measure, as being the necessary result of the complete and strong conviction to which they have come by the prosecution of this inquiry.



SECTION OF ST. MARY'S CHAPEL, STOURBRIDGE.

Scale $\frac{1}{4}$ of an inch to the foot.

TO THE EDITOR.

SIR,—The above chapel formerly belonged to a priory founded in the year 1092, by Picot, a Norman lord, and his lady. At the Reformation it was granted, 38 Henry VIII., to Antony Brown, and 6 Edward VI. to Edward, Lord Clinton. I think you will agree with me that the design of the roof is very good; all the timbers are oak, and appear as sound now as when they were first framed. I think if the church architects were to follow this example instead of introducing tie beams, their roofs would look much better.

A fair called Sturbridge was formerly, and is still held in a field adjoining the chapel. It was returned upon inquest to King Edward I., that King John granted this fair for the benefit of the Hospital of Lepers, which stood there.

The Hospital for Lepers was dedicated to St. Mary Magdalen, and was before 1245 in the disposal of the burgess of Cambridge, till about that year, when we find Hugh de Northwold, Bishop of Ely, unjustly got the patronage of it.

There are no remains of the hospital, but the chapel which belonged to it is still standing, and was used as a victualling house in time of the fair.

In 1391, Robert Takell, then custos, died, and Fordham, Bishop of Ely, granted forty days' indulgence to all who assisted in the repairs of this chapel, or extended their charitable benevolence to the hospital.

Stourbridge takes its name from the little river Stour, or Stour, that runs by it.

I am, Sir, yours obediently,
Cambridge, August 21, 1843.

W. W.

MUSEUM OF THE HERMITAGE,
ST. PETERSBURG.

On it being first of all rumoured that Klenze had been commissioned by the Emperor Nicholas to prepare designs for a Museum at St. Petersburg, the natural supposition was, that the building was to be an entirely new and distinct one, as was the case with the Glyptothek, and the Pinakothek at Munich, the reputation of which most probably led to the architect's being employed by the Russian sovereign. It now turns out, however, that the structure will not add to the number of the architectural monuments of St. Petersburg, as it is only a rebuilding and extension of the Hermitage Palace, in which the "Raffaello Gallery," so called from its being a facsimile imitation of the Loggia of the Vatican, is retained. Still, if description may be trusted, it is very greatly superior to what has been removed to make way for it; and though only an appendage to the Imperial Palace, it is in itself much larger than many palaces, the general plan forming a parallelogram of 520 by 380 feet, English measure, which is not very far short of the area of the whole of the quadrangle and buildings of the upper ward of Windsor Castle. The largest of the inner courts is 215 by 130 feet; the general height of the façades 74 feet, and that of the pavilions at the angles, 106 feet. In regard to the character of its details, the style of design is Greek, and it would seem the design itself is in some respects similar to the architect's idea for the Panteonikon, at Athens, published in his "Entwürfe." Of the actual composition, however, it is impossible to speak from the verbal description given of it; for let the last be ever so correct as far as it goes, so many circumstances indispensably requisite to be understood, are passed over in it, that it is more tantalizing than satisfactory, leaving altogether doubtful some very material points. The *scenae frons* is of reddish granite, is 11 feet high, and must therefore be of colossal proportions, and produce a most imposing effect, if it be really what the term applied to it imports—a solid substructure, in appearance at least, without windows of any sort. Nothing being said to the contrary, we are left to suppose that such is really the case; but it would have been far more satisfactory to have been distinctly assured of it, since it makes a most prodigious difference indeed whether it be so or not. Colossal must also be the effect of a mass, nearly the entire height of the Reform Club House, but with only two ranges of windows, reared on such a basement. This part of the structure is of greyish stone, with some intermixture of reddish granite for the details, yet to what extent the latter is applied is not said; hardly at all, we should think, can it have been employed for any of the more delicate and enriched parts, and enrichment does not appear to have been at all spared, for we are told of arabesque panels, sculptured friezes, statues, some supported on consoles, others within niches, hermes-pillars, &c. &c. In short, the description makes magnificent promise to the ear; but whether the structure itself would keep such promise to the eye, we will not pledge for. Description is equally favourable to the interior, but equally perplexing also, being by far too indefinite; a vast deal of magnificence is spoken of—variegated marble columns, inlaid pavements of Grecian design, and other matters of that kind, but it is all shapeless. Almost the only part which we can figure to ourselves at all intelligibly is the grand staircase, 130 feet long, by 50 in breadth, with its twenty marble Corinthian columns, and three successive flights of marble steps (22 feet wide), ascending in a direct line. At any rate, in such a staircase there must be an air of extraordinary pomp. The rooms on the lower floor are intended for the reception of sculpture, vases, and miscellaneous antiquities; those above for a picture-gallery, distributed into a series of rooms, some very spacious, and lighted from above, as in the Munich Pinakothek, for larger pictures; others as cabinets, for smaller pictures, besides various loggias and corridors. The contents of the museum will be so arranged, that the apartments will have more the air of being decorated with them, as in a private palace, than of being the exhibition-rooms of a public museum, which sometimes give the idea of a bazaar, at others, of a chamber-house of art, stored with works, immortal, perhaps, in fame, but perishable, and even perished; interesting, but utterly illegible inscriptions, limbed statues, featureless busts, and pictures touched and retouched by time, till they have become only many grim blackened canvasses, and melancholy memento-mori.

Although the building was not begun until the spring of 1842, the Museum of the Hermitage is expected to be completed by the end of the present summer, notwithstanding its great extent and the prodigious solidity of its constructions. In some places such an edifice would have been the work of a quarter of a century.—*Art Union.*

AUCTION DUTY.

WILSON v. CAREY AND CUNNINGTON.

It is a common practice for persons who employ an auctioneer to sell property, to instruct another person to attend at the sale and bid, with a view to raise the price. Some very nice questions of law may spring out of such a proceeding; for instance, who is liable to the auction duty, that is, who is the highest bidder? What is a valid demand of the auction duty?

As a general rule, the auctioneer, agent, or seller by commission, is bound to pay the auction duty, which he may deduct out of the money he receives at the sale; and if he receive none, he may recover it from the vendor by action. Buying in by the owner, however, is a statutory exemption, if it take place without fraud or collusion, and notice be given in writing to the auctioneer *before* such bidding, signed by the owner, and the person intended to be the bidder, of the latter being appointed by the former, and having accordingly agreed to bid at the sale for his use, and if the delivery of such notice, as also the fairness of the transaction to the best of his knowledge, be verified by the oath of the auctioneer. It is usual to make some provision respecting the payment of the auction duty, as that the vendor and purchaser shall pay it in equal moieties: and where the purchase-money is liable to the duty, a stipulation of this nature should never be omitted, unless the vendor intends to pay the whole duty. The eighth section of stat. 17 Geo. 3, c. 50, directs, that in case it is made a condition of sale that the auction duty shall be paid by the purchaser, the auctioneer is to demand payment of it, "and upon neglect or refusal to pay the same, such bidding shall be null and void to all intents and purposes."

At the last spring Assizes for the county of Lincoln, the case, the title of which is prefixed to this article, was tried before Mr. Baron Alderson. It appeared that the two defendants, being partners, and jointly interested in the sale of certain lands, which they had employed the plaintiff to sell, one of them, Cunningham, *without the knowledge* of the plaintiff, engaged one J. Hames to make an advance of 100*l.* upon a bidding of 3,000*l.* for the lot No. 4, with a view to raise the price. The lot was knocked down to Hames for the sum of 3,100*l.* It was one of the conditions of sale read by the plaintiff, that the auction duty was to be paid by the purchaser *immediately after the sale*. The lot No. 4, having been knocked down to Hames, two other lots, belonging to different persons, were sold, and shortly after the end of the entire day's sale, the plaintiff demanded the auction duty of Hames, who refused to pay it, alleging that he had bid, not for himself, but for Cunningham. The defendants also refused to pay it. The plaintiff thereupon brought his action in debt, and at the trial it was contended that certain issues raised by the pleadings ought to be found for the defendant on the grounds, first, that Hames, being a mere agent *bidding* for Cunningham, was not to be considered as the highest bidder; secondly, that there was no legal demand of auction duty, the demand having been made, but at the termination of the *bidding* for lot 4, not at the close of the entire day's sale. Both points were overruled by the learned judge, who directed the jury to find a verdict for the plaintiff, reserving leave to the defendants to move to enter a verdict for them on the four issues.

On the 22nd and April last Serjeant Clarke moved accordingly, contending that the language of the statute 17 Geo. 3, c. 50, s. 8, "and upon neglect or refusal to pay the same, such *bidding* shall be null and void to all intents and purposes," shewed that the demand ought to have been made at the close of the bidding for lot 4, and not at the end of the business for the day; the object of the act being, that the parties should not be too late to enforce the previous bidding. The Barons of the Exchequer, however, unanimously refused the rule for which the learned serjeant applied; and Mr. Baron Parke said, "The first question depends upon the construction of the conditions of sale. Undoubtedly the auctioneer might have stipulated for the payment of the duty by the purchaser at the close of the bidding; but it is enough, for the decision of this question, to say, that no such agreement appears by the conditions to have been made; secondly, I think Hames is to be considered the highest bidder for the purposes of this declaration. The auctioneer was not in fault; he did all that was required of him; he did not know that Hames was bidding merely as the agent of Cunningham."

That the reader may understand this decision, it must be stated, that a purchaser of goods at an auction, cannot, by refusing to pay the auction duty, to which he is made liable by statute 17 Geo. 3, c. 50, s. 8, make the bidding void. Thus, in the case of *Mallins v. Freeman*, which is reported at page 614 of vol. 6 of Serjeant Dowling's Practice Cases, Chief Justice Tindal observed, "The

words of the act are large: that nothing is to restrain the auctioneer from making it a condition of sale, that the purchaser shall pay the auction duty; and he is authorized to demand it; and in the event of a refusal to pay, the bidding is to be void. I cannot distinguish this in principle from the case of *Doe d. Bryson v. Banks*, 4 B. & A. 401; and there it was held, that a lease of coals, containing a proviso, that it should be void to all interests and purposes, if the tenant should cease working, was not absolutely void by the lessee ceasing to work, but voidable only at the option of the lessor, and not of the lessee. We must put an analogous construction upon the act, otherwise we should convert this provision, which is intended to be a protection to vendors, into one favourable to purchasers, and by which frauds might be committed." The case which formed the subject-matter of this article gives a construction to the Act of Geo. III. still more extensive, a construction that will prevent concert between the vendor and bidder for the purpose of defrauding the revenue. If it were optional in the vendor, as against the crown, to vitiate the bidding because the bidder refuses to pay the duty, there being a stipulation in the conditions of sale that the purchaser shall pay it, it would be easy for the vendor and bidder to make an arrangement by which the revenue would be defrauded, and the vendor still have all the advantages of a public auction. In the case under consideration the vendors had, by means of a public auction, found a person willing to pay 3,000*l.* for lot 4; had a verdict passed for the defendants, they would have had the advantage of the auction without any payment of duty. Had the auctioneer had notice that Hames was the agent of Cunningham, he would have called upon him for the duty at once, and if the instructions of Hames were to let the property go for 3,000*l.*, he would have refused to pay the duty, when the bidding would have become void, and the property might have been knocked down to the next *bona fide* bidder. The auctioneer had no choice but to pay the duty, for the second section of statute 42 Geo. 3, c. 93, provides that, to exempt a vendor from payment of the duty, every notice of the appointment of a bidder must, at the time appointed by law for the auctioneer's passing his account of the sale, be produced by the auctioneer to the officer authorized to pass the account of such sale, and also be left with the officer. As the case of *Mallins v. Freeman* shews that the bidding, as between vendor and purchaser, is voidable at the option of the vendor only, it is obviously not incumbent on the auctioneer, in the discharge of his duty towards his employer, to demand the duty even at the end of the day's sale, though for his own convenience he will demand it then, or immediately after the bidding. The practical instruction to be gathered from the case of *Wilson v. Carey* may be thus expressed:—"Notice of the appointment of a bidder, and also of the lowest price for which the vendor is willing to part with his property, should be given to the auctioneer, who should be instructed, in the event of the appointed bidder being declared the highest bidder at a sum that exceeds the price named in the notice, to call on him at once for the auction duty, and, on his refusal, to declare the bidding void under the statute 17 Geo. 3, c. 50, s. 8, and knock down the property to the preceding bidder."

The appointment of a bidder, and a notice to the auctioneer embodying the instruction just suggested by one of several parties jointly interested, would appear to be good, even without notice to the other parties, because his right so to do would be clear in the absence of an agreement to the contrary; and were such an agreement to exist, there would be a remedy by action for the breach.

FOLKSTONE.—A great many workmen are now employed in forming the railway to the harbour; upwards of 20 houses are already down, and many more will be removed in a short time. The contractor for clearing the harbour has put on more men, who work night and day. The pier is being made wider, and is lighted with gas.

A valuable discovery of objects of antiquity has just been made by M. Bontarel, inspector of rivers and forests, in the Crown forest of Cornout (Finistère), not far from the chateau of that name, which is now in ruins. After removing a large mass of earth of a tumular form, and a large stone beneath it, a tomb was discovered in perfect preservation. It was formed of slabs cemented together with a wax-like substance, which on exposure to the air acquired the hardness of stone. In the tomb were found a massive gold chain, about 19 feet in length, the links of which were round, and six in number; six small arrows, formed of transparent flint; three lance-heads, one of which was of solid silver, about 18 inches in length, and a sword. Some remnants of ashes and baked earth were also remarked on the slabs. It is supposed to have been the burial-place of some distinguished Gaulish chief.

SCOTCH PATENTS.

(From the Repository of Patent Inventions.)

Luke Hebert, of Dover, civil engineer, for certain improvements in mills or machines for the grinding and dressing, or reducing and separating grain and other substances.—Sealed 13th July.

James Greer, of Woolwich, surgeon, for improvements in apparatus for securing or affixing standing rigging and chains, and other tackle.—Sealed 16th July.

Alonzo Grandison Hull, of Clifford-street, London, M.D., for improvements in electrical apparatus for medical purposes, and in the application thereof to the same purposes.—Sealed 15th July.

Joseph Daniel Davidge, of Greville-street, Hatton-garden, London, mechanist, for improvements in manufacturing certain materials as substitutes for whalebone, applicable to various useful purposes, and in machinery for effecting the same.—Sealed 17th July.

George Parsons, of West Lambrook, Somersetshire, and Richard Clyburn, of Uley, Gloucestershire, engineer, for certain improvements in machinery for beating, cleansing, and crushing various animal and vegetable materials or substances.—Sealed 18th July.

Richard Laming, of Radley's Hotel, New Bridge-street, Blackfriars, London, for certain improvements in the purification and application of ammonia, to obtain certain chemical products.—Sealed 19th July.

Sir John Scott Lillie, of Chelsea, London, Knt., for certain improvements in roads.—Sealed 19th July.

Extension to James Lancaster Lucena, of 4, Garden-court, Middle Temple, barrister-at-law, for the term of five years, of a patent granted to Elijah Galloway, for improvements in steam-engines, and in machinery for propelling vessels; which improvements are applicable to other purposes.—Sealed 20th July.

John George Bodmer, of Manchester, engineer, for certain improvements in locomotive steam-engines and carriages, to be used upon railways, in marine engines and vessels, and in the apparatus for propelling the same; and also in stationary engines, and in apparatus to be connected therewith, for pumping water, raising bodies, and for blowing or exhausting air.—Sealed 21st July.

LIST OF DISCLAIMERS

Of parts of Inventions and Amendments made under Lord Brougham's Act.

Thomas Parkin, disclaimer and memorandum of alteration to patent, granted to Thomas Harper Bennett, dated April 9th, 1839, for "improvements in railroad and other carriages; in wheels for such carriages, and in roads and ways on which they are to travel." Filed 22nd July, 1843.

FRENCH PATENTS.

FOR TEN YEARS.

To Townsend, of the United States, for a method of manufacturing iron.

Viscount de Travenet, of Paris, for an improved chain with curved links.

Varinet-Naquet, of Sedan, for improvements in the dressing of woollen cloths.

Piel, of Vitre, for a preparation of balm of copahu.

Vouret and Brillet, of Melun, for an improved pump.

FOR FIVE YEARS.

To Chagot, of Paris, represented by M. Perpigna, advocate 2, ter: Rue Choiseul, for improvements in the printing of calico, paper, and other surfaces.

Clouchet, of Pontacq, represented in Paris by M. Perpigna, advocate, for an improved mill for pulverizing plaster.

Dane Compagnon, of Beauvais, represented in Paris by M. Perpigna, advocate, for improvements in tanning.

Diot, of Lyons, represented by M. Perpigna, advocate, for an improved dredging machine.

Fouque, Sardon, and Armand, of Toulon, represented in Paris by M. Perpigna, advocate, for improved machinery for actuating the handles in looms.

Huckvale, of London, represented by M. Perpigna, advocate, for an improved method for weighing fluids.

Rice Williams Harris, of London, represented by M. Perpigna, advocate, for improvements in printing cylinders.

Royer, of Poitiers, represented in Paris by M. Perpigna, advocate, for an improved cooking apparatus.

Andries, of Calais, for a straight bolt-frame for making spotted.net.

Ardillon, of Paris, for improved opera glasses.

Armfield, of London, for a new system of hooks and eyes.

(To be continued.)

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1482)—Windows.—Due Assessment in 1834-5. Where an appellant was assessed in 1840 for twenty windows, the number then being, he was held to be duly assessed, though it appeared that he had opened seven new ones since 1834, and perhaps an eighth; it appearing also, that he was assessed for the year ending 5th April, 1835, for eleven windows, and therefore he did not account for two windows.

At a meeting of the commissioners acting for the borough of Wigan, in the county of Lancaster, in execution of the acts granting the duties of assessed taxes, held the 15th September, 1840, for hearing appeals against the first assessment of the said duties, for the year 1840, ending the 5th of April, 1841 (48 Geo. 3, c. 55, sch. A.):—The Rev. Charles Middlehurst, of Wigan aforesaid, appealed against an assessment in respect of the windows of his house. It appears that in 1834 the appellant was assessed for eleven windows, and he stated that he had opened seven, and that he was not quite certain as to an eighth, in pursuance of the privilege granted by the 4 & 5 Will. 4, c. 54, s. 7. The surveyor contended that the appellant was not, in his opinion, entitled to the privilege granted by that act, inasmuch as he was not duly assessed in 1834, as from his own shewing he ought to have been assessed for thirteen windows in that year, and that consequently the appellant was now liable to be assessed for the whole of the windows in his house.

We, the majority of the commissioners, having some doubt as to the appellant's liability to be charged for the windows opened since 1834, directed the assessment to be reduced from twenty to thirteen windows, thereby adding to the eleven windows assessed in 1834 the two windows omitted to be assessed in that year, with which determination the surveyor being dissatisfied, requested a case to be stated for the opinion of the judges.

Witness our hands the 4th day of February, 1841.

BENJAMIN POWELL.
WILLIAM LAMB.

18th May, 1841.—We are of opinion that the determinations of the Commissioners is wrong.

J. PATTERSON. T. COLTMAN. W. WIGHTMAN.
—Justice of the Peace.

LIGHTNING CONDUCTORS.

TO THE EDITOR.

SIR,—Your correspondent "C" states his copper-chain lightning conductor to have been placed "in" (i.e. within) his spire.

Shall I trouble you to tell me if "within" is meant, as I have hitherto thought it should be, fixed externally?

I am, Sir, &c.

A YOUNG CHIP.

London, Sept. 5, 1843.

MARINE GLUE.

TO THE EDITOR.

SIR,—In the 19th number of THE BUILDER, I find some useful information as to accounts, &c.; probably some one of your numerous subscribers will be kind enough to inform me, through the medium of your publication, the ingredients, with their proper proportions, used for making the marine glue, so much in use now in her Majesty's Dockyard, &c.

By so doing, it will greatly oblige yours truly,
T. M.

Fresco by EDWIN LANDSEER, R.A.—Very many artists visited Gwydyr House early in the month, to examine a small example in fresco, executed by Edwin Landseer, R.A. It simply pictured a page holding a pair of horses, with a brace of dogs. No attempt at composition was made, the object being merely to exhibit the ease and freedom with which the (to us) new material may be worked upon. In this respect it was fully successful; there can be no doubt that any painter will easily master the difficulty after a little practice; and there can be no question that after a time Mr. Landseer himself will attach no value to this first effort, which he will, ere long, or we mistake not, greatly surpass, if, indeed, he design to paint in fresco; for unquestionably the class of art in which he excels, and has carried to the very verge of perfection, is not the class to be coveted where walls of public structures are to record national triumphs.—Athenaeum.

ART UNION OF LONDON.—During the week ending Sept. 1st, more than 100,000 persons visited the pictures and other works of art selected by the prizeholders of the present year, at the Suffolk-street Gallery. In one day, namely Friday, no less than 25,000 persons passed through the rooms, and, fortunately, without the slightest accident.

Miscellaneous.

BRITISH MUSEUM.—At length preparations have been actually commenced for setting about erecting the facade of this national edifice, which it is to be hoped will be such as to make full amends for the total absence of architectural pretension on the other sides of the exterior. It is, however, greatly to be apprehended that, unless the architect has thoroughly re-considered his design, and improved upon his first ideas—about a quarter of a century ago—it will not now be found to answer public expectation. Since the works by him at the British Museum were first commenced, a very great deal has been done in architecture almost all over the country. Consequently, the facade of the British Museum will now have to sustain comparisons that, if unfavourable, must be doubly prejudicial, because it will come after worthier specimens, which it ought at least to rival, to be equal to, if not to surpass. We will say nothing of the New Houses of Parliament, they being so totally different in style, but there will be the noble portico of the new Royal Exchange, with its sculptured pediment, and the splendid Grecian facade, or rather facades, of St. George's Hall, Liverpool, which will have no rival in the metropolis, unless it should be in that of the British Museum. The front of the Fitzwilliam Museum, at Cambridge, is also a noble and strikingly picturesque composition, of more than usually ornate character. Shall we be able to say as much of our national as of that provincial one? Hardly so if, as we surmise, the style of the facade to the former will be of a piece with that of the elevations of the interior court, which are exceedingly frigid and meagre. We ought, perhaps, not to be so importunate as to make any surmises at all; and assuredly, there ought to be no room for doing so, because by this time, if not before, the public ought to have had some positive assurance afforded them of what they are to expect. Yet if such assurance has not been given, neither has it been refused, since it has not even been demanded. And to what are we to ascribe the universal apathy manifested on this occasion? Is it that, because the British Museum is not in the Gothic style, and does not particularly interest Camdenians, Ecclesiologists, and Puginists, it is, therefore, matter of perfect indifference what be made of it? It is very true, architects cannot hope now to get a job out of it; but is it, therefore, no concern to any one what it will eventually turn out in itself? The exclusive admirers of Gothic architecture would, perhaps, be not at all sorry should it turn out a complete failure, or, at all events, a namby-pamby affair; in which case, we shall be sure to have not a few injurious comparisons between the Museum and the Palace of Westminster, in which the Grecian style will be made responsible for whatever deficiencies may manifest themselves in the design of the first-mentioned edifice. Accordingly, it behoves those who espouse the cause of Grecian architecture to bestir themselves a little in the case of the British Museum, and not tamely stand by, leaving it to take its chance for better or worse, without making some effort to secure for us a splendid—at any rate a satisfactory—example of classical design. Let us on this occasion endeavour to wipe away some of the reproaches which, as a nation, we have not undeservedly incurred; nor let it ever have to be said that the facade of the British Museum falls far short of those at Berlin and Munich.—Art Union.

THE NELSON PILLAR.—The works at the Nelson Pillar continue to progress rapidly. The men employed in fixing the several castings which form the Corinthian capital have completed that part of the work. The whole of these castings are of the best bell-metal, weighing several tons. They are fastened together by the insertion of immense hooks into proportionate eyes, and strongly rivetted. Next, several more tons of stone will be raised to the summit to form the plinth upon which the statue is to be placed. The full-length figure of the hero is in a state of considerable forwardness. It is hewn out of two pieces of Cragleith stone of great hardness. When joined, it will stand 17 feet in height, and some idea may be formed of its proportions, which are beautifully preserved, from the simple fact that the foot, from toe to heel, measures three-quarters of a yard. It will be some time before the statue is placed upon the pedestal. The rest of the design, which is very elaborate, exhibits a simultaneous and satisfactory state of progression.

FOREIGN CONTRIBUTORS TO ENGLISH EXHIBITIONS.—As we have reason to know that in consequence of the purchase of M. Jacobi's picture by the Art-Union of London, for 200 guineas, several French and German artists intend sending pictures to our exhibitions in March and May next, it may be well to state that the committee of the Art-Union design to enact a law excluding from purchase the works of any except British artists.—Athenaeum.

HIS LATE R.H. THE DUKE OF SUSSEX.

The Proprietors have the highest satisfaction in being able to announce to their numerous readers, that they will be enabled next week to present to their notice

TWO SPLENDID ENGRAVINGS

FROM AN

ORIGINAL DESIGN

OF THE

PROPOSED SUSSEX MEMORIAL.

As a greatly increased demand is anticipated, orders are requested to be immediately forwarded to the Office, 2, York-street, Covent-garden.

THE BUILDER,

NO. XXXII.

THURSDAY, SEPTEMBER 16, 1843.

ALL SAINTS CHURCH, LEAMINGTON.

It may be necessary in again reverting to the subject, which we are constrained to by receipt of Mr. Jackson's letter, to explain that it arrived in our absence last Wednesday night; this will show that no time had been by that gentleman in meeting the issues of the Rev. Vicar of Leamington, as set forth in our previous number. If we had been at it, it would hardly have been convenient to give an insertion to Mr. Jackson's letter last week, for our readers may be given to understand that the circumstances under which we publish, oblige that most of our paper should be made up in the earliest days of the week: this explanation may be of special use as of general service, and now we proceed to the remarks that appear to us to be particularly called for.

And here we must pause for a moment at the threshold of our court of inquiry, to enforce, as it seems incumbent on us, with the best arguments we may use, the importance that attaches to this species of inquiry. If we could upon it in any thing of the spirit of participation, leaning to our professional brother on one hand, or to our patronizing friend on the other, we should be unworthy of the post we sit to, or of the confidence we seek to repose in us. JUSTICE is our aim, and the object of our service. Justice, not stern justice, but clement, benignant, merciful—justice, administered by human hands, is not justice, and wicked tyranny—it is an impious usurpation of the superhuman prerogative—it is in the scales of a day the issues of eternity. Man with man has need to be all-merciful-placable, to be just. Who shall be in the balance, and found not wanting? It surprises some of our readers to find us so impressed, and seeking to impress with a sense of gravity and solemnity in discussion of this question. Trifles such as these give the character for just dealing in the eyes of the appointment or rejection of an agent—and here again let us beg that our sense of human justice be borne in mind—concerning the adoption or rejection of plans, scribbles and pencillings; trifles, trifles concerning the reputation of an architect, and discrimination in favour; trifles like these, for unfortunately we feel to be making use of the right for the public mind; trifles like these are the subject of grave and solemn attention and inquiry! Good heavens, and exclaim, what a farce! To have to

adjudicate on matters of right and claim to territory,—to a foot of land on this or that side, an easement or water-course, a drain,—to settle the boundaries of an acre or a rood of land by the breadth of a ditch or the stump of a hedge,—the privilege of a pane of glass in this direction, or ingress and egress on that,—to determine a horse warranty, to assess the damage of a trespass, to award on a bet or matter of debt,—these are issues of gravity befitting the solemnities of a tribunal; calling for the presidency of the ermined seer, the empannelling of a jury of "peers," the advocacy of trained and subtle disputants, the forms and ceremonials of a court, and, above all, the awful solemnity of an oath; these are matters, say the good public, that we can understand and appreciate, but an inquest on professional fame impugned and maligned, on the right to mental conceptions, labour, and creations, on the department of those privileged with the custody of *such stuff!* who ever heard, or could think of such things? Good Public, you must be brought to hear, to think, and to ponder on such things, and to give them prominent place in your consideration, or England must remain what it so long has been,—inferior, sunken, lost in the sphere of art; poets, musicians, painters, sculptors, architects, philosophers, divines, burning lights and popular excellence in no one walk of high art can you expect to have, without a great reform in all this; great in war, great in policy, great in commerce, great in mechanical skill you may be; but the life, the soul, the intellect of greatness will be wanting; and wanting these, you are but the gaunt skeleton, the dry bones of a great mammoth, eyeless, tongueless, bloodless, brainless, heartless, and your power so much the greater, so much the sooner, like Belshazzar's, will be written down in its doom upon the wall.

Deaf ears and vacant astonishments will be turned upon our exord. What in the name of wonderment can all this pother amount to? Again, we say, it is not for us to tell, but for you to appreciate. The day is not far distant, and, by God's help, we will hasten it on, when the empire of mind will have its sway; when its privileges, rights, immunities, will be understood, and trespass on blood will be safer than upon blood's continent—the seizure of life more free, than murderous profanation of the seed of life.

This ALL SAINTS affair is a little matter, and it is a large matter, for it involves a large principle; as the little globe partakes of all the properties of the globe of which it forms a myriadth, so does this in hand involve as much as we care to dwell upon in the arrest of error. The Rev. Vicar of Leamington and his once confident-presumptive have done us the honour to appear in our court; but there is another witness wanting, or rather another party, whom we shall not presume to cite, not doubting, however, that he will come forward, and this is Mr. Mitchell. He can say with speech unknown to either of the other two, how far he is carrying out the designs and conceptions of his predecessor, and upon what ground he feels to be justified in it. The case is not too high to set any one above accountability, it is not too low for inquiry; and we would fain that the principle of accountability, and the privilege of inquiry should be put upon a right basis for this once, as a precedent for all.

If Mr. Mitchell be qualified for the task he has undertaken, in the sense conveyed by the rev. vicar, and not disputed by Mr. Jackson, he is also competent to help us out in a correct decision on the matter before us; the

"modest merit" which his reverend patron testifies to, and to which we shall be happy to bear witness, may not be best exemplified in silence now; the modest sense of one's own talent is generally accompanied by an active perception with regard to another's. Oh, we should not be wanting in great architects now-a-days, if manly virtue, if Christian virtue lived freely in and were encouraged among us. We have a tale in our recollection, but the names are not certain to us just now, which we will tell. It has perhaps a higher reference, but do we not always draw from high example the precedent for humble imitation?—it is of ARCHITECTS, and a PATRON, and a PEOPLE, in so far as we bring them forward, worthy of each other. Let us recommend it to the attention of our readers, and of those more immediately concerned in this matter.

A king of France sent for an architect from Italy to prepare designs for, and to build him a palace in the capital. Honoured by royal commands, the architect set out on his journey, his reputation preceding him, and he was met on his entrance to the French metropolis with greetings and applauses, and entertained at court with honours such as few but sovereigns receive. He was himself a sovereign in the realms of art; but the *uninherited* distinction, the crown of genius, which he so nobly had won and worn, were accompanied with fit associate gifts and virtues. That eagle-eye which had prompted his soarings in the sphere empyreal, glared not with unholy ambition, was bleared not with selfish and mercenary efforts at inward looking, but shone bright and piercing; in it true modesty was indeed enthroned. He saw that France had her architects, and renounced for himself the short-lived distinction of building a palace for the immortal renown of recommending a French contemporary. Art had made them brothers, and presenting himself before his generous patron, he claimed for and assigned to his brother his privilege. "France, Sire," said he, "has her architects in her own children, wherefore send you for me?" Not the commands of a patron, and still less had he been a capricious one; not the commands of a ROYAL PATRON; not the glory of building a palace for a king, under the eye of a nation, and to be seen and admired by the world, could tempt that great man to swerve from the path of virtue. Brotherly love and brotherly justice,—for where had he brothers so near and so dear as in the house and temple of their common mother, Art,—brotherly love was not to be profaned under the roof of that illustrious. He retired without strife, nay, he drew forth and placed under the caressing hand that was designed for his own, the head of his brother; he retired, but how did he retire? The welcome, the acclamation, the glory, of his entrance into Paris was a mockery of that of his going out; he was venerated, worshipped, and adored by the populace—yes, the populace, enrolling all in its ranks, king, nobles, citizens, did full measure of homage to this more than conqueror of nations—this conqueror of self; and Art, and Architecture in particular, has this golden narrative living in her archives, to stimulate her children in all times of future reading, to emulate the more than princely virtue of him of whose example it so eloquently speaks.

Now we will not say a word more; the minister of peace, the best interpreter and guide in the halls of charity, and who has shewn himself keenly alive to the call for the fitting and beautiful decoration of the sanctuary of the God of charity,

sure we are that he will not have the pillars of that beautiful temple sprinkled with the blood of ranklings among brethren. Oh, it is no fable to tell us of stains indelible on floors and pavements where murders have been committed: there are eyes, and Heaven gives such to true ministers of its truths, that can see where these confront the view. Murders, said we? "he who loves not his brother is a murderer."

We care not for papers, though of these we have had supplied to us all which speak of merits and demerits in their essence; a beautiful plan is before us, a "CATHOLIC" PLAN, as the rev. vicar is said to have instructed, and we cannot credit that a hand has been put to it whose deserts ought not to have carried them through. Bickerings, the offspring of our little passions, will now and then arise, but if in inferior things, in matters of petty amount and consideration, decency hastens to soothe them down—if in large affairs, forbids and represses them. Let the good vicar reflect whether he has not yielded something to provocation, and *proved too much* against one in whom he must have placed some share of confidence, and let him JOIN THE HANDS OF the separate, to prevent unholy jealousies, vain dissensions, profanations, and sacrilege.

WOOD PAVEMENTS.

It will be in the recollection of our readers, that we were, singularly enough, thrown upon the choice of Mr. Stead's patent to illustrate our first reference to wood pavements. We had not then seen his specification, although we felt that considerable merit, on the score of priority alone, was due to him. Knowing how much that man has to encounter who first braves and contends against public prejudice, even in introducing matters for the benefit of that same public—knowing how much Mr. Stead must have been assailed with ridicule, and laughed at, as a whimsical and idle projector—how much money he must have spent in overcoming the prejudice, the sneer, and the jeer—how much anxiety he must have suffered, and how much of disappointment must have beset his path, we felt it were a pity if his title to the protection of a patent depended not on a comprehensive expression, large as the measure of his risks, rather than on a mere description of form of block. His appeared to us a case like that reported of Columbus, who exemplified the merit of his own labour of discovery by making an egg stand on end; Mr. Stead made the egg of wood paving, so to speak, stand on end; he shewed the practicability, he smoothed the path, and was followed, as is natural, by a host of minor or secondary inventors. What care we about the publication of Mr. Finlayson or Mr. Heard's letters, or Sir W. Worsley's laying down a bit of spruce pavement at his own doorway for the comfort and luxury of his visitors? none of these gentlemen had thought it proper to run the large and fearful risks of bringing the invention into public and general use, and for all they did, the public were in point of fact not a groat's-worth the wiser or better. Hundreds of men may see the advantage which is to be reaped publicly or privately by certain inventions and expedients, but if they put not one finger forward, or choose to shrink from every little sacrifice that may be necessary to till the ground, sow the seed, to watch, to water, and manure the crop, shall it be said that they ought to have the "lion's share" of the reaping of that crop, or debar others who have done the things they have declined, or were

not inclined to do? Patents are rewards or protections, extending over a very brief period, to protect not only an inventor of a new mechanical or other product, but the inventor and practical introducer of a new thing of public usage and advantage, and it would be inequitable in the extreme if, after having solved the practical problem in all its essence, he were free to be superseded on mere matters of form. We do not deny the ingenuity and the merit of future labourers in the field, but what we protest against is, that looseness in the law which risks a man's whole deprivation through the dexterity of mere second thoughts. A remedy may be wanting, and a means of securing the due reward of improvers, and we think this remedy should be sought for diligently; but we do sincerely trust that the issue of this case of Mr. Stead's will be to confirm him in his full title of the first public-spirited mover and adventurer in, a matter of, so much public advantage as wood pavement secures. We were to have had first facilities for giving a full and authentic report of the trial, and we do not assume too much in holding that we had a priority of title to it, as the organ of that class most competent to take cognizance of the matter; but some self-sufficiency or insufficiency in some quarter precluded it. Nevertheless, we do of ourselves, undisparingly, make good the *laches*, or the negligence that lies at another door.

SUSSEX MEMORIAL.

It is our intention next week to present our readers with two full-page engravings of a design for the proposed Sussex Memorial, by Mr. Joseph Hansom, the architect of the Birmingham Town Hall, to be accompanied by a description, including some remarks on memorial structures generally. We trust they will be considered so far valuable as to justify our calling special attention to the forthcoming number by this notice; we have in preparation other important papers and illustrations of the works of our leading architects; and we hope that the example thus set will be followed up by contributions to what we may term our Gallery of Architectural Exhibitions, seeing how miserably deficient the country is in any other resource or means of publicity.

NEW PUBLIC BUILDINGS.

As soon as we can collect all the necessary information, we propose giving a tabular statement of all the churches and other edifices of public interest in England, which are now in progress of building. We must request our friends in the country to assist us with the following information relative to any public building now in course of erection in their neighbourhood; namely, title of building and its situation; name of architect and builder; when commenced; first stone laid; probable time of completion; with any other particulars. Should we receive the co-operation we now seek, it will enable us to make up an account of all the new buildings in England, which, in our opinion, must prove interesting to all classes of our readers.

MASONS' PROVIDENT INSTITUTION.

We are almost ashamed to prefer any matter in this paper to the remarks that appear to us to be called for in reference to the above subject. A printed circular, of the date of the 28th of August, is in our hands, which sets out with the following important heading:—

"In pursuance of a resolution passed at a meeting of the Mason's Trade, it was unanimously resolved, 'that a committee should be appointed,

with power to add to their number, for the purpose of raising a fund to effect a most desirable object—viz. the erection of an asylum, and permanent maintenance of the aged and infirm members of the trade.'"

To do justice, however, to this subject, we must know more of the details, and have to beg their transmission, when we promise to pay our best attention to it.

MODERN BUILDINGS.

"A NEW publication, called THE BUILDER, has recently made its appearance, and we hope it will meet with the success it deserves. It contains much information, both of a practical and scientific nature, besides the usual quantity of general matter appropriated to the columns of a newspaper.

"Notwithstanding the prodigious number of houses which have been run up of late years as rapidly as if erected by the architect of the nursery, who raised the famous house that 'Jack built,' it may be questioned whether any of these houses are built on any well-conceived and well-executed principles.

"Thousands have been so frantically erected in all our large towns that, after a few years they are a source of constant expense and endless trouble to their owners, being neither wind nor water tight, the foundations being ill-drained, and the walls and carpenter's work so slight that, when once decay begins, the cheapest way is to pull the whole down and rebuild. Our houses are also so constructed owing to the value of frontage-ground, that large portions of them are underground, and bad situations are always damp and subject to miasma.

"Most of our houses are also very cold, partly owing to the thinness of the walls, and partly to the mode in which they are constructed, by which there are always draughts right through. In Germany, houses are erected which are nearly of the same temperature winter and summer. Great attention is paid to aspect—the house always facing the south, so that the sun warms, airs, and lights three sides of the building. All the windows and doors are in one of these three sides, a few on the north side.

"The moment the front door is open in modern houses in England, a hurricane, windy weather, forces itself into the house, and nothing but slapping and banging of doors is heard. The temperature is instantly lowered several degrees, and colds, rheumatics, cough, influenza, and a thousand other evils are the consequence.

"All these evils are avoided by simple means in the houses in Germany. The hall, noble, useful, and most comfortable adjunct to a house of tolerable size, is now generally dispensed with in our modern houses, and a narrow passage, with a door back and front, and the staircase in the middle, is the most proved substitute, and has generally come into use because of the frontage; but, however general the practice, however imperious necessity that has led to its adoption, it does not shut our eyes to the inconvenience and ill consequences to which it gives rise. One of our kitchens are also situated undergound, and the fumes from them in some of our houses are diffused, to the no small offence of the olfactories, all over the house and into the bed-rooms. As far as business is concerned, it is necessary that houses should be built in a line adjoining each other, so form a street; but no such necessity exists in building the houses of the gentry and people in independent circumstances; and a taste detached houses is shown in every direction round the metropolis and will doubtless extend to other parts of the kingdom. THE BUILDER contains many useful hints and even plans and designs for houses of this description; and it is important in the subject of the dwelling, the humbler classes become, that the government itself has sent out plans, &c., for better construction, and certainly a comfortable habitation, whether for rich or poor, is a matter of the first consideration: and as buildings are constantly going on, those interested cannot do better than consult THE BUILDER, periodical that we have been noticing."

[We quote the foregoing remarks from Sheffield Trib., not the more readily or because our journal is favourably noticed.]

for the other merits of the paragraph. If we had done no more good than to suggest the occasion of a popular treatment of the subject of building art in a paper of the standing of the *Sheffield Iris*, we should not have laboured in vain; by-and-by builders and building statistics will come to have their proper consideration in all popular vehicles of information as in this.—Ed.]

THE MERCHANTS' HOUSE, GLASGOW.

Sir,—I enclose you a notice of the new Merchants' House, Glasgow, which I have extracted from the *Courier* newspaper of that city, a paper distinguished in that quarter for its devotion to architecture, and for the many judicious criticisms thereon.

I may add that much more sculpture is yet to be done before the building is finished. In the frieze already executed there are 125 figures all in alto-relievo, and the frieze in that part of the building appropriated to the Savings' Bank is also to be ornamented in the same style. Mr. Buchan has been commissioned to embellish the pediment in a style similar to that of our new Royal Exchange, and, among our rising young men, none are more capable of executing the task to the satisfaction of his employers, the public, and his own honour, than Mr. Buchan; he is well known to many of our London artists, having been a considerable time located amongst them.

I remain, your old friend,

A PRACTICAL MASON.

Pimlico, September 11th.

"This splendid edifice, lately erected in Hutcheson-street, is eighty feet in front, is three stories in height, and forms a centre compartment of a division of Wilson-street, the new County Buildings forming the left wing; and though harmonising in its architecture with these buildings, is more ornate in character, as containing the large hall for the meetings of the wealthy merchants of Glasgow. The first story forms a continuous basement or pedestal, supporting a columnar ordonnance of Grecian-Corinthian columns, flanked by pilasters, having enriched capitals. The frieze is ornamented with sculpture, and the cornice is enriched with dentils and modillions, and a honeysuckle ornament to the upper member. The parapet is recessed behind the line of the columns, which are in full relief, to make room for a row of vases above each classic form, and wreathed with flowers. Breadth and simplicity of effect has been studied, the windows being enriched, save by plain pilasters—the only ornament on the general surface being a simple wreath on the dados of the windows. The example on which it is taken is that elegant little Grecian temple the Choragic monument of Lysicrates—the columns not being attached as in the example—and capitals reduced something in their height. The pilasters and capitals are a combination from the statues of the large temple at Eleusis, and the capitals of the Choragic monument, the acanthus leaves and hawk's-beak, with expanded wings, supporting the abacus, being from the Eleusian temple, and the helius and flowing tendrils from the Choragic monument. This is the only modern specimen which we have seen of this beautiful order executed on so large a scale, with the exception of the two columns at the entrance to Exeter Hall, and as a triumphant proof of the superiority of this order as practised in Greece over the Roman—the being easy, flowery, and graceful; the other stiff, stolid, and formal.* (See the capitals of the exchange, which are from the best Roman example.) The sculptures on the frieze are carved in stone. The centre figure represents Neptune, with his trident, seated behind his finny coursers; to the right, left of the monarch of the deep are two groups, one allegorical of a large river—the Clyde, of the other the shipping and manufacturing rest—being a boat in which are seated three on lords, with bales; it is to be presumed, of the material. The other figures are illustrative of traffic over the globe; the elephant and lions of climes which pour forth their treasures to enterprising merchant. Some of the figures are engaged in friendly intercourse—one points to a globe. These speak of the effects of commerce in promoting unity and advancing science. At one point is the allegorical representation of home, in which is a group of girls strewing flowers to the return of the travellers, &c. &c. But the sculptures of this frieze are chiefly adaptations (the works of Flaxman and Thorwaldsen, it is not pretend to that unity of design which it have been expected had it been an entirely composition. The execution is very able and good, and does great credit to the artist, Mr. Buchan of this city; and we hope the example here set will be followed in future public buildings, as no ornament can be more appropriate for the decoration of flat surfaces, or be in better keeping with the chaste simplicity of Grecian architecture.—Flowers or foliage may give a character of richness to a building, but they never can inspire sentiment or feeling; and in a city like this, already so distinguished for the extent and variety of its public buildings, it is scarcely creditable that an art so elevating, and which calls forth a thousand pleasing associations, should be allowed to languish. The internal accommodation of the Merchants' House embraces—besides the large hall and rooms for the secretary and directors—the National Security Savings' Bank and two counting-houses. The Savings' Bank, which is now occupied, is large and commodious, the telling-room being the whole depth of the building. It is divided into two compartments, by an open curtain or screen, composed of columns and pilasters, the capitals of which are to us a novelty, and are exceedingly chaste and beautiful. The whole arrangement of the ceiling and walls, which seem to us exceedingly happy. The ornaments are few, but judiciously disposed—having altogether a degree of simple elegance which we have not seen equalled. The principal entrance, which is in the centre of the building, opens into a corridor 10 or 12 feet wide, to the sides of which are attached a range of pilasters, resting on a continuous basement of Ayrshire stone. The walls and ceiling are designed in harmony with each other, the mouldings having a fine breadth and simplicity. In keeping with the external architecture, at the termination of the corridor, is the principal staircase, which leads to the large hall; two massive pedestals are placed on either flank as you ascend (which, we believe, are to receive sculptured groups); leading off the first landing is the Directors' Room, a fine apartment, having a highly decorative frieze and ceiling; the spaces in the ceiling are filled with flowing tracery, which is finely brought out and relieved with colour. From this landing to the ceiling the staircase assumes a more imposing character; the walls, ceiling, and dome are united and blended in fine harmony; the dome is, in our estimation, the most successful thing we have seen; the light is so introduced as to produce a fine aerial softness, without the eye being able to detect from whence it cometh. An opportunity is here offered, perhaps intended, for fine pictorial illusion or sculptural effect, which should not be lost, and we have no doubt will be taken advantage of by the munificent projectors of this building. We now come to the hall. The length of this room is 76 feet, its breadth 36, and the height of ceiling in proportion. We should, perhaps, say nothing on the design of this truly magnificent and finely-proportioned room, as the finishings are not quite completed. Of the ceiling, however, we may say a few words—and here the architects seem to have given the rein to their imagination, and to have lavished that ornament with a profuse hand, which they seem to have held in check in the approaches to this, the great object of their efforts—the *ultima thule* of the design. A cove, one-fifth of the height, surrounds the rooms, springing from a highly-enriched Corinthian cornice—the flat part of the ceiling forming one immense panel, which is again divided into a variety of pleasing geometric forms. Three large panels, set in deep frames, highly enriched, and of elegant design, range along the centre; these again are surrounded with a variety of smaller panels, filled with bosses and flowing tracery; the larger beams have bold pendants at their intersection; and the smaller ones, surrounding the larger panels, are enriched with a beautiful running ornament, and have rich ties at their intersection; *antæfixæ*, of chaste design, are placed on the cornice at the springing of the ribs, and the spaces between these are panelled and enriched with carved mouldings. Besides its other embellishments, it is intended, we have been informed, to place the statue of the late Kirkman Finlay, Esq., for which a liberal public subscription has already been made, in this magnificent hall, and we can hardly conceive of a more appropriate situation. In conclusion, we have only farther to remark, that the architects of the building, Messrs. Clarke and Bell, Buchanan-street, have evinced the possession, in a high degree, of a sound judgment and a cultivated taste, both in the external and internal decorations; and, so far as we have heard, the edifice altogether is regarded with almost unmingled admiration. To the members of the Merchants' House, as well as the architects, this must prove highly gratifying; and to the latter, who are young men, we believe, it cannot fail to be highly useful in their future professional career.

Sufficient funds have been obtained to erect a monument to the late heroine of the Fern Islands, in the church or churchyard of Bamburg, the resting-place of her mortal remains.

CURVES OF FANCY EQUATED.

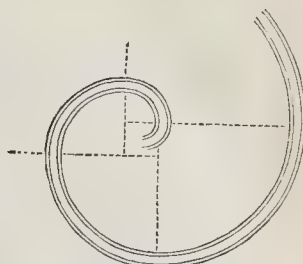
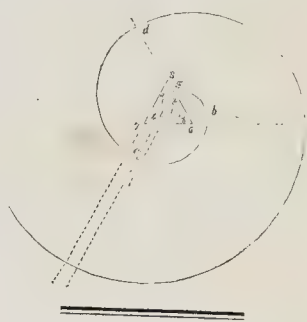


Fig. 2, Problem 6.

PROBLEM VII.—With compasses to describe spirals from centres, variable under a given law.

First, let a trace 1, 2, 3, 4, 5, 6, &c., be drawn round any regular polygon; and produce the lines 1, 2, 3, 4, &c.

With 2 as centre, and distance 2 1, describe the arc 1 a; with 3 as centre, and distance 3 a, describe the arc a b; and with 4 as centre, and distance 4 b, describe the arc b c; describe c d, with 5 as centre, and in this manner the spiral 1, a, b, c, d, &c., may be traced.



ROTHERAM CHURCH.—The workmen employed in cleaning and improving the Rotheram parish church discovered upon the walls some highly curious and interesting paintings in fresco, which have become almost obliterated by dirt and the hand of time. The principal work surrounds the arch above the entrance to the aisle on the western side of the church, and is apparently intended to represent some one of the traditions of the Romish church. In the centre, over the point of the arch, is a half-length figure of our Saviour, surrounded by a great number of figures, with their hands clasped in a devotional attitude. The design is extremely rude, and the figures are drawn in a hard and Gothic style. The figures are about four feet in height, and each is distinctly defined by a broad black outline. Such, in fact, is the general character of the painting, that there would seem to be little doubt that it is of a remote date; if, indeed, it is not coeval with the erection of the church itself. The date of the erection, as many of our readers will, no doubt, be quite aware, is not accurately known; but it is conjectured to be in the reign of Edward IV., about the close of the 15th century. Several authorities concur in the opinion that the church was built under the auspices of Thomas Scot, a native of Rotheram, who was Bishop of Lincoln and subsequently Archbishop of York, to which dignity he was elevated in 1480. He died at Cawood in 1500. The practice of ornamenting the walls of churches and other buildings in this country appears to have had its origin at a period long anterior to the one in question, for, says Walpole, the national records allude to certain pictures with which the walls of Royal chapels and palaces and other buildings were ornamented so early as the reign of Henry III., by William the Florentine, Monk of Windsor, and Master Walter, of Westminster. But few specimens, however, of the state of British art at that period of our history now remain; and, therefore, those which are now discovered are the more curious and interesting. We understand that Mr. Alport, artist, of Rotheram, is engaged in making a drawing of the picture above described, with a view to the publication of a lithograph plate.—Doncaster Chronicle.

The estates and property of the British Iron Company, which cost them 1,644,626l. 15s. 4d., and which were valued in 1841 at 1,078,667l., are now offered for 200,000l.

WOOD PAVEMENT—INFRINGEMENT OF PATENT.

NORTHERN CIRCUIT—LIVERPOOL, SEPT. 1.

STEAD V. WILLIAMS AND OTHERS.

This was an action by Mr. Stead, the original patentee of wood paving, against the defendants, for infringing his patent.—Mr. Martin and Mr. Webster were for the plaintiff; and Mr. Warren for the defendants.—Mr. J. Duncan (of 72, Lombard-street) was solicitor for the plaintiff.

It appeared that the defendants (the Metropolitan Wood Pavement Company), who have a patent of their own for a certain form of block in wood paving, had been employed to lay down several of the streets in Manchester after their improved mode. The question in dispute was, the validity of Stead's patent, which was taken out in 1838, and confirmed by Act of Parliament in 1841, and by the specification of which the wood was to be cut in blocks of equal sizes and dimensions, and of square, sexagonal, and triangular forms, which embraces every angular shape, and placed on a hard surface of gravel rolled smooth. It was recommended the wood should be saturated with tar, and covered with tar and gravel, the interstices being filled up with sand or gravel, and dowels being used to join the blocks together; but these latter matters were not claimed as part of the patent. This mode of paving had been, it was stated, communicated to Mr. Stead by a foreigner. There were several pleas on the record, in substance as follows:—1. Not guilty; 2. That the plaintiff was not the true and first inventor of the process; 3. That this was not a new manufacture; 4. That the discovery was not useful; 5. That it was not properly described in the specification; 6. That long before the patent was granted the invention was well known in this country; 7. That the title of the specification was too large and vague.—The principal questions between the parties were, respecting the second plea—whether the plaintiff was the first inventor in this country; and the sixth plea—whether the invention was publicly known in this country before the patent was granted. As to the first, it appeared that in the *London Journal of Arts and Sciences*, in the month of March, 1825, there appeared a letter from a Mr. Finlayson, recommending a pavement for the streets of London and other large cities, the principal material of which was to be wood. It was proposed that the blocks of wood cut square and slightly tapering, were to be inserted into oblong iron boxes, so large as to contain eighteen blocks, each block to fit into a socket prepared for it, the slight tapering being intended to make the block fit more securely; these boxes, laid alongside one another, were to constitute the pavement, the iron bottom of the box being intended to prevent one block sinking more than another. No public notice, however, appears to have been taken of this suggestion—the mode recommended, however effectual it might have proved, being too expensive for general use. In 1832, a Mr. J. Heard wrote a letter to the Society of Arts, which was inserted in their *Transactions*, and for which the thanks of the society were voted. It described a road which Mr. Heard had seen made near St. Petersburg. The surface was first to be prepared by making a hard level bed of gravel, well rolled, about ten inches lower than the intended level of the surface of the road. The blocks were then to be cut, by a stamp being driven down upon them, of a sexangular form, and placed alongside of one another on the prepared surface. A hole three inches deep was to be drilled in the side of each block, into which a pin of six inches long was to be inserted, the three inches which would project being intended to fit into the next block; the whole was then to be covered with tar, and sand scattered on the top. In March, 1834, a communication was addressed to the Society of Arts, calling their attention to Mr. Heard's letter, and remarking that he was not the original inventor of wood paving, but that it had been previously recommended by Mr. Finlayson. It appeared that the *London Journal of Arts and Sciences* had an extensive circulation, both here and abroad, and that the proceedings of the Society of Arts, besides the copies sent to the members, are extensively distributed to the public. Of the 49th volume, in which Mr. Heard's letter appeared, upwards of 1500 copies were printed, 800 of which

belonged to members. The rest were distributed in various quarters. As to the sixth plea, evidence was given of a species of wood pavement having been previously used in various parts of the country to a small extent. At Brook's Wood, near Trowbridge, a path, a quarter of a mile long, was many years ago made by cutting young trees and thick branches into short lengths, and placing them on end alongside of one another, sometimes fitting them a little when otherwise too irregular. The same plan had been adopted at the Box Inn, in Surrey, and at Dorking, in 1823, for paving the ground round the entrance to a house, and for the floors of summer-houses. In 1827 Hammersmith-bridge was paved, or rather floored, with wood. Planks were laid longitudinally on the frame-work of the bridge, and these were crossed at right angles by others. Between these latter, however, were inserted pieces of plank, with the end of the fibre upwards, which rose an inch above the surface of the cross plank. The shallow spaces between these planks was then filled with gravel, and in the course of time more gravel was laid on until the railroad of the bridge assumed the appearance of a regular gravelled road. The most remarkable case, however, was that of the residence of Sir William Worsley, in Yorkshire. It appeared that a kind of vestibule had there been paved with regular blocks of wood. This vestibule, as it was called, led from the riding-school to the pleasure-green. It was under cover, and carriages drove into it for the purpose of setting down the parties in them. The blocks were about eight inches long, sexangular, and being made to fit into one another, were driven down with a rammer into a substratum of sand, in the same way as paving stones. They tapered, however, from the middle to the bottom more than those used by Mr. Stead. In other respects they were precisely similar. It appeared that in 1818 a patent was taken out by a Mr. McCarthy for a mode of cutting stone or other suitable material for paving roads. The object of this was to so shape the stone, &c., that each piece would derive support from the others, and the pressure would be extended over a wider surface. In 1827 a patent with a similar object was taken out by a Mr. M'Namara. Wood, however, was not mentioned as one of the "suitable materials" to be employed. Stead's patent was the first for paving with wood. Since it appeared, however, forty-nine have been taken out for that purpose.

His Lordship, in summing up, went over the several issues. He said the plaintiff complained of his patent, and it was admitted that if the patent was a good one the defendants had exercised a right which belonged to him. The first important plea upon the record was that alleging that the plaintiff was not the true and first inventor in this country. If he had derived his knowledge from books or publications known to the public, or from persons in this country, he would not be the true and first inventor under the statute. If, however, he derived his knowledge by a communication from abroad, and was the first person to convey the project into execution here, he would be entitled to the protection of the statute. In his specification it was recited that the plan had been communicated to Mr. Stead by a foreigner. Of this no proof had been adduced, but, on the other hand, no direct proof had been adduced by the defendant to show that these publications in this country had come to the knowledge of Mr. Stead. It would be for the jury to say, under all the circumstances, whether they thought he had such knowledge of them. If he had, the plan proposed by Mr. Heard seemed as nearly as possible identical with that of the plaintiff. It was not, however, sufficient on this plea to deprive a man of his patent, to show that another person had previously entertained the same idea, if the patentee had himself been the inventor, and had not derived his plan from the inventor who had preceded him. As to the sixth plea, that long before the patent was granted the invention had been publicly known in this country, there was a very great difference between a knowledge of it as a thing that would suit, and a mere experiment resulting in the invention being cast aside as impracticable. In such case, the party carrying it out might be the inventor. In the present instance it would be for the jury to say how far the paths, &c., spoken to by the wit-

nesses, were laid down on the same plan suggested by the plaintiff. The most important case, certainly, was that at Sir William Worsley's, a block of which had been produced. There the pavement in question had been in use for a very considerable time; it had been used for carriages to pass over, and its existence had been a matter of common knowledge to the inmates of the house, or to visitors, or any person making use of it. Whether such a plan, if publicly made use of, had been used by one or six, made no difference, and, in his opinion, if the jury should think the two plans identical, there was an end of the patent. That, however, was a matter for their consideration solely.—The jury, after being shut up for nearly two hours, returned a verdict for the plaintiff.—This important case appears to resolve itself into a very narrow compass—whether Mr. Stead's patent is a valid one? and whether the surveyors of Manchester have infringed upon that patent, by using the Metropolitan Company's blocks? The verdict on both points has been given in favour of Mr. Stead.

BLASTING AT THE DOVER CLIFFS BY A NEW MACHINE.

We learn from the *Dover Chronicle* that during the past few weeks several interesting experiments have been tried with a new invention for exploding gunpowder. The apparatus used, although merely a model or small machine for shewing the principle of the invention, is capable of exploding several charges simultaneously, at distances from one to two hundred feet. The agent employed in this plan is common electricity, collected in Leyden jars. It will occur to those who know anything of electricity, that it cannot be produced save in very dry weather. The inventor, Mr. R. W. Thompson, a young Scotch engineer, has overcome this difficulty by a truly ingenious discovery. He surrounds the battery and cylinder by an atmosphere kept dry by art: in other words, he encloses the apparatus in an air-tight box. The provision for drying, and keeping dry the air in this box, is extremely simple—a small vessel containing some dried chloride of calcium being placed inside is all that is required. So great an affinity has this substance for water, that it absorbs all the moisture from the air in the box, and quickly renders it perfectly dry. The box being air-tight, the air contained in it of course remains dry, notwithstanding the dampness of the atmosphere. The wires being previously arranged, the electricity is discharged through the bursting cartridges, one of these being placed in each bore or mine. In this plan of blasting, unlike the Galvanic method the whole of the electricity goes through each bursting cartridge, the conducting wires being cut, and the ends placed a little apart. Of course a spark takes place, and explodes the substance of which these cartridges are made.

The expense and inconvenience of working galvanic batteries have altogether prevented their general introduction; and although their means the advantages of simultaneous blasting have been clearly established, yet they have proved too complicated to be used in the way in ordinary excavating or quarrying operations. Mr. Thompson's Electrical Exploding Machine is certainly on a much more convenient and simple plan, and will quickly recommend itself to those who are engaged in excavating or quarrying works. Nor can the beautiful invention for improving the electric machine, by placing it in an artificial atmosphere, fail to be appreciated by those who have occasion to use electricity either in the lecture-room or laboratory.

Cavalry and infantry barracks have been commenced at Newport, Monmouthshire. The walls will be about ten acres, and estimated cost of the erection is reported at £40,000, to 50,000. Messrs. Rennie and Laidlaw are the contractors.

The system of allotment of land, as a means of relief to the citizen, has been carried out to a great extent in the neighbourhood of Leicester, and progress is watched with great interest and anxiety. Hitherto those that have received the allotment from the society are industrious and assiduous in their endeavours to bring their plots to the highest state of cultivation; and the results, as far as matter has gone, are most favourable, both on a moral and physical point of view.

EJECTMENT WHEN THE RELATION OF MORTGAGEE AND MORTGAGOR SUBSISTS BETWEEN THE LANDLORD AND TENANT.

Doe d. SNELL and SHORT v. TOM.

A NOTICE to quit must be given previously to bringing ejectment whenever there is an existing tenancy from year to year. It sometimes happens, in order that the debt and interest may be gradually paid off, that a mortgagor becomes the tenant of the mortgagee at a rent certain. Now it had been decided that a mortgagee can maintain ejectment against a mortgagor, after the forfeiture of the mortgage, without any previous notice to quit, or demand of possession. (*Doe d. Fisher v. Giles*, 5 Bing. 421.) It was doubtful, however, whether a previous notice to quit was not necessary to enable a landlord mortgagee to bring ejectment against a tenant mortgagor, despite of a clause for immediate entry in case of default in payment of the principal, a tenancy being expressly created by the words of the mortgage-deed. This doubt has been removed by the case of which the title is given above.

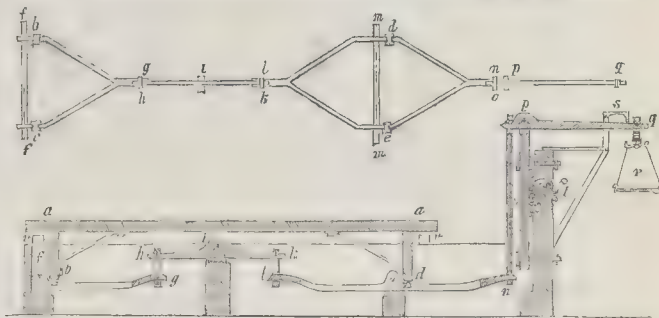
It was an action tried at the Cornwall Spring Assizes, 1843. The premises in question had been first mortgaged by indenture, dated the 16th of April, 1802, by Thomas Tom, the father of the defendant, to one William Cole, for 300*l.*, for 1,000 years. By indenture, dated the 15th of November, 1805, this term was assigned to S. W. and R. B., who paid off the 300*l.* due to Cole, and advanced Tom the further sum of 20*l.*, making together 320*l.* By indentures of lease and release, dated the 2nd and 3rd of April, 1819, between the said Tom, the father, of the first part, the said W. and B., of the second part, J. Baker, of the third part, and N. P., of the fourth part, after reciting that Tom was seised in fee, and that he had occasion for 150*l.*, it was witnessed that in consideration of 150*l.* paid to Tom by Baker, Tom granted, bargained, sold, and released to Baker the premises in question, called Lower New Park Tenement, to hold to and to the use of Baker, his heirs and assigns, forever, with a proviso for redemption on payment of the 150*l.* on a certain day, and a power of sale in default of payment. The same instrument then went on to assign the outstanding and satisfied term of 1,000 years to N. P., his executors, administrators, and assigns, for the residue of the said term, upon trust for better securing the payment of the said sum of 150*l.* and interest to Baker, and after payment thereof, upon trust for the said Tom and his assigns, and to attend the inheritance. The indenture then contained the following clause:—"For better securing the said principal money, &c., the said Thomas Tom doth hereby attorn tenant to the said John Baker, his executors, administrators, and assigns, for all the said premises, at 8*l.* quarterly, to be recoverable by distress and sale, action of debt, and otherwise however." Baker remained the mortgagee until 1823, when by indentures of lease and release, dated the 28th and 29th of September, expressed to be made between Baker, of the first part, Tom, of the second part, and Short (one of the lessees of the plaintiff), of the third part, the mortgage was transferred to Short, he advancing as well the 150*l.* due to Baker as the further sum of 50*l.* Baker, however, never executed this deed; but it was proved that he received the 50*l.* Thomas Tom occupied the premises to his death, in 1836, since which time they had been occupied by the defendant.

At the trial before Mr. Serjeant Atcherley, the first objection taken on the part of the defendant was, that by the deed of the 3rd of April, 1819, a tenancy was created which required six months' notice in order to bring ejectment. Another objection, founded on the 4th of the Statute in relation to the present purpose, was also taken; and verdict passed for the plaintiff, with leave to the defendant to move to enter a nonsuit.

A rule nisi having been obtained, Mr. Crowder, Q.C., shewed cause, and for the first point relied on *Doe d. Garrod v. Olley* (12 Ad. & E. 1). In that case a mortgage deed, reciting a sum of 850*l.* at 5 per cent. interest, contained an agreement that the mortgagor, during his occupation of the mortgaged premises, should hold and pay for the same to the mortgagee yearly rent or sum of 50*l.*, payable half-yearly, and that it should be lawful for the

mortgagee to use such remedies by distress and sale for the recovery of the said rent as landlords have on common demises; provided that the reservation of such rent should not prejudice the mortgagee's right to enter and eject the mortgagor at any time after default made in payment of the moneys secured, or any part thereof. Ejectment was brought, and, along with other objections, it was urged that the lessor of the plaintiff (the mortgagee) had not given notice to quit. The Court, however, held, that after default made in payment of the principal, and of one half-year's rent, the mortgagee might eject the mortgagor without any notice to quit, though he had treated the mortgagor as tenant by distraining on him for a previous year's rent.

Mr. Crowder's argument in answer to the first objection was not shaken, and Lord Denman, in giving the judgment of the Court, said—"Two objections to the plaintiff's case are stated; first, that although the action is by a mortgagee against the mortgagor, yet that the mortgage-deed has a clause by which the mortgagor attorned tenant to the mortgagee, at a rent of 8*l.* per annum, and that no notice to quit or demand of possession was proved. The answer is, that there is also a clause for immediate entry in case of default in payment of the mortgage-money, and, therefore, whatever be the meaning of the clause, the case is brought within the authority of *Doe d. Garrod v. Olley*, and no notice or demand was necessary."



DESCRIPTION OF A WEIGH-BRIDGE CONSTRUCTED AT ANGERS, WITH A CENTUPLE DIMINUTION OF THE BALANCE WEIGHT.

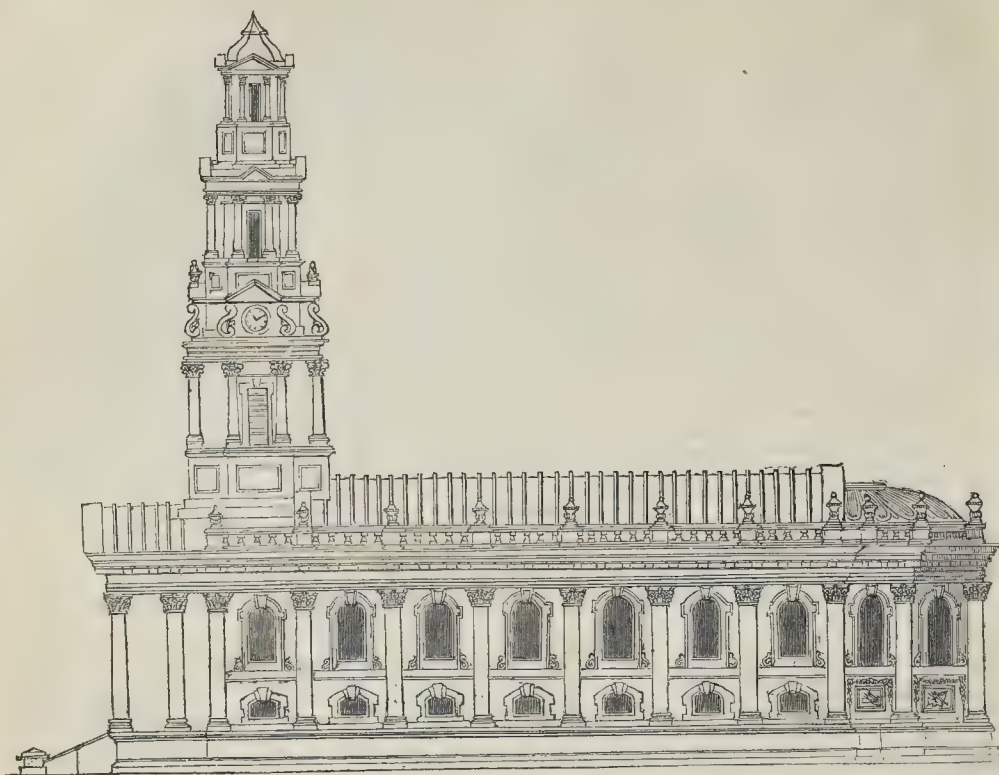
FIGURES 1 and 2 represent a weigh-bridge that has been constructed in the School of Art and Industry at Angers. It was first described by Janiez in his *Cours Élémentaire de Mécanique Industrielle*, Part 1, p. 130. Fig. 1 is a vertical section of the apparatus; fig. 2 is a horizontal section of the leverage employed. *a* is the bridge or scale in which the mass to be weighed is placed, and rests on the four points *b, c, d, e*. The pressure which it exerts on the two points *b* and *c* is received by the lever *f, g*, the proportion of the arms of which is thus expressed:— $f b : f g = 1 : 10$, so that *g* receives one-tenth of the pressure which *a* exerts on *b* and *c*; this pressure is transferred by means of the sliding bar *h, i, k*, the fulcrum of which is at *i*, and the arms *h, i* and *i, k* equal, and from *k* again by means of the sliding bar *l, m, n*, to the lever *l, m, n*, the arms of which, *m, l, m, n*, are equal, so that as *h, i, k* and *l, m, n* merely transport pressure, the point *n* receives one-tenth of the pressure exerted on the points *b* and *c*. The pressure which the bridge *a* exerts on the two points *d* and *e* is diminished in a similar manner by the lever *m, d, n*, so that, the pro-

portion of its arms being as follows, $m d : m n = 1 : 10$, the point *n* receives one-tenth of it only. Thus the amount of pressure exerted on the point *n* is ten times smaller than that exerted on the point *a*. This pressure is propagated by the bar *n, o* to the lever *o, p, q*, in which *p* is the fulcrum, and $o p : p q = 1 : 10$. A mass, therefore, placed in the scale, which hangs at *g*, will be in equilibrium with a mass placed on the bridge *a*, when the latter weighs one hundred times as much as the former.

It is, of course, assumed that the scales, when unloaded, are in equilibrium, which may be effected by placing weights on the scale *r*, or, as in the ordinary weigh-bridge, by a sliding weight on the arm *p, q* of the lever *o, p, q*. The state of equilibrium is indicated, as in the common weigh-bridges, by the index *s*. The position of rest is given by turning the handle of the wheel *t* so as to force down the toothed bar *u*, in the upper part of which is the bed for the axis of the lever *o, p, q*, and when the bar *u* is lowered, the bar *o, n* will sink until the bridge *a* rests on the bearers *v, v*. When the apparatus is in this position, weights can be placed on *a* or taken off it, without injury to the moveable parts from the unavoidable concussion. When the apparatus is to be put in action, the bar *u* is raised again, and its descent prevented by ordinary means. A wall must, of course, be raised between *a* and the bar *n, o*, to save the latter from accidental violence.—*Polytechnisches Central Blatt*.

A bronze statue, cast after a model by Schwanthaler, of the Margrave Frederick of Bayreuth, has lately been executed, at the command of the King of Bavaria, and sent to the university of Erlangen, of which the Margrave was the founder. Two models of statues by Teneroni, one of the present king of the Two Sicilies, and the other of Bolivar, have been sent from Rome to Munich to be cast in

bronze by Stiglmayr. The statue of Bichat, the celebrated physician, and author of *Recherches sur la Vie et la Mort*, was inaugurated on the 25th ult. at Bourg, with great pomp. Bichat is represented contemplating the movement of life in an infant, whilst at his feet lies a half-dissected body. The statue of the Abbé de l'Espérance, was last week inaugurated at Versailles with great ceremony.



DESIGN FOR A CHURCH IN THE CLASSIC STYLE.

Student's Column.

SIR,—I herewith send you a design for a church in the classical style, hoping you will consider it worthy of insertion in your valuable publication. If so, by your giving it as great a space as your limits will allow, will be esteemed a favour. The length of the church is 122 feet; the breadth 60 feet; height 46 feet; total height from ground to the top of the cross 116 feet. The columns are of the Corin-

thian order; the plan of the towers are in the form of a cross, surmounted by a small cupola; further particulars I have not deemed necessary. By your inserting the design as early as convenient, will greatly oblige a contributor.

S. B. J.

112, Gray's Inn Lane, July 7th, 1843.

[We must express our disapprobation of the style in which our draughtsman has transferred the foregoing design to the wood block;

particularly as regards the balustrade on the roof, and the mutules in the cornice. S. B. J. sent us an end elevation also of his design, but we cannot spare room for more than is inserted, and we do this only to invite criticism from his fellow students and designers. We could remark upon it ourselves, but we prefer to excite reflection in others, rather than to bind their attention simply to our opinions; let it be borne in mind that this is the work of a scholar, and not of a master.—Ed.]

THE WINDOW TAX.

SIR,—The public are indebted to you for publishing the cases of assessed taxes appeals which have from time to time appeared in *THE BUILDER*. The result of those appeals is not only a striking example of defective legislation, but a lamentable instance of breach of faith on the part of government.

It will be remembered that Lord Althorpe was Chancellor of the Exchequer in 1834: that the injurious effect of the window-tax, as affecting both light and ventilation, was pointed out to him; that he admitted the evil and promised to mitigate it by allowing any person, then duly assessed, to open as many additional windows as he pleased without increase of taxation. This promise has not been kept. Lawyers have been allowed to raise a quibble upon the meaning of the term "duly assessed." Mistakes made by former assessors have been visited upon the assessed, imperfectly, perhaps, acquainted with the old acts, but relying upon the obvious spirit and intention of the subsequent Act of Parliament, and the monstrous injustice has been committed of requiring new tenants in possession to procure evidence of facts which transpired in the time of their predecessors, of which the witnesses conversant may now be deceased.*

* A gentleman lately surcharged on the ground that one of his windows, in 1834, had been stopped up with lath and plaster instead of brick, only escaped by proving that the window referred to had been in that state for fifty years, having been stopped prior to the Act by which lath and plaster were disallowed.

I need not explain to your readers the many mischievous consequences which arise from this judge-made law. My object is to suggest that now that the attention of the legislature is directed to the causes which affect the healthfulness of dwellings, the grievance is one which, by a little exertion on the part of architects and builders, might be removed. It is true we cannot hope, in the present state of the revenue, to abolish the window-tax, but the mode of its assessment might be improved, so that the tax should no longer be instrumental in producing disease, as well as in creating architectural deformities.

A health of towns commission is sitting; let every witness examined by that board endeavour to impress the minds of the commissioners with the fact that the temptation to shut out light and air in order to save taxes is the great obstacle to the healthfulness as well as the comfort of a majority of the existing habitations. An opening, a foot square, in the walls of a moderate-sized house cannot now be made without an addition to the window-tax of 8s. 3d. per annum. Privies, cellars, dark closets, roofs, the very places where mephitic vapours are most apt to lodge, are, therefore, very generally left without ventilation. The remedy is very simple, and as the revenue does not gain, while the public suffer, by the existing system, why should it be continued? The remedy would be to pass a short Act of Parliament, or introduce some new clauses into Lord Lincoln's Building Regulations Bill, to the following ef-

fect:—First. *That no existing assessment shall be raised whatever new windows may be opened.* Second. *That upon all new houses the window-tax shall be governed by the cubic contents of the building, not by the actual number of openings which may exist this year or next.* The principle I assume is, that every 1,000 feet of space covered in for habitations, require for light and ventilation a certain number of external openings. Let these be paid for whether they exist or not, and without any additional charge if the number be exceeded, and the window-tax would no longer operate as a premium upon defective construction.

Should you approve of the suggestion, I trust it will be followed up in your columns, and that some of your professional readers will turn their attention to the proportion of windows to space which it might be desirable for government to adopt as a minimum, in altering the present law.

Your obedient servant,

W. E. HICKSON,

Manor House, Fairseat, Wrotham, Kent,
Sept. 10, 1843.

A proposal has been made to erect a monument to Dr. Southey, in Redcliffe Church, Bristol, of which city that eminent man was a native.

In the Cathedral of Canterbury, the choir is about to be furnished with new stalls and a throne, and the pews are to be removed.

DESIGN FOR A BUILDING.

SIR 1.—One of your correspondents having requested to see some plans which might be suitable for cottages of individuals of limited means, I send you the accompanying design of a building intended for a rather small family with a moderate income, although I do not expect it is exactly the kind of building to meet your correspondent's wishes. Perhaps it may furnish some useful hints; any suggestions for emendation, will be acceptable, subject to the following restrictions.

The entire expense of erection not to exceed £300.

This sum to include grates, chimney-pieces, bells (if any), and, in fact, every requisite to

render the house suitable for the reception of the occupant.

The size of the ground on front is limited to 7 yards.

The depth may be 30 or 60 yards.

As buildings join the intended site, projecting eaves, except on front and back, are inadmissible.

Remarks.

The closet adjoining the front bed-room may be fitted with shelves, or used for a shower-bath, to be supplied from cistern above in closet on attic landing, into which the water is to be conducted, and a pipe from that to lead to cistern beneath kitchen.

The attics to be partitioned on each side to make them nearly square, and the spaces between partitions and roof may be used as store closets if desired.

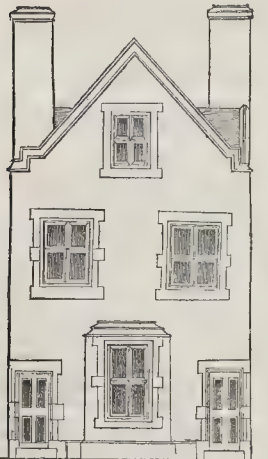
The small bed-room on the front may, if desirable, have a door to communicate with larger front bed-room, and be used as a dressing-room, or as a nurse's room in case of illness.

The general arrangement of the rooms is obvious to inspection.

Should this communication prove acceptable you may hear from me again.

Yours respectfully,

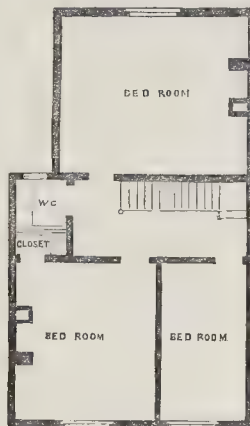
JOHANNES.



Elevation.



Ground Plan.



Second Floor.



First Floor.

SHERBORNE PARK.—Many persons who have had the pleasure of viewing the park of Earl Digby, at Sherborne Castle, must have been struck with the magnificence of some of the venerable oak trees that adorn it, without being aware of their great dimensions. From one of these noble trees a single limb has lately dropped, which on admeasurement was found to contain upwards of five tons of sound timber! Though thus shorn of so great a limb, the loss is scarcely to be noticed, and the fine old oak still remains in its towering pride and beauty.

ST. GEORGE'S CHAPEL, WINDSOR.

The extensive alterations and embellishments which have been in progress since the early part of May last (from which period the chapel has been closed), at an outlay of several thousands of pounds, throughout the interior of this sacred edifice, having just been brought to a close, the following description of the ornamental and newly-emblazoned portions of the chapel of St. George, the curious discoveries made during the progress of the works, and of other objects of interest connected with the late repairs, will, no doubt, be interesting to a numerous portion of our readers.

It is now nearly a century since this chapel had undergone any repairs. At a chapter held by the dean and canons in February last, it was resolved that the chapel should undergo throughout a thorough cleansing and renovation; that new stained-glass windows should be introduced in various parts; the organ repaired, ornamented, and many additions made to it; the whole of the elaborate wood carvings and the alabaster and marble monuments in the several private chapels and aisles restored to their original state; and other embellishments added, so as to render this ancient building one of the most magnificent sacred edifices in the kingdom.

The beautifully groined ceilings of the nave and choir have been thoroughly cleaned by means of immense scaffolding reaching from the floor to the roof; and the whole of the defective parts carefully pointed and restored by experienced workmen. The groined ceilings, also, of the side aisles, chapels, and transepts have undergone the same careful and extensive renovation; and likewise the organ-loft and that portion of the chapel at the back of the altar. The whole of the whitewash and colouring matter upon the stone pillars, window-jambs, arches, and piers, and upon the hitherto half-hidden Gothic screens to the Hastings, Beaufort, Lincoln, and other chapels, have been removed, restoring the stonework to its rich and varied natural tints, and producing a most beautiful effect. The numerous monuments, and the interiors of the private chapels, belonging to noble and distinguished families, have also been carefully restored.

The whole of the splendid Gothic oaken stalls of the Knights of the Garter (on either side of the choir and those facing the altar) have been cleaned, and repaired where necessary, so as to render them strictly perfect, at an enormous expense. The richly and most elaborately carved canopies over the stalls of the knights (above which are suspended their banners, with their mantles, swords, helmets, and crests) were taken down to undergo a similar renovation and repair. They have also been re-stained and varnished.

The dark and dingy-looking paint, which covered the exquisite wood-carving of the stalls, has been carefully scraped off, and the wood left in its own tint, which has considerably improved and heightened the general effect of this portion of the interior of the chapel.

It may here be mentioned that on the pedestals of the stalls the life of our Saviour is represented in richly carved work, and on those under the organ-gallery are the adventures of St. George. In 1814 an addition was made to the number of knights, and six new stalls were in consequence added, in front of which are carved representations of the attempt of Margaret Nicholson to assassinate George III.; the procession of the king to St. Paul's on the day of thanksgiving for his recovery, in 1789; the interior of the cathedral on that occasion, and of Queen Charlotte's charity school. On the outside of the upper set of the stalls, a broad girth, continued round both sides of the chapel, is carved in Saxon characters, with the 20th psalm, supposed to be intended as a supplication for the sovereign of the Order of the Garter.

The projecting front of the Royal closet (over the north side of the altar, and above the tomb of Edward IV.), which had always been considered to be composed of carved stone, was discovered, upon cleaning off various thick coats of paint and whitewash, to be of carved oak, of a very early date and in a most excellent state of preservation. Such is the rare character of the style of its carving, that there is but one other specimen of its

kind in the kingdom, and that is to be found in the cathedral at Lincoln. The wainscot carved front of her Majesty's closet has been stained and varnished, and it has now a most pleasing effect as it strikes the spectator upon entering the choir from the west.

The three principal lines of the heraldic bosses on the vaultings of the nave and transepts have been emblazoned with the arms of former knights of the garter, and of the most ancient and distinguished families in the empire, and the entire of the bosses, pendants, and knots of the vaulting in the choir have been similarly emblazoned, and in the same rich and gorgeous style, under the immediate superintendence of Mr. Willement, of London, to whom the whole of this portion of the embellishments of the chapel, the restoration of the great west window, and the introduction of new windows of stained glass, had been confided by the dean and canons.

A magnificent and highly wrought brass lectern (upwards of six feet high), which had lain in a dilapidated and neglected state, amongst some rubbish, in a vault of the chapel, for upwards of a century, and which had been fortunately discovered by the dean, has undergone a perfect restoration, and now occupies its proper place in nearly the centre of the choir, at the west end of the stone over the vault of Jane Seymour, the Queen of Henry VIII. The top, which is in the form of a double desk, constructed to hold the sacred volume on one side and the Book of Common Prayer on the other, turns round upon a pivot, and from this lectern the lessons will, in future, be read by the minor canon at divine service in the morning and afternoon.

Ten windows (five on either side) of stained glass, containing in compartments the heraldic bearings of all the Knights of the Garter from the institution of the order, have been completed by Mr. Willement on the north and south sides, and at the eastern end of the choir, some portions being over the banners of the Garter Knights. Four other windows (two on either side of the west end) only remain to be similarly emblazoned with the arms of future knights of the order.

A most pleasing and picturesque effect is produced throughout the choir by the introduction of these stained-glass windows, which give a rich, yet soft and subdued tone, to the whole of the interior, in perfect harmony with the religious character of the sacred edifice.

The stained glass of the great west window, which may now be classed amongst the most splendid and magnificent in the kingdom, has been carefully and skilfully restored by Mr. Willement, and an entirely new and improved arrangement of the ancient and scriptural figures and devices has been effected under his superintendence. Within the four chief compartments, at the upper part of the spacious arch, are the badges, initials, and crowns of the following sovereigns:—Edward III., Edward IV., Henry VIII., and Queen Elizabeth. In the centre of the window are the arms of the patron saint of England, with the initials "S. G." (*Sanctus Georgius*), and at the apex the initials "I. H. S." The whole of the numerous figures contained in the other compartments represent saints, prophets, and apostles; but from the absence, with but very few exceptions, of either emblems or inscriptions, it is difficult to distinguish others than St. Luke, the physician; St. Catherine, St. Dunstan, St. Edmund, St. Edward the Confessor; and St. George.

The general appearance of the sacred edifice, viewed from any one point, is now gorgeous and magnificent in the extreme. The removal of the present wretched specimens of coloured glass in the east window over the altar, and the restoration of its fine tracery and old stained glass, somewhat similar to that at the west end, are nearly all that is now required to render perfect the labour which has been so liberally commenced, and, thus far, so admirably brought to a close.—*From a Correspondent of the Times.*

It has been ascertained by survey that New Brunswick is one of the richest coal districts in the world.

Lady Bassett has headed the subscription list of the Devon and Cornwall railway with a donation of her land (about two miles) required for the line, and taken shares to the extent of 5,000.


ALL SAINTS, LEAMINGTON.

Sir,—The leading article in your 29th number, and a communication therein from the Vicar of Leamington Priors, render it necessary that I should trouble you with a few remarks.

Having been engaged for a very considerable time in designs for the additions to the parish church, and having, up to the first week in January last, proceeded with apparently the approval of the vicar, it may readily be supposed that a laconic communication on the 18th, to the effect, "that our engagements must terminate," caused me much disappointment and regret, and feeling satisfied that my previous studies have formed the groundwork for the addition as now proceeding, you cannot be surprised that I should persevere in claiming credit for the original design; and until I see more striking deviations from it than are at present visible, I must still continue to do so. At the same time I have no desire to detract from the merit of Mr. Mitchell, and am glad to give my humble meed of approbation to the manner in which he is conducting the work.

I must now more particularly notice the communication of the 28th ult., which, in substance, states that the vicar communicated to me his ideas respecting a splendid church, that I put these ideas on paper, and forwarded rough sketches to a friend in York, who made a water-colour drawing of the same. That my working drawings shewed columns only 12 feet high and 5 feet in diameter, and in consequence the vicar determined not to employ me; that in Mr. Mitchell's estimation my plans could not be worked out at all, except with considerable alterations and improvements. That in nothing is he following my plans; and that, finally, I have submitted to the Camden Society, drawings which I had no right to claim, as designs for the church alteration. Now I cannot suppose it to be the vicar's intention to impute to me that which seems the natural conclusion to be drawn from the above premises, viz. that I had given in plans which were incapable of execution, and had imposed a false set of drawings on the Camden Society. I will now give you my statement.

Previous to the departure of the vicar for a short trip to Leeds and York, he requested me to prepare "as Catholic" a design as I could for his proposed additions. On his return, I submitted slight pencil sketches of a north and south elevation and ground-plan, with which he was much pleased. These I proceeded to work out, and being, of course, much occupied, obtained the assistance of a friend and fellow pupil at York, to whom, instead of "rough sketches," I sent a ground-plan, north and west elevations, from which he made a perspective view, of which the lithograph is a half-size copy. As the inference might arise that I was unable to execute such drawing myself, I submit to your inspection a sketch, which I have no doubt will satisfy you on this point.

The next, and it appears unfortunate, point of disagreement, is the thickness and height of the columns or piers, and here the rev. vicar labours under a slight mistake. They were planned anglewise thus,  and he consequently takes the two dotted lines as their diameter, 5 feet. In the first set of drawings they measured 5 feet between these two points, and 18 feet 6 inches in height, for the springing of the arch, which was 11 feet wide. Circumstances afterwards rendered a reduction in the length of the building necessary, and in September, drawings were laid before a parish meeting by the vicar, and approved by them. In these the thickness of the piers was reduced to 4 feet, their height to 17 feet, and the width of the arch to 10 feet 6 inches.

In October, by the vicar's desire, I prepared and sent to town, in order to obtain an estimate from his London builders, a set of drawings (see Nos. 4, 5, and 6), and the tracings now forwarded will shew you that the breadth between the two points, as above stated, is 4 feet, their diameter 3 feet, and height 15 feet.

With respect to the Camden Society, I have briefly to state that, by the vicar's own desire, I was preparing a set of drawings for their inspection; they were frequently seen by him in their progress, and were incomplete when he

withdrew from me his patronage. I wrote to ask him whether he would wish them completed, and, receiving no answer to my note, I finished them, and, in my own self-justification submitted them to the society.

The observations on my demeanour and temper, and the concluding lecture with which I am favoured, do not, I think, savour much of that charitable feeling which should belong to a reverend divine.

I have endeavoured throughout this unpleasant affair (but without effect) to obtain an amicable adjustment of our differences, and trust I have on all occasions expressed myself with moderation and temper. My present object is self-vindication, not reprimand; but, as my professional disappointment has been severe, I cannot, and will not tamely submit to the imputation of professional incapacity, or dishonourable conduct. Your early insertion of the foregoing, with any observations you may be pleased to make, will oblige,

Sir, your obedient servant,

JOHN GEORGE JACKSON, Architect.
Newbold Lodge, September 5, 1843.

P.S. I cannot at present spare my drawings, but shall, at no distant period, be most happy to submit them all to your inspection and criticism.

EXCAVATIONS IN CHELSEA.

In the month of July the workmen employed in digging for the foundations of the new houses, now called "Cheyne Row West," discovered extensive remains of the Chelsea china manufactory which had been so long and successfully carried on at this place, the specimens of which are still eagerly sought after by connoisseurs. These fragments consisted of a variety of broken vases, figures, animals, urns, teapots, cups, and saucers, &c. Among the most perfect and interesting of these is a ewe and a lamb, in one piece, which has been restored by a clever artist, and is much admired. The relics derive an adventitious interest from the circumstance that Dr. Johnson was in the habit of coming to Chelsea to exercise his skill in the manufacture of this beautiful ware; but it seems that he never could succeed in the glazing department. It is not therefore improbable that some of these unfinished specimens may be the work of his hands. After this concern had been carried on for more than half a century in Chelsea, it was removed to Derby, where it still flourishes in all its original lustre and beauty. Adjoining these premises, on the south-west, stood, until lately, the capital mansion inhabited by Dr. Smollett; here he wrote several of his novels, and he spent some of his happiest days, previous to the death of his amiable and beloved daughter, whose loss he has so feelingly deplored:—

"Quam amata! Quam amabilis!

Eheu! quam cito et immaturo abrepta!"

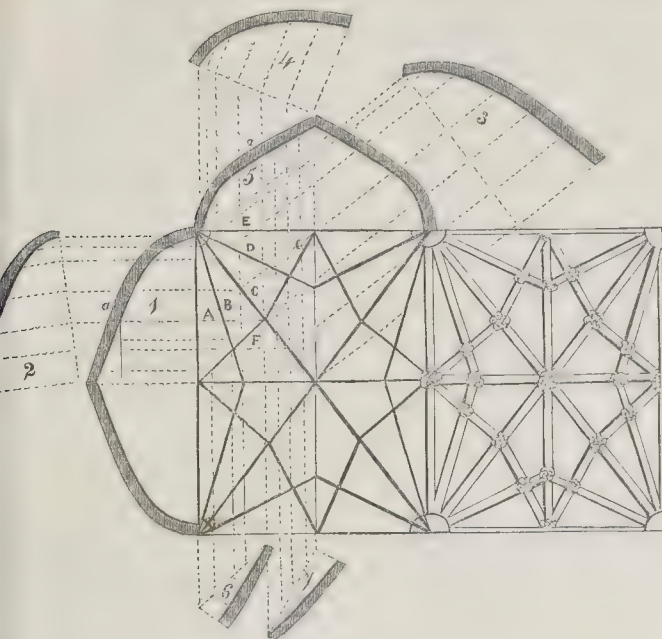
It is probable that the ancient house lately pulled down, called "Church Place," was the residence of the Bishop Atterbury, in Queen Anne's time; a lodge and iron gate stood facing the street; the foundations were lately dug up, and a large quantity of bricks obtained.

As the workmen were employed in digging for a new sewer, at the corner of Beaufort-street, running to the River Thames, in the front of Mr. Hatchett's house, they discovered the foundations of a wall extending nearly one hundred feet in length, and four feet in thickness. It appears from old plans, that this wall formed the southern boundary of Sir Thomas More's premises, and that formerly a tower stood at the east and west ends of this wall, in which were placed engines for raising water, for the supply of his house and gardens. It is to be regretted that the form of these old square towers is so indistinctly delineated in the plans as not to admit of an accurate architectural description. The foundations of the western tower are still visible at low-water mark every day. Hereabouts were discovered several Roman coins, counters, and abbey pieces, English and foreign, which have been carefully deposited.

The crumbling remains of Sir Thomas More's house, situated to the north of this sewer, and on the south of the Moravian burial-ground, are still nearly in the same state as already described in the year 1829. The old stables, now converted into a chapel and school room, form the boundary of the burial-ground. The north front still retains its original state, supported by six massive buttresses. The wall is pierced with narrow windows or loopholes, and between the two centre buttresses may be traced an elliptical arched gateway, now bricked up; the roof is of a high pitch, and altogether this building has a very venerable appearance, and shews a great similarity in the style of building to the stables attached to the Manor-house of "Du-

rants," near Enfield. The "clock-house," adjoining, was built in the year 1747, by old Howard, a servant of Sir Hans Sloane, chiefly with materials of Sir Thomas More's house adjoining, then pulled down. In the garden is a vaulted cave, into which you descend by a flight of steps still in good preservation, which, tradition says, communicated with a subterraneous way leading down to the Thames, similar to those underground passages now to be seen at Eltham Palace. It is to be

feared that the series of drawings of the subterranean passages and interiors of old mansions in Chelsea, executed by the late Mr. Rouse, will be lost to the public. The paragraph "going the round of the morning papers," relative to the discovery in Cheyne-walk of skeletons, skulls, enormous bones, &c., is entirely void of truth, being merely a fallacious amplification of the facts already narrated in this journal.—*Illustrated Polytechnic Review*.



GOthic GROINED CEILING.

METHOD OF SETTING OUT THE RIBS FOR STONE, WOOD, OR PLASTER.

Sir,—Should you deem this worthy a place in *THE BUILDER*, it may perchance be of use to some portion of your numerous readers.

I am, Sir, yours, &c.,

W. LINDLEY.

Leicester, Sept. 10, 1843.

No. 1, given rib, or rib A; No. 2, rib B; No. 3, rib C; No. 4, rib D; No. 5, rib E; No. 6, rib F; No. 7, rib G. The whole of the ribs are produced from the given rib, No. 1, by dropping any number of ordinates from it to the plan, and setting up their respective heights; ribs Nos. 1 and 5 shew how much F and G fall from the apex of the arch at *a* and *a*, and are produced from the upper portion of those ribs.

[We know nothing of Mr. Lindley, nor his avocations and pursuits, further than for the previous excellent contributions on the Niche Head, on Circular Upon Circular Work, and a very valuable recipe, but we know enough to be able to say that his communications furnish evidence of rare talent; he has a knowledge of his subject, and a happy way of conveying that knowledge. We defy any one to produce a simpler working-out and arrangement of the subject before us than he has shewn—it is concise, clear, and methodical; we could, from sources that are open to us, or

from our own store, produce these instructions, but we have laid down a rule to bring it out of others, to evoke the good and useful from dormant or hidden minds, and therefore have we suffered complaints and reproaches rather than depart from a rule in which we had so much faith for its superiority—and see what it produces and is producing every day. Why, compared with our solitary leading and instruction, it is as one light of small twinkling compared with a galaxy of stars; the same instruction flows to the public, only it is done in a way, as in this instance of Mr. Lindley, to benefit them the more by its clearness than we might succeed in; a happier choice of subjects is hit upon, and a more seasonable introduction, since they must be living types and exponents of actual practice; a hundred and a thousand minds are set to work in like manner, that is, *teaching*, which is the best fashion of *learning*, and obscure or partly known merit is brought forward. Compare it, we say, with the plan which many of our good friends have been urging us to proceed upon, and have been impatient for, and confess, as you must, that we have chosen the better course. Not that we shall altogether refrain from putting our own hand to the task of instruction, or that we have already done so; but again we contend for it, that it is not to exhibit our own pedantry, but our pupils' precocity, that is or ought to be our pride.—Ed.]

How the Diamond Cuts Glass.—Dr. Wollaston ascertained that the parts of glass to which the diamond is applied are forced asunder, as by a wedge, to a most minute distance, without being removed, so that a superficial and continuous crack is made from one end of the intended cut to the other. After this, any small force applied to one extremity is sufficient to extend the crack through the whole substance and across the glass; for, since the strain at each instant in the progress of the

crack is confined nearly to a mathematical point at the bottom of the fissure, the effort necessary for carrying it through is proportionally small. Dr. Wollaston found, by trial, that the cut caused by the mere passage of the diamond need not penetrate so much as the two-hundredth part of an inch. He found, also, that other mineral bodies, recently ground into the same form, are also capable of cutting glass; but they cannot long retain that power from want of the requisite hardness.

Literature.

De l'Art en Allemagne, par (On Art in Germany, by) HIPPOLYTE FORTOUL.

[FOURTH NOTICE.]

THE next, the last of those periods in the history of architecture, of which M. FORTOUL considers a description to be necessary, in order that the erudite art of Germany may be properly understood, is designated by the French *LA RENAISSANCE*; this phrase we translate by the following term:—

THE REVIVAL.

"An architect whose name I have often cited to you, M. Leo de Klenze, who was born in Hesse, at the foot of the Harz, in 1784, and called to Munich, some twenty years ago, by the prince who at this day rules Bavaria, has since then inaugurated a system of architecture, the principle of which will, doubtless, appear to you more large and pregnant than any of those concerning which I have hitherto discoursed. Not less an imitator of forms than his rivals, he appears to me to have over them the advantage of having remodelled his works and his opinions on a species of civilization to which that of our time is indissolubly linked; it is he who has vindicated the Revival, one of the most violent movements of the human mind, nay, as people now think, one of the most mysterious. What is the Revival? In what age, in what place did it commence? What was its object? What is its value in the series of human revolutions? In what manner should we accept and cultivate the heritage which it has bequeathed to us? These be vast questions, that embrace the past, the present, and the future in art, those unavoidable problems that every day presents for solution, in forms more and more inexorable,—problems which I cannot pretend to solve here and in a few words.

"That which the French call 'Renaissance' is the era that extends from the reign of Francis I. to that of Louis XIII., and during which the antique taste was gradually substituted for the Gothic taste with particular refinements. Seroux d'Agincourt having collected the plates of a history on the origin of art in Italy, published them in a work in which he distinguished the revival from the renovation of art; he calls the revival a sort of awakening of art, a beginning of cultivation that took place in Italy in the 13th century; the renovation, on the other hand, is the name which he gives to a movement produced in the 15th century, in the same country, by the assiduous study of antiquity, and the glorious examples of Brunelleschi, Ghiberti, and Masaccio. The Germans consider the 14th and 15th centuries as an epoch of civilization that emanated directly from Christianity, and condemn, under the name of the Revival (regeneration), the invasion made throughout Europe by Pagan art in the 16th century. Who is to be believed in this confusion?

"At a time when the Middle Ages were regarded as a sort of interruption in the life of the human species, the word Renaissance (Revival) was used to indicate that moment at which Europe appeared to issue from the tomb. If this word expressed a false idea, it nevertheless contained another less removed from truth, to which we may apply the term at the present day. In point of fact, that which was called the darkness of those times was in reality the absence of the light of antiquity; and consequently the so called second birth was nothing more than a return to the existence of the ancients. But then to what epoch, to what place is to be attributed the glory of this second birth of antiquity?

"Were the traditions of Paganism entirely extinct during the Middle Ages? The object of the more recent works of contemporaneous philosophy is to find in the Christian dogmas and in scholastic science the natural continuation of Greek philosophy; on the other hand, the more profound researches into history shew that the Roman element, which at a later period re-appeared with so much splendour in the organization of corporations and the policy of kings, subsisted side by side with that Teutonic element, which was so violently introduced among the people of Europe by the invasions of the 5th century. Neither the mind, then, nor the institutions of antiquity perished altogether in the conquest of the West, which Christianity and the barbarians conjointly effected; but they underwent the yoke of the conquerors, and after having been the law of the world, became its exception. Slavery, however, they did not endure without protest; and it was the ruling thought of antiquity, the spirit that engendered the institutions of antiquity, that spake when Charlemagne sought, at one and the same time, to resuscitate the literature of Athens and the empire of Rome. After the death of this great man, the Teutonic and Christian genius had a long revenge; but under the third race of the Frank kings, Greek philosophy invaded Christian theology, and the Roman law made breach in the feudal. At one time hostile each to the other, at another, intimately united, the spirit of antiquity

and the spirit of the Middle Ages advanced in company up to the moment when, each having become equally necessary to the existence of our race, the first seemed to gain the ascendancy over the second, which, in point of fact, only pursued the development and renewed the form of the ideas which it had indelibly imprinted in the conscience of man in modern times. In the midst of these combats, and these transformations, which moment shall we fix on as that of the Revival? There was a revival at the time of Charlemagne, another under Louis the Fat, another in the age of St. Thomas and of Accursius, another in the age of Dante, of Petrarch, of Giotto, of Arnolfo di Lapo, which, indeed, extending without interruption, appears not as yet to have finished its career. But who does not see that all these revivals are connected, that they are episodes in the grand struggle between the genius of Christianity and the genius of Paganism, whose conflict,—one for the honour and advancement of the human mind,—has been going on from one end of Europe to the other for the last eighteen centuries?

"What is the definite character of the Revival? It is the modification effected in Christian ideas by the philosophy and the taste of the ancients. The substitution of antique for Teutonic forms does no more than express this. But then, is the change necessary? Is it good or bad in itself? Has it any value beyond that of a transient reaction? or has it placed modern nations in the conditions essential to their destiny and their progress? These be questions that would frighten any one who might appreciate the originality of modern races, and the perfection of ancient civilization.

"M. de Klenze, like the architects of France, has resolved these problems in favour of Pagan genius. According to him, antiquity, that is, the antiquity of Greece and Rome, cannot become indifferent to us. Initiated by a privilege peculiar to itself into the sentiment that links in material forms and the linear arts, it has a right to impose upon us its rules and its models. The lines which it has brought into use escape, by reason of their simple and divine beauty, from that decadence which all the posterior forms of art have, successively, had to undergo; they are immortal, like the eternal types on which our thought moulds itself, and of which they are, in the order of things material, the nearest and the most perfect representations. According to this theory, the artists of the Revival discharged a pious duty when they unveiled the relics of Paganism; they vindicated the general traditions of human art. If, since then, we have made any progress, it has assuredly been done by obtaining a more exact acquaintance with the simple elements and primitive forms of this ancient civilization, of which the masters of the 16th century could only study the most complex performances, those too most remote from their origin. At this day we are in possession of the very principle of Hellenic art, and can apply it according to our actual wants, learning from the Greeks themselves how to preserve our own independence, and to be different or new according to circumstances.

"Such are the ideas which M. de Klenze determined to realize from the day when he set foot in Munich. Since then he has seen many other systems successively appear and establish themselves at the side of his own; he has seen the Italian Middle Age and the Teutonic Middle Age raise themselves up anew. These protests against his own system have not moved him; he has subjected them to the dominion of his own intelligence. What is the Italian Middle age? A reconstruction of the materials employed in ancient art. What is the Teutonic Middle Age? A free translation, a particular efflorescence of the ancient basilica. By means of this theory, M. de Klenze felt assured that he was working on a simple form, whilst his rivals were dealing with derivative forms. The latter were limited to boundaries which they could not extend without infidelity to certain data, and those complex; he, on the other hand, could vary infinitely the applications of the principle which he possessed, and even make it subserve, as in the Residence (Palace) and the Court Chapel he has done, the imitation of the Florentine and Byzantine styles. In fact, are not all forms, known and possible, contained in the divine germ of Greek art, and may they not all, up to a certain point, be easily referred to it?

"In the first edifice which M. de Klenze erected at Munich, he was not content with the exhibition of mere traditional respect for the Hellenic forms, he reproduced them textually. He was called on, it is true, to raise a monument that should contain the marbles of Egina, one of the most precious treasures of sculpture, of the art pre-eminently Greek. On this occasion M. de Klenze could not resist the desire of fixing, in a striking and irrevocable manner, the point whence he was about to set out. Thus it was that in 1816 he laid the foundations of the Glyptothek, the envelope of which is the

image of the masterpieces which it contains. The façade of this edifice, small and square, is formed by a portico, twelve Ionic columns of which sustain a Doric pediment. The light of day does not pass through the outer walls, which are adorned with niches and surrounded by gardens. Thus the ancient form has been preserved in its purity; and the monument, closed on all sides, seems to throw mystery over the magnificent spoils which are confided to it. The internal saloons are lighted by a square court round which they are erected. The white marble, slightly tinged with red, which covers the façade, lends to it those golden tints which in the fulness of time the sun would give it under an Ionian sky. Gigantic staircases lead to the portico, under which a bronze gate affords an entrance to the single story of which the monument is composed. As to the contents of this Greek sanctuary, it is not to-day that I shall be able to speak to you of it.

"The Pinacothek has been constructed at a short distance from the Glyptothek by the same architect. On the 3rd of May, 1836, in memory of the natal day of Raphael, the first stone of this edifice was placed in a luxurious soil, the vegetation of which will add to its external beauties. The form is that of a lengthened parallelogram, terminated by two transverse wings. The entrance is at the east by one of the small frontages. The large and veritable façade is on the south; it is composed of two galleries superimposed and uninterrupted, in the taste of the Roman palaces of the Revival. The difference between the two galleries shews at once that the first story, all decorated as it is with columns and semicircular arches, is the principal, while that of the ground-floor, less luxuriantly ornamented, is the accessory only. In the first story is the gallery of pictures; on the ground-floor are classed the ordinary appendages of the graphic arts, a collection of vases and ancient cups, the richest that I have seen, and a collection of enamels, cartoons, and drawings. Above the attic twenty-eight statues rear themselves towards the sky, and present portraits of the most celebrated painters, thus comprising an abridged history of modern art. Louis Schwanthaler has modelled the greater part of these figures.

"Do you wish for an idea of the internal distribution of the Pinacothek? A description of their saloons is the best criticism that can be made on any of the museums which the great cities of Europe have the good fortune to possess. The first story of the Pinacothek is divided, parallel with its length, into three principal compartments, the middle one being double the length of the other two, which are equal. On the south, and along the principal façade, is a gallery, which is destined, not to receive the pictures, but to serve, in some sort, as a preface and introduction to those which are placed in the other parts. Each window of this gallery gives birth to a cupola, decorated with frescoes that represent the history of a celebrated painter; the German and Italian schools will share these *loggies*, which will make known the great artists whose works are contained in the adjacent galleries. The principal section, which occupies the middle of the plan, is divided into several saloons, in which the pictures are arranged in schools, and in order of date. Nothing can be more charming than the aspect which they present; the light, which comes from above, is so well sifted, that not a single garish ray troubles with its reflections the calm, harmonious effulgence that reigns therein. Rich hangings of silk, cased in golden frames, are thrown on the walls which the pictures cover without concealing; these hangings, moreover, are of divers colours, so that the attention is refreshed and sustained unceasingly, throughout the long series of apartments, by the variety of the decoration. To the right of the grand gallery is one more narrow, but equally long, forming a pendant to the gallery of the *loggie*. This is composed of a multitude of cabinets, ornamented like the saloons, but much lower than they, and lighted evenly with the face, but with every possible precaution; you guess their destination. Have you not been shocked to see at the Museum of Paris a small canvas of Ruysdael or of Rembrandt crushed under the gigantic pages of Rubens? Do you not recollect that we once spent a whole day in the Italian Gallery looking for a landscape of Giorgione, which was lost under the large frames of L'Espagnolo? Here one has not to dread contrasts that offend the taste and distract the attention. The pictures of large dimensions occupy the saloons, which are vast, and fill the whole elevation of the first story; in the cabinets are to be found the pages, of which the nice proportions and delicate tints must be considered close at hand and separately. The order established in the saloons is to be met again in the cabinets that are the appendix to them; and the issues have been distributed in such manner that one can wander, in every sense of the word, through these apartments that predispose the mind for the most exquisite sensations of art. The doors, by which the saloons communicate, are

placed on the centre of their axis; the cabinets are pierced by an analogous series of doors; but independently of these openings, which present themselves to the spectator from one end of the building to the other, there are in each saloon others placed at the sides and leading to the cabinets and the *loggie*. This museum is altogether so varied, so ornate, so comfortable, that we would be content never to quit it."

We pause for the present. The Walhalla, which is the next performance of M. de Klenze that the author describes, shall be treated of in another number.

COUNTRY BILLS AND COUNTRY BUILDERS.

It is a rare treat for a Londoner, a country tradesman's bill; such queer items and such astonishing terms are to be found therein, and yet he charges nothing *extra* for the fun he causes. By the bye, apropos about *extras*, I remember hearing a tale in a country town respecting extras which amused me exceedingly, and was also a source of amusement to the other builders of the same town. A sort of half-inch builder had contracted with a gentleman to do some repairs to a house, and in the course of the works the gentleman ordered a dresser to be made, extra to the contract. The job was finished, and the bills taken in, the money paid, and the builder taking his departure, when the gentleman glancing over the bill and not finding the dresser mentioned, said to the builder, "Stop, my good friend; were there not any extras?" The builder, who pretended to a great deal of honesty, said, "Oh, no, thir, d—n all eckthras—a man can't be a honeth man to charge eckthras." "Oh, very well," says the gentleman; "you understand your business better than I do, probably; if you are satisfied, I am." The only remark which I have to make upon this is, that we don't find many of the petty builders of country towns entertaining such notions of honesty and *eckthras*—they are more generally inclined to overcharge than to undercharge, but it is a bad policy.

The petty builders of country towns are generally a good-natured sort of people, for, having risen from the "ranks," they know how to respect their fellow-workmen. Bullies there are certainly amongst them, but it is the same in every other trade; for some men of low minds and still lower extraction, when raised above their station by some lucky circumstances, are apt to forget from whence they sprung, and lord it over their fellow-men with a domineering injustice truly disgusting; but such instances are rare. I am happy to say, and always met with their due punishment, for gentlemen, when they know their characters, will not employ them, and they lose the respect of their workmen, and trade fails—the Court of Bankruptcy is the consequence.

The bills of small tradesmen connected with the building profession are curious enough, and sure to excite the risible faculties. For instance, I have met with such items as the following in a blacksmith's bill, and at times have met with local terms, to which I could offer no explanation whatever:—

To repairing and stealing a chizel,
To grafting a pump handel,
To repairing a boitel,
To stealing a boitel."

The name of the latter article will perhaps be a source of much perplexity to the English reader, and therefore, for his benefit, I will translate it into wedge.

But the bills are not more curious than the worthies who compose them. I know a worthy man in a village in Wiltshire, who to the professions of builder and surveyor has added that of a baker, and can serve the neighbouring villages either with gates, hurdles, or bread. This worthy man, as may be supposed, is a singular man in his way, and his assurance on all matters is only equalled by his ignorance. A curious tale is told of him, and which I have every reason to believe:—Acting as steward to Lady B—, he one day waited upon her ladyship, with some of the petty tradesmen's bills, the amount of all which said bills her ladyship (as was her usual custom) disputed; he, as steward, thought it necessary to say something, and therefore in a very strong voice said, "I'll see you d—d, Lady B—, Esq., before you shall be composed upon."

I think with this speech I will make a wind up of this affair, thinking it almost unnecessary to remark that there are not many such men as this in the ranks of the builders, for the generality of them are a shrewd, thinking set of men, and a credit to their profession. J. L. C.

The mahogany tree is full grown in 200 years, Cypress trees are known to be 800 or 900 years old.

Correspondence.

MEASURING AND SURVEYING.

SIR,—I have had the satisfaction of being a reader of your excellent magazine from the commencement, and express the hope that my friends and self may long enjoy this privilege. While much valuable information is contained within its pages for all classes, there is one class or profession whom it might (along with others) probably aid a little more—I refer to measurers in particular. On your recommendation, I procured a copy of the "Student's Guide to Measuring Artificers' Work;" it is a very good publication, but being limited in size, it could not contain all the student would require. Perhaps you would be kind enough to throw out hints now and then upon the different modes of measuring and surveying. You are aware that each town has its own peculiar mode, and that between the English and the Scotch there is a material difference. I have had the opinion of many among the measurers here, that through your magazine essential service might be conferred in this way to the numerous professions connected with artificers' work, as well as to themselves; and they join with me in requesting that you will turn your attention to the proposition at some convenient season.

I remain, your obedient servant,
Glasgow, 9th Sept., 1843. J. D.

[The very reasonable and properly-urged request of J. D. shall have our best attention. It would forward our purpose a good deal, and perhaps be most effectual, if some of our talented brethren in the provinces would take the London "Builders' Price Book" in hand, and favour us with notes on the discrepancies or differences that occur in relation to their practice.—Ed.]

SIR,—Allow me to suggest, that it would further the interests of your contributors very considerably, if either they or you would favour the public with their "local habitation and their names." Now I last week had the good fortune to meet with a number of your valuable periodical, and straightway requested my bookseller to procure for me every number which has been published; I find them on my table this afternoon; and am more than repaid on opening them, especially by Designs for an Elizabethan Ceiling, and a Wardrobe of the same style; I then naturally looked for the address of the artist, but *non est inventus*. "What is the price or estimate?" is the next question, and here again we are left to imagination. Now all this is very tantalizing; why not, therefore, place the address of the artists under the designs? for they are such as would do credit to the most experienced of the profession. Again, the Designs for Timber Buildings are excellent; though, were I to recommend them to a friend, his first query would be, "But what will it cost?"

May I then request to be obliged by the address of the "Young Architect," who furnished you with the Design for a Timber House in No. 10, the 15th of April, and with that of your "young friend A. B.," who designed the Elizabethan Ceiling, in No. 9, April 8th; and the Wardrobe, in No. 19, April 12th? Waiting your reply.

I remain, Sir, your very obedient servant,

September 11th, 1843.

[We trust it will not be taking an unbecoming liberty with the foregoing letter, the giving it this publicity. We withhold the name and address, although it would have added much to the weight of the circumstance; but we eagerly seize it as an occasion to confirm us and our contributors in the purpose we have pursued and which is therein adverted to. Of course we have taken care to reply to the inquiry, as became us; and we sincerely hope it may lead to the well-merited advantage of the parties referred to; this is, after all, but the setting in of the tide which the honest, the talented, and the confiding will sail by through THE BUILDER to a haven of prosperity and reward.—Ed.]

COOKING-STOVES AND FIRE-GRATES.

SIR,—As suitable domestic arrangements constitute one of the principal parts in the fitting up a large house, especially the cooking-kitchen, I beg to inform your subscribers, through the medium of THE BUILDER, that the best, most effectual, and most economical cooking apparatus I believe now in use, is one invented by Messrs. Longden and Son, of Sheffield. I have had the pleasure of seeing one recently fixed and tried, to cook for about one hundred persons, which gives the most perfect satisfaction.

A description of it may not be uninteresting. The opening for the range is 6 feet 6 inches wide, 5 feet 6 inches high, and 3 feet 4 inches back. This is occupied by an oven for meat, 24 inches \times 22 inches \times 28 inches; a small ditto for pastry, 24 \times 14 \times 21; the opening for roasting by jack is 32 inches wide, at back of which is a wrought-iron boiler to hold 55 gallons of water, with safety-valve, alarm-pipe, &c. This boiler supplies kitchen and scullery with hot water. The steam from this also supplies steam-closet and hot-closet, which occupies a similar opening to the above, the whole beautifully filled with shelves, doors, and every other requisite. A dishing-up table is also supplied with steam from the same boiler. There is also a copper bath boiler fixed between the ovens and iron boiler, which supplies a bath with hot water at least 40 feet distance and 20 feet high.

The whole are in full operation with a fire not more than 12 inches wide, 12 inches high, and 7 inches deep. The whole is very simple, and not the least danger attending it.

I think, Sir, with the same quantity of fuel, there is not any other in operation calculated to do near as much work.

If you think this worthy a place in THE BUILDER, you will oblige your obedient servant,
J. P. H.

Richmond, September 6th, 1843.

[We can, of our own knowledge, bear testimony in corroboration of the above.—Ed.]

MONUMENTAL BRASSES.

SIR,—I see by the newspapers that a paper is now manufactured for the express purpose of rubbing in, or taking impressions from "antique brass" and other such matters. You will find that the great objection in using paper for such purposes is, that it is liable to tear, and also to crease, and therefore not very well adapted for shewing to persons; a much better article, in every way, is common calico, as it is much more easily procured, and is never liable to tear, and, moreover, can be packed up in less space.

As some of your readers may be ignorant of this useful but simple invention, I may as well add, that it is effected by stretching the calico tightly over the monumental brass (or, for experiment, over the back of a book) and then rubbing the paper with common *Acet-hall*, which is to be bought at every cobler's stall in the kingdom.

I am, Sir, your obedient servant,
AN ANTIQUARIAN.
London, September 11th, 1843.

SMALL STREET HOUSES.

SIR,—Upon looking over my last number of THE BUILDER, I find an article upon small street houses, in which it is stated that the Building Act limits the ground to be covered (by that class of houses in which working men usually reside) to 550 feet, which is incorrect, as the present Act only permits the poorer classes to use 350 feet for a full-sized fourth-rate house, and this, I am inclined to think, from the general tenor of the article your correspondent is fully acquainted with, and that it is a mistake of the press, not of the pen. However, my object is to point out to those who may have the framing, &c. of the intended new Building Act, the inconvenience experienced by those who are obliged to live in such cramped-up habitations. It is well known to builders, that in order to obtain the greatest possible amount of ground-rent, the ground landlord pitches the frontage of such houses to 15 feet, so that by deducting the half party walls, the staircase, staircase partition, and chimney breasts, there remains about 7 feet 3 in clear width in the back rooms, rendering it quite impossible to place the bedstead across the room without (which frequently happens) setting fire to the bedding, because the foot of the bedstead comes within about 9 inches of the fire-place, and when placed end-ways in the room, the bedstead is seen from the outside of the house occupying about one-third of the width of the window, and even then being considerably nearer the fire than is consistent with safety. To obviate these inconveniences, it is only necessary to give an additional hundred feet sup. upon the ground-plan, making the frontage about 18 feet instead of 15, and the depth about 25 feet instead of 23 feet 4 inches. I would also suggest that the present thickness of walls be retained in the new Act, as I feel satisfied that if the upright joints of the brickwork be well filled with mortar instead of the common practice of merely filling the outside part of the joint, no fire will be likely to penetrate through, and every person must know, that if the builder is put to something like thirty pounds' expense for extra thickness of walls, the interest of that sum must be paid by the occupier, who is at the present time but ill able to pay the present rents. Another serious and uncalled for addition to the present rents will take place if we are to be compelled to use all

stock bricks inside and out; the object of keeping down damp may be obtained by using stocks up to the springing of the fire-place, say about 4 or 5 feet high, and particularly if a course or two of slate be introduced in the lower courses.

Fearful of intruding too much upon your columns, I leave you to use as you please the second communication of yours, Sir, with my best wishes,

CHARLES NEWNHAM.
1, Walcot-square, Lambeth, Sept. 4, 1843.

WOOD PAVING.

SIR,—As a humble advocate for any thing tending to public improvements, permit me to state what I feel to be undeniable; that the adoption of wood-paving instead of granite or M'Adam's is an inestimable advantage to the public. I regret, however, to find that the value of it is much deteriorated by the constant use of water-carts, which is not only instrumental in its premature decay, but also the principal cause of the "slipperiness" complained of in those localities where it is otherwise successfully used.

Permit me to observe that there exists no necessity for watering wood-paving, as the dust created therefrom is so inconsiderable, that if sweeping-machines were used early in the morning, the watering would be rendered useless. Our parochial authorities appear to be willing slaves to habit and preconceived notions, watching the streets for custom's sake, whilst a host of poor animals are suffering daily from such prejudices. I have no doubt but that Sir Peter Laurie would have been as warmly devoted in the cause of wood-paving as he has been in strenuously opposing its use, had it not been constantly found in a wet and greasy state. I beg to suggest that this paramount objection can easily be overcome by simply keeping the streets dry and clean in the manner which I point out.

Sir, I remain your obliged humble servant,
THOMAS REX.
15, Winchester-row, New-road, Sept. 5, 1843.

SIR,—A correspondent wishes to know how to varnish drawings, &c. I beg leave to inform him that I have successfully used the following method:—Dissolve isinglass in a little water, and size the drawings with it two or three times, allowing it to get thoroughly dry between each coating, then in a warm room varnish it with white hard varnish, using a fine soft brush.

C. NEWNHAM.

NEW PATENTS SEALED IN ENGLAND.

SIX MONTHS FOR ENROLMENT.

William Davey, of Bath, slate-merchant, for certain improvements in covering the ridges and hips of roofs of buildings with slate and other materials.—Sealed July 31.

Charlton James Wollaston, of Welling, in the county of Kent, gentleman, for improvements in machinery for cutting marble and stone.—Sealed August 1.

Peter Borrie, of Princes-square, Saint George's in the East, engineer, and Mayer Henry, of Crutched Friars, merchant, for certain improvements in steam-engines, boilers, and propelling machinery.—Sealed August 3.

Frederick Steiner, of Hyndburn Cottage, Lancaster, Turkey-red dyer, for a new manufacture of a certain colouring matter, commonly called Garancine,—being a communication.—Sealed August 8.

James Home, of Regent's Park, esquire, for improvements in the manufacture of horse-shoes.—Sealed August 8.

Charles Bourjot, of Coleman-street, London, merchant, for improvements in apparatus for obtaining the profile of various forms or figures,—being a communication.—Sealed August 8.

Richard Archibald Brooman, of 166, Fleet-street, gentleman, for the manufacture of paper, cordage, matting, and other textile fabrics, from certain vegetable matters not heretofore made use of for that purpose; as also for the application of the said materials to the stuffing of cushions and mattresses.—Sealed August 10.

John Wood, of Parkfield, Chester, merchant, for certain improvements in machinery or apparatus for affording additional or artificial buoyancy to sea-going and other vessels, or for lessening their draught of water; and which said improvements are also applicable to raising vessels or other heavy bodies, and for securing or supporting the same.—Sealed August 14.

Archibald Horn, of Aldersgate-street, zinc-worker, for improvements in the construction of shutters for windows, and for other purposes.—Sealed August 15.

George Bennetts, of Gunnis Lake, Cornwall, civil-engineer, for improvements in steam-engines

and boilers, and in generating steam.—Sealed Aug. 15.

Thomas Young, of Queen-street, London, merchant, for improvements in obtaining power.—Sealed Aug. 15.

James Brown, of No. 2, High-street Place, White-horse Lane, Stepney, esquire, engineer, for certain improvements in tackle and apparatus for working and using chain cables in ships and otherwise; and also certain improvements in the tillers of rudders of ships and other vessels.—Sealed Aug. 16.

Frederick Lipscombe, of University-street, gent., for an hydrostatic engine, parts whereof are applicable as improvements to other engines, and other purposes; and also improvements in railway carriages.—Sealed Aug. 17.

John Charlton, of Birmingham, factor, for certain improvements in castors for furniture.—Sealed Aug. 17.

John Collard Drake, of Elm-tree Road, St. John's Wood, land-surveyor, for improvements in lining walls of houses.—Sealed Aug. 22.

Mark Freeman, of Sutton, Surrey, gentleman, for improvements in card-cases.—Sealed Aug. 22.

Gaspare Conti, of Sherrard-street, Golden-square, gentleman, for improvements in hydraulic machinery, to be applied as a motive power.—Sealed Aug. 22.

William Wilson, John Studholme Brownrigg, John Cockerell, and Sir George Gerard de Hoche-pied Larpet, bart., all of Belmont, in the Wandsworth-road, patent cocoa-nut candle and oil-manufacturers, and cocoa-nut oil-merchants, assignees of a patent granted by his late Majesty King George the Fourth unto James Soames, jun., of Wheeler-street, Spitalfields, soap-maker, for a new preparation or manufacture of a certain material produced from a vegetable substance, and the application thereof to the purposes of affording light, and other uses, for the term of three years from the ninth day of September next, the expiration of the original patent.—Sealed Aug. 24.

William Fletcher, of Morton House, Buckingham, clerk, for certain improvements for the purpose of securing corks, or substitutes for corks, in the mouths of bottles or vessels of the nature of bottles, whether made of pottery or of pottery of the kind called stone-ware, or of glass.—Sealed Aug. 24.

Alexander Connison, of Everett-street, Brunswick-square, engineer, for improvements in steam-engines.—Sealed Aug. 24.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1483.)—Windows.—Due Assessment in 1834-5.—Opening new.

Where a party was assessed for the year ending 5th April, 1835, for fifteen windows only, and had since opened two new ones, he was held to be properly assessed for twenty-four windows in 1840, he having then that number, and being unable to account for the non-assessment of the seven in 1834-5, or to shew that he had opened them since.

At an adjourned meeting of the commissioners acting for the borough of Wigan, in the county of Lancaster, in execution of the acts granting the duties of assessed taxes, held the 15th September, 1840, for hearing appeals against the first assessment of the said duties, for the year 1840, ending the 5th of April, 1841 (48 Geo. 3, c. 55, sch. A.):—James Newsham, of Wigan aforesaid, gentleman, appealed against an assessment in respect of the windows of his house, the number charged being twenty-four. It appears that in 1834 he was assessed for fifteen windows, and in pursuance of the privilege granted by the act of 4 & 5 Will. 4, c. 54, s. 7, he opened two windows, for which the appellant claimed exemption.

The surveyor contended that the appellant was liable to be assessed for all the windows now open, on the ground that he was not duly assessed in 1834.

From appellant's statement it appeared he must have had twenty-two open in 1834, although only assessed at fifteen.

We, the commissioners, being of opinion that the appellant was entitled to relief to the extent of the two windows opened since the passing of the 4 & 5 Will. 4, c. 54, directed the assessment to be reduced from twenty-four to twenty-two, with which determination the surveyor was dissatisfied, and requested a case to be stated for the opinion of the judges.

Witness our hands this 4th day of February, 1841.

WILLIAM LAMB.

BENJAMIN POWELL.

18th May, 1841.—We are of opinion that the determinations of the Commissioners is wrong.

J. PATTESON. T. COLTMAN. W. WIGHTMAN.

(No. 1484.)—The same point as in No. 1483.

At a meeting of commissioners acting for the borough of Wigan, in the county of Lancaster, in execution of the acts granting the duties of assessed taxes, held the 15th September, 1840, for hearing appeals against the first assessment of the said duties for the year 1840, ending the 5th April, 1841 (48 Geo. 3, c. 55, sch. A.):—Robert Waddington, of Wigan aforesaid, victualler, appealed against an assessment in respect of the windows of the Black Horse Inn, which he occupies, the number charged being twenty-four. It appeared the appellant was assessed for eighteen windows in 1834, and that in pursuance of the act of 4 & 5 Will. 4, c. 54, s. 7, he has since opened two windows. The surveyor contended that the appellant, by his own shewing, was not duly assessed in 1834, there being in that year twenty-two windows in his house, and being only assessed for eighteen; he was consequently not entitled to the privilege granted by that act.

We, the majority of the commissioners present, relieved the appellant from the charge in respect of the two windows opened since the passing of the 4 & 5 Will. 4, c. 54. It appeared the appellant had opened them in consequence of the provisions of that act, and we directed the assessment to be reduced from twenty-four to twenty-two windows; but the surveyor expressed his dissatisfaction with our decision, and requested the case to be stated for the opinion of the judges.

Witness our hands, this 4th day of Feb., 1841.

BENJAMIN POWELL.

WILLIAM LAMB.

18th May, 1841.—We are of opinion, that the determination of the commissioners is wrong.

J. PATTESON. T. COLTMAN. W. WIGHTMAN.—Justice of the Peace.

BRUNEL V. GOODRICK AND OTHERS (S. J.).—Mr. Cockburn and Mr. Butt appeared for the plaintiff; Mr. Sergeant Bompas for the defendant, Goodrick; Messrs. Crowder and Barstow for the second defendant, Colonel Cameron; and Mr. M. Smith for the third defendant, Mr. Summers Harford.—The action was brought by Mr. I. K. Brunel, the eminent engineer, to recover the sum of 1,800*l.*, being the balance of an account of 3,050*l.* for moneys paid and personal remuneration for making a survey and drawing the plan of a proposed line of railway from Gloucester to Milford Haven, called "The Gloucester and South Wales Railway." The personal remuneration was stated by Mr. Cockburn, in his opening, to be a very small portion of the gross sum—250*l.* The defendants were gentlemen of fortune connected with towns through which the railway was intended to pass, and who, it was alleged, had taken an active part in the preliminary meetings, in 1836, at which the plaintiff was appointed engineer, and directed to make the survey. They all, by their pleadings, denied their liability, and also pleaded the statute of limitations. Although the case occupied a long time, there was nothing in the details of an interesting character, the evidence principally consisting of documents from which it was sought to fix the liability of the defendants. His lordship more than once suggested an arrangement, and it was at length agreed to take a verdict for the plaintiff, subject to a reference.

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Yearly.....	17	4

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THE BUILDER can be supplied from the Office, 2, York-street, Covent Garden, on the remittance of a post-office order in advance.

The charge for Advertisements will be as under:

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Advertisements for THE BUILDER must be forwarded to the Office on or before Wednesday in each week.

Tenders.

TENDERS for alterations &c. to Mr. F. Waller's house, No. 49, Fleet-street. September 12th, 1843.—Messrs Baker and Waller, Architects.

Mr. Vigers	£690
Messrs. Woolcott and Son ..	630
Mr. Winsland	587

NOTICES OF CONTRACTS.

THE following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification of which they may choose to avail themselves.

CONTRACTS for supplying the Holborn Union. September 20.

CONTRACTS for serving the poor of Bermondsey. September 20.

CONTRACTS for supplying the parish of St. Luke, Middlesex. September 20.

CONTRACTS for supplying the Greenwich Union. Sept. 20.

CONTRACTS for serving the parish of St. Giles, Camberwell. Sept. 20.

CONTRACTS for supplying the Hendon Union.—Sept. 20.

TENDERS for supplying chain, not exceeding 1400 tons on the whole, for the Northampton and Peterborough Railway.—Office, Euston Station. Sept. 20.

CONTRACTS for supplying the parish of Lambeth for six months ending March 25. Sept 21.

CONTRACTS for supplying the West Ham Union. Sept. 22.

TENDERS for supplying wooden sleepers for the Warwick and Leamington Branch Railway. September 22.

CONTRACT for building a Workhouse for the Bromley Union. Sept. 22.

CONTRACT for building a Workhouse for the Bromley Union.—Door-house. Sept. 22.

CONTRACTS for supplying the Westminster Bridewell.—Mr. Allen, 17, Carlisle-street, Soho. September 23.

CONTRACTS for serving the parish of Mary-lebone. Sept. 26.

HOUSE OF CORRECTION, WISBEACH.—Mr. Basevi, Architect, 17, Saville-row, London. September 29.

CONTRACTS for serving the Committee of the Corporation of the Refuge for the Destitute.—Rev. W. T. Vance, General Committee-room, Hackney-road. Sept. 29.

TENDERS for executing on the river Shannon, at Roskeary, a lock 112 feet in length and 30 feet in width, with its gates and machinery; two weirs, together measuring 730 feet in length, with their retaining walls; underpinning and altering the present bridge; constructing a quay wall and wharf, about 450 feet in length; excavating the bed of the river, and forming embankments; together with other works, as represented on the drawings to be seen at the Commissioners' office in Dublin.—Secretary to the Shannon Commission, Dublin. October 1.

Stations at Durham and other places on the Newcastle and Darlington Railway.—Mr. Andrews, architect, York. October 4.

TENDERS for erecting a Workhouse for the Sevenoaks Union.—Mr. Camell, Clerk to the Guardians, Sevenoaks. November 1.

COMPETITIONS.

Premium of a gold medal or money for the best mode of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

Plans for the enlargement of the present Hospital for consumption and diseases of the chest at Chelsea, 30 guineas.—Office, 20, Great Marlborough-street. September 20.

ERRATA.—Owing to the unavoidable absence of the Editor last week, two or three awkward mistakes have occurred. The first relates to the doorway stated to be in Thornbury Church—the letter headed a Norman Doorway, and signed I. N. Hawtin, refers to it; and the unfortunate doorway which that letter is made to misrepresent is from Wells Cathedral, whence the beautiful hinge at page 371 is taken. In fact, these two latter cuts ought to have been placed together. The next error refers to the window, which is from Penton Church, Andover, Hants.

PREMIUM OF THIRTY GUINEAS.
ENGINEERS, MECHANICS, INVENTORS, &c.
NOTICE IS HEREBY GIVEN, that
the Committee of the Practical and Scientific Association for the Promotion of Improved Street Paving, Sewing, Drainage, &c. &c., No. 26, Vere-street, Oxford-street, London, have resolved on offering a PREMIUM of a MEDAL of the value of Thirty Guineas, or the like in money, for the best and most approved mode for fully cleansing the Public Streets, combining the following requisites, viz. convenience, efficiency, and economy. Plans and descriptions are to be sent in on or before the 1st of March, 1844, in sealed covers, bearing a motto, and accompanied with a letter, enclosing the name and address of the competing party.
A practical demonstration of the method proposed to be adopted will be required.
Field of competition is equally open to Foreigners in any part of the world.

By order,
J. N. G. GUTCH, Secretary.

THE BUILDER,

NO. XXXIII.

THURSDAY, SEPTEMBER 23, 1843.

THE SUSSEX MEMORIAL.

IMMEDIATELY upon the demise of the late Duke of Sussex, my attention was directed by gentlemen who had been attached to his Royal Highness during his life, and connected with his sorrowing friends after his death, to the erecting of a suitable memorial. We both agreed in our dissent from the usual practice of erecting columns, statues upon pedestals, and the like, and my friend urged the propriety of a structure, having some useful object or some other object of interest, to distinguish it. This gave me an opportunity of enlarging upon the like of which I had myself entertained, and for the first time to so far back as in the competition for the Nelson Memorial. I took the liberty at the time of submitting to his Grace the Duke of Wellington, who was a member of the Admiralty Committee, that I thought the hall, and at best questionable appropriation of the column a poor effort or expression of the public's gratitude, in reference to the greatest of our naval heroes, and that a NELSON TOWER, or a tower, might be included in the memorial. The tower, a conspicuous and imposing object, and the hall, contained within its walls the statues, busts, and portraits of the other renowned defenders of our country by sea, which might be placed in niches around the walls, while the figure of the great Nelson himself should occupy the centre, or a prominent situation on the floor. Naval trophies and records could be placed in the hall, and have been preserved for ages, and the glory of England's greatness thus eloquently and emphatically expounded.

My mind ran so far in favour of a prominent character being given to it, that if Trafalgar had been irreversibly assigned as a site, I would have had the Nelson Memorial second to nothing in it: the National Gallery, St. Martin's Church, or any thing else that occupied, or could have occupied, the site, should have been in subordination to the memorial, and not, as has been the question, the memorial might be subordinate to the site. A vast tower, something in resemblance of that which "leans in Pisa," or something of the expressiveness of the Campanile of our own island, such as the church tower of Exeter and Louth, should have reared its lofty and overshadowed the spot, needing no question to be asked, but that the very drench might lip of it, and identify it in its ownness with the prowess of him whom it commemorated. The NELSON TOWER should have been a household or a townhold term, in which Trafalgar-square even might have been included. A tower like this would have been necessarily a costly one; its exterior plain and simple in form, but the interior would have been decked out by constant viewings, and enriched with thousands of thousands of pounds' worth of the successive designs and chisellings of our artists. The names of a Smith, a Saumarez, and an Exmouth would have been found in the prepared receptacles, instead of its being a question to be now raised and discussed as to their appropriate placing; Westminster Abbey and St. Paul's, too, would have been

relieved of a large portion of the crowd of objects that disfigure them.

These preparatory remarks will serve to explain much of that which pertains to the present subject. I would not have a barren or useless erection, where it appeared to me worth while to raise one at all—there seemed to me a *moral to be pointed, a tale to be adorned*. On the other hand, I would not have it understood that I would ascribe with so much of parade as my design exemplifies, a world of superlative merits to his late Royal Highness. We do not judge of character by monuments, but we may look in them for an index of that to which they relate; and so I would make this building an index or permanent record of objects, a time, and circumstances, that may be said to have been associated with the life and memory of the Duke of Sussex.

Therefore the structure would not be less a memorial of his Royal Highness than of Freemasonry, with which he was associated; not less as indicating his noble and princely character, than the alliance he formed with arts and sciences that ennoble; not less of Freemasonry as it is understood now, than of pure masonry as it was once, and as it is still practised in this country. I would make it at once a Sussex Memorial, a Sussex Library (for here I would have his books preserved), a Freemasons' Hall, a Hall of Literature and Science, and, finally, a living type of the arts of structure and design as understood and practised among us up to and at this period. I would have it, as far as my poor powers of contrivance or combination go, a master-piece of masonry, and so, in all senses, to be viewed as a work of the time, and a national monument. And wherefore should we not seek occasions such as these, and to enlarge upon them after this fashion? It was thus the ancients did, and our own country is graced with many of its most honoured edifices, devoted to great and useful purposes, and, at the same time, allied with the names of men, whose life or death furnished the occasion for thinking or setting about their erection.

Not that I would pretend to the possession of any extraordinary qualifications for one part of the task I have chosen; to make a living type of the "arts of structure and design" of this day may seem to many a superarrogant presumption on my part to aim at. I am aware of the charge I expose myself to, and the risk I have to run. I might have attempted an anachronism in the classic or the Gothic styles, and had my defenders or apologists in those who espouse the one and the other; but a living type of the styles of the day! a combination of the two and the ten, which opposite sides affect, a union in one building of the manner and principles of both, or all! this is to brave the frown of all parties, and win the smiles of none. There are some, however, who are philosophers in architecture, and not mere pedants in styles: to these, I must take courage and appeal.

It is certain, however, that I have done nothing with a design to provoke; bad or good the composition, it is, barring the accidents, my own. I sat down to my task thoughtful of the duke, just then departed, mindful of his royal and noble lineage, somewhat of his popular character, his affection for art, science, literature; impressed with recollections of his Biblical amassings, which I felt anxious to see preserved—but, above all, I thought of Masonry, out of which had once grown forms with whose beauty my early studies had made me familiar; these linked together, started one impromptu effort of my pencil. The great hall, a library for the Bibles, an arch of stone on each facade, through which the light should be admitted, a farther elaboration of the arch in skeleton ribs poising upon these, and these former balanced and abutted, the convergence of the whole to form a gallery, and crowning it with a globular apex, was the work of a few minutes.

I started with the cube and ended with the sphere, there lying between the mutual affinities of either: so far the conjugation proceeded happily. Principles of structure too, common to all styles and peculiar to some, had run in and blended, and appeared to me so "joined together" as to forbid being "put asunder." The arch, that once novel principle of structure, the germ from whence sprang so much of the beautiful in architectural poesy, here flows out of, as it did in history, the

simple cube or rectangle. The arch, in its ramifications and modifications, has expression upon and around it, and bears its own epithet, or concentrated principle, the sphere, as a terminal—the *seed*, if I may term it, of a beautiful flower. The forms of one age became clad in the dress of another, and it seemed comely to me, and I learnt, or fancied I learnt, more of what were eternal principles of art, and what its accidents, than I had discovered before; but so it passed, and came out this my design for the Sussex Memorial. No statue of the Duke, at least none on the exterior; but yet I must have something to indicate the object of the structure. Allegories have been written before in stone, and mine was to embody in it a representation of the Genius of Science presiding over the entrance to the Temple of Science, holding in her hand, and directing attention to, the medallion likeness of the Duke of Sussex. At the four angles, stretching out as the arc-abutments do, diagonally and quadrilaterally, I place emblematical sculpture of the four quarters of the earth, and the minor points are Zodiacal signs, Masonic emblems, &c. &c.

To many this description of mine will convey an impression that fancy and a wide licence of the imagination have had to do with the production of this design; it was not so, however, it is now only that I have produced it, when the liveliness of fancy re-acts upon the gravity of study, and clothes the more sober product of the pencil with the garniture of idealities. In greater affairs, a Vitruvius has amused and instructed us by tracing the resemblance in that prime unit of architectural proportions, the column, to the proportions of the human figure; and we have a tale of affecting interest told by architectural nurses of the invention by Callimachus of the Corinthian capital. Many have been the speculations, too, as to the suggestive sources for the groined roofs of our cathedrals, they being ascribed by some to the "embowered grove," and not a point or a pillar, a buttress or a pier, a door or a window, a moulding, a curve, a line, but, according to others, has been determined by some principle of pious fancy, rather than by the steady rule of constructive experience; the truth is, or at any rate it so appears to me, that there being so intimate, so indissoluble a relation between truth in art and the truth of nature, it follows as a matter of course that when the former is evolved of the process of correct reasonings, of inductive experiences, of instructive appreciations of the latter, those results attend which a keen perception detects, and which, given expression to in language, look like a key discovered to unlock some secret source of inspiration; whereas, after all, we have only discovered the analogies which always exist between art and nature, and which men trained in the school of nature produce to us in all their better labours in the workshop of art.

It was not, therefore, that I sat down to give vent to certain corked-up speculations and fancies, but it was as I have told it. Nor did the cubical form for this the first time possess my affections. I had made it a consideration of many years past, and out of this had grown a choice in the matter. It was not that I designed to amalgamate styles or sat down to order, to use, or invent one. It was not the eye alone that was to be pleased; but that the eye should see through the understanding, and know why it should be pleased. It was certainly not prepared, however, to be scared away with the bugbear of styles, or of styles desecrated necessarily because they are mixed. I had studied styles too long, and had sought for their roots and origins, which I found to be one, to be afraid of contact or admixture, so that it proceeded on a principle. That principle I had endeavoured to make myself master of, though, as yet, I feel to be making, and in this, perhaps my first public effort, little more than the first steps of my novitiate. Humbly, therefore, do I commit my Thesis to my judges and examiners, not to be maintained or defended pertinaciously, but to be maintained, unless assailed by better argument than the stock and staple of schools and mannerists.

One friend to whom I shewed it, exclaimed, "Well, this is the ugliest thing I ever saw in all my life; a bit of Greek, a bit of Gothic, a bit of Roman, a bit of Arabic, a bit of Egyptian, a bit of Saracenic, a Sussex Memorial! why

it is like some of those abominable masses of marble in Westminster Abbey,—away with it." I did not detect any argument in this, though my friend, not being an architect, but being educated in the popular school, where "Pin-nock's Catechism" and "Pugin's Grammar" induct in all the mysteries of architectural orthography, etymology, syntax, and prosody, might be taken, as I believe him to be, as the lively exponent of the popular voice. If I had not known it before, I knew then, what I should have to contend against in certain quarters. If I had been a Shakespeare or a Milton appearing in these our days, I should have been tried, by such critics, by the statutes of Lindley Murray, and offending against these, no matter the pith of my argument, should have been condemned. The standard Greek foot of measure and of rhythm would have been produced against me, no matter for the foot or scale to which it was adapted; and so in this. The five orders of the classic or Rickman's five ages or styles of the Gothic, are the canon law of our profound expositors. Shall I be bold enough to say they are no law for me? No, but contrariwise, they are to me ALL LAW, the spirit of which I would study and expound; but you, reading from the letter, study not, and know not the spirit—"The letter killeth, but the spirit giveth life."

So my friend's denunciations were really and intrinsically as many compliments; so many good things, even in a hodge-podge, should have their merits. However, I lent him some glasses wherewith to make a second survey, and it is surprising how soon the view was changed with change of the medium of view. I told him this was not a monument, or a "tiny conceit in stone," such as he apprehended, to be put under a roof, ridged at the respectable height even of sixty or a hundred feet, but a structure of itself some hundred or a hundred and fifty feet high, not a useless mausoleum either, but an edifice to contain within it matter of useful purport; and I recounted besides what I have already stated in this paper as to my desire to embody certain great characteristic evidences of the state of art, literature, science, &c., for which I had my plea in the peculiarities of the design; that the great hall at the base, of which he saw the portal or entrance, would be some forty-five to sixty feet square, galleried in the interior, not with petty slabs of balconies, but in storied screens, that is, having an interior wall of open masonry or bronze, between which and the exterior wall, books should be stored and access had to them; that opposite the entrance and in a corresponding extension on the exterior, I would procure an interior recess or apsis, in which should be placed on a slight elevation a statue of the Duke of Sussex, this, with the medallion likeness on the exterior, the Masonic emblems, and his books, being all the attempt at panegyric, the whole amount of the sin eulogistic. The floor of the hall I propose to keep clear, except, that laid in parti-coloured stones, and inlaid with metals, it might suit to denote certain calendar matter for common reference, in which we might borrow useful hints from the ancients. I explained how I should procure light from the four large semicircles above the square, through strong plates of the ordinary cast glass, wrought crystalwise and set in metal frames of a mosaic pattern, which, being gilded, would give the whole sheet an air of great richness and brilliancy, and yet at no more than an ordinary expenditure; that, besides, this would be a species of eye-light in the centre of the vault or ceiling, and that this vault would be of a bold and unique character; the summits of the four arches, and the upper rim of four large angular brackets or pendants, serving to spring eight smaller and superior arches, upon which would rest a bold horizontal zone or curb, containing the aforesaid eye of glazing to close it in. I described, also, that from this roof of stone would ascend a spiral and open central staircase to the gallery; and from this gallery also would be access to the crowning sphere of glass, which sphere would be some 15 or 20 feet diameter, set in metal frames, suitable for a planisphere or an horologue, and that as this spherical form, transparent without, and to be illuminated by night, would have an aptitude as the emblem of superior celestial phenomena, it was borne by bronze representations of winged spirits, and finally crowned by that "sign in

the heavens," the Cross. These things set forth, together with such an estimate of the general boldness and vastness of the exterior character as I could but imperfectly describe or he comprehend (for the effect of great masses of masonry and their convolutions, as herein premised, are not to be appreciated from description)—these, and other explanations in which I had leisure to indulge, served, as I have said, to change the view to my friend, and to obtain for me a more tolerant consideration, until a new phase of architectural *refulgence*, favourable or unfavourable, shall have burst in upon the world.

These are not my defences, however, though they involve great part of my reasonings. To these I must add what, with many under similar circumstances, would have been made matter of dedication. Setting forth, "To the royal, noble, and illustrious friends and admirers of his late Royal Highness—To the subscribers for a memorial, &c. &c." To these, however, I make my appeal, and I appeal, moreover, to the Freemasons, with whom, as a body and as their head, the Duke of Sussex was so intimately allied. I appeal also to the masons proper; and I appeal to the people—I call upon all to make this an occasion, or rather to seize the occasion already made, for money is being subscribed for a memorial, to set up a truly national monument.

The market and memorial crosses of the middle ages may be taken as our archetypes. The triumphal arch, the column, the obelisk, the pyramid, the mole, the mausoleum, the tumulus,—all these may be borne in mind, but not servilely copied. The principle that prompted and regulated the erection of them may be observed in these our times, but the principle is of and in the times, not out of them. To the Masons proper I say, unite at the era of your familiarity with the examples of Greek or classic ornament, and of Gothic or medieval structure, unite the two, the elemental form and the chaste in decoration. Let it be seen that you are not behind in the requisites for the accomplishment of marvellous works in your art; that the vaulted rib, the equilibrated arch, can be erected by your skill, as in times of yore—that the recreations in masonry, which grave men doubtless indulged in, when St. Mary's of Newcastle, the stone Beam of Lincoln, the pendants of King's College and Henry the Seventh's Chapel, the arc boutants of all the cathedrals, and, finally, the tower of St. Dunstan's, were created,—that re-creations such as these are not above your enjoyment, and with something of equal good taste in the appropriation, I would exhort you to write down a free translation of these, but not to maul the sense by literal transcripts: that you should rise to the dignity of your craft, and not remain sunken at the level of mere hewers and wallers.

And to the Freemasons, without being initiated in the mysteries of your order, I beseech you not to affect the name. Once your fraternity were emphatically what you now designate yourselves, and such it may be again. Another age may look upon the memorial of your late grand master; take heed, then, that if you incorporate your brotherhood with the mention of his name, it be not an enigma and a sarcasm—that Freemasonry should not have been a term of empty signification; that the science, which will by that time have been traced to its founders, may have its jottings down in the records of the craft in the nineteenth century. To the subscribers for the memorial, among whom will be ranked many illustrious for talent in the arts that distinguish this period, I would say, seize the occasion, to transmit in unwritten, but yet indelible terms, the progress you had made. In this building you may enregister most of the discoveries and titles of discovery that belong to the times in which you live. Meteorology may be favourably observed on and noted here. The states of the wind, of the humidity and temperature of the atmosphere, by the different instruments, may be recorded for common and public observation; the globe at the summit, being brilliantly lit up at night by the Bude or Boccia lights, will serve to illumine a great space around, and may be made a huge spherical clock with a variety of indexes of planetary phenomena; in fine, there are many things to be suggested, for which expensive structures are every day being projected and erected, that in this might obtain their common cultivation

and attention, and so that we might be spared the reproach for poverty of invention and of lavish expenditure of money in useless column statues stuck among laburnum trees, or standing upon privet hedges in our garden squares.

One word about the drawings—these are necessarily very imperfect, but they will serve to shew the most of my intention. The perspective view would, in some senses, have been better taken as at a greater distance, but the building itself would have been reduced in apparent size, or the paper must have been enlarged. I have not shewn the spiral open staircase, wishing to avoid the confusion of lines it would have produced in the drawing; the figures are hastily and imperfectly drawn in, and, in fact, the whole thing requires the polish of a second sitting, but my engagements prevented this being given to it. Note that the little matters as to the draughtsmanship, or the right introduction of the emblematical signs, have much to do with the merits of design; but I mention it because I know many will look at these little points, and think more of defects in them than of the larger issue in which they are involved. I would have pleased me also to have given an interior view, and probably a ground plan, although the simple character of the structure would hardly require one for its being generally understood.

These minor omissions I must plead to have excused; and now, although I may seem to have levelled certain darts at the practice of many of my contemporaries, I may, in this full, give the most earnest assurances that I have no personal end or enmity. I have too much esteem for the individual and general talent which is now being set forth so conspicuously, to venture upon the impertinence even appearing to undervalue it; and though I know that what I have done must of necessity provoke many superficial and senseless criticisms, yet it will not be for me to confound these with the considerate and profound judgments of the experienced and impartial. I have made an offering to what I conceive to be the requirements of art in my own time and sphere. It may serve at least as a suggestion, or, in this day of cartoons, as mine, referring to a new or revived practice; and as we appear to be about to emerge, in one branch of art, from that style and manner which Michael Angelo characterized as being fit only for children, into the grander one of fresco, with all its concomitants of enlarged conception, expanded thoughts, and great realizations, may I hope that the portraiture of sculpture, of busts and statues, or that highest gift of impersonation, the equestrian—will, with the portrait style in painting, have its elevation and change. I have much more to urge in reply to the presumed taste to which my views may be obnoxious; but I will pass it by, and defer it to an opportunity wherein it may be more appropriately dealt with. The practicability of my design is what I am assured of, and well fortified in by past experiences; with this I leave it in the hands of those who may concern.

JOSEPH HANSOM.

We understand that other designs for the Sussex Testimonial are in a state of forwardness; if we can have the same facilities given us which have kindly been afforded by Mr. Hansom, we shall have great pleasure in laying them before our readers.—EDITOR.

INSTITUTION OF BUILDERS' FOREMEN

It is astonishing to observe the onward progress towards one end of all sections of society; that constant process of accretion among the different bodies of the community by which the integral masses are formed of heretofore scattered or unrecognized individuals. Last week, we noticed the proposition for a Masonic Benevolent Institution, and now, this week, we have before us the prospectus and rules of a body as above designated. We wish them every success, and will do all in our power to contribute to it. It is well known that, according to the present practice of the building art

men are a class growing gradually into importance, both as to numbers and influence; it might be so, as self-respect united with a spirit of pride in one's order are the strongest preservatives of independence, and, therefore, we are glad to see an institution set on foot to encourage this. The surplus funds ought to be appropriated to the object of procuring an asylum for the aged and decayed, and, likewise, to render some assistance to the poor and orphans of deceased members.

ON THE ART OF MAKING GLASS.

The origin of the art of making glass, like of many other valuable inventions, is probably due to chance. Pliny relates that it was first accidentally discovered in Syria, by some travellers, whilst dressing their food. For this purpose they made a fire on the sand, and, where there was a large quantity of the alkali, which was thus burnt to ashes, and salts being incorporated with the sand, it became vitrified. The inhabitants of the neighbouring city of Sidon availed themselves of this discovery, and soon brought the art into use. However the correctness of this point of the discovery may be questioned, it is certain that the most ancient glass-houses in which we are acquainted were erected in Egypt, which was for many years the staple of manufacture; and, as it is scarcely possible to excite an intense fire, as is frequently necessary in metallurgic operations, without vitrifying some part of the bricks or stones of the furnace composed, we may easily conceive that the hint of making glass may have been thus accidentally furnished.

The information to be collected from ancient writings respecting the manufacture of glass is very scanty. It is not supposed to have been made at Rome before the reign of Tiberius, which period an artist discovered the means of rendering it flexible, and we learn that he was put to death on account of his invention. Numerous utensils of glass were found amongst the ruins of Herculaneum, which was destroyed in the first century of the Christian era, but these were most probably imported from the East; and although it has been conjectured from the circumstance of a plate of glass having been found there, that glass windows were at that time in use, yet the first positive mention of them does not occur until more than two hundred years later.

It appears, however, that the art of making glass was understood in Britain before the Roman invasion, for thick rings of glass were that period found in the island. They were made by the natives glass adders, and it is not probable that they were distributed by the Romans as amulets. Some of these are still occasionally found in various parts of the country; they are of different colours, and a few of them curiously streaked, and we have the authority of historians that domestic utensils were formed of the same metal.

We are told by the Venerable Bede, that glass-workers, skilled in making glass for windows, were first brought into this country from the Continent in the year 674, and were employed in glazing the church of the monastery at Wearmouth. But the art was not generally acquired, and the luxury of such windows was slowly adopted, for it was not until a century after the Norman conquest that they began to be used in private houses, and even now they were considered as marks of great magnificence.

The general manufacture of glass was not commenced in England until the middle of the sixteenth century, at which time the principal works were in Crutched Friars; but the first art of flint-glass was first made at the Savoy-works in the Strand. Considerable improvements were made about the year 1633, when a patent was granted to Sir Robert Mansell, who also possessed a monopoly of the importation of Venetian drinking glasses, the art of making which was not brought to perfection into this country until the reign of William III. The first plate-glass was made in 1673 at Lambeth, and this manufacture was introduced by the Duke of Buckingham, who for that purpose brought over several Venetian workmen.

YORKSHIRE ARCHITECTURAL SOCIETY.

On Thursday week, the members of this society held a meeting at the Court House, Rotherham, when a highly interesting paper was read by the Hon. and Rev. W. Howard, Rector of Whiston, on Rotherham Church, a cheap copy of which will shortly appear, and will well repay perusal. An instructive paper was also read by the Rev. J. Faucett, on "Churchyards," in the morning, and in the evening he delivered a lecture on "Church Architecture." The rev. gentleman took occasion to allude to the recent improvements and alterations that have been effected on the beautiful edifice at Rotherham, and paid a high compliment on the excellent arrangement of the same. At the request of several gentlemen, the Hon. Mr. Howard again produced the paper he had previously read, which was listened to with the greatest attention, and interest.

No doubt the inhabitants of Rotherham will be glad that the completion of this improvement is fast drawing to a close, but there still remains a good deal to be done before the whole will be entirely completed.

The subject as to the best situation for the organ, was brought before the members of the Yorkshire Architectural Society, when they unanimously decided upon the north transept as the most eligible. Messrs. Gray and Davison will have commenced the improvements and additions to the organ, and it is to be hoped in the course of a few weeks, the whole of the church service will be performed with its accustomed efficiency.—*Sheffield Mercury.*

KINGSTON CHURCH, HANTS.

(From a Correspondent.)

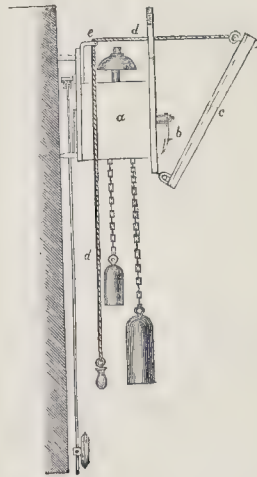
A CHURCH is now being erected in the parish of Portsea, Hants, by Mr. D. Nicholson, under the directions of W. Moseley, Esq., architect. The style is Gothic; the walls are faced with flint, with projecting buttresses; the external angles being of Caen stone, and the internal of white brick. The doorways, window-jambs, mullions, &c., are also of Caen stone. The western doorway, which forms the principal entrance, is worthy of notice, it being of a neat and chaste design. The interior when finished will doubtless have a very light appearance. The principal roof, which is skeleton framed, is supported on octagonal pillars, from the capitals of which spring Gothic arches. The chancel, which is spacious, will have a groined ceiling, and will give to the church a noble appearance.

The foundation-stone was laid on Thursday, the 31st day of August, 1843, by the Lord Bishop of Winchester, who was attended on the occasion by a lengthened procession, in which the mayor and corporation of the borough formed a prominent part. His lordship on his arrival at the site of the building, expressed his approbation of the progress being made in very high terms, and to testify the sincere regard he bore towards the sacred edifice, presented the Rev. the Vicar with 5*l.*, in addition to his former very handsome donation of 50*l.*

THE SAW.—The saw is an instrument of the most remote antiquity, and its advantages were so well appreciated by the ancients, that they ranked the inventor amongst the Gods. The discovery is attributed to the accidental use of the jaw bone of a snake in cutting through a piece of wood. This is not improbable, as some snakes have teeth of that kind, and in some of the islands in the Pacific Ocean, the natives make use of the serrated bones of fish for a similar purpose. The form of the ancient saw has been accurately shewn in a curious relief found in the ruins of Herculaneum. It is a painting in which are represented two genii in the act of sawing a piece of timber; the plank is extended on a long bench, to which it is fastened with cramp-irons, and over one end of which it projects. One of the operators is standing, the other seated on the ground, performing the operation with a frame-saw, which appears in every respect similar to that now in use. The blade is fixed in a square frame (the handles being formed as at present), and the teeth stand perpendicular to the plane of the frame. The cramps are shaped like the figure 7, which is the form still adopted in some kinds of work; and the bench itself bears a strong resemblance to the modern carpenter's table.

DESCRIPTION OF A CHEAP TELL-TALE APPARATUS FOR CONTROLLING WATCHMEN.

FROM some of the recent fires we have learnt how important it is that premises in which combustible matter is stored, or which from any cause are peculiarly liable to fire, should be visited from time to time during the night, so that early notice be given of the outbreak of fire, and timely attempts be made to check its progress. The appointment of watchmen will not of itself suffice, simply because, to ensure the performance of their duty, watchers must be set over them. Some ingenious contrivance for controlling watchmen, and checking, as it were, the discharge of their duties, have from time to time been invented. One quite infallible is, we believe, in use at the India House. The following, of which we read in the *Polytechnisches Central Blatt*, will answer the purpose when watchmen of ordinary intelligence are to be dealt with:—



This figure presents a profile of the apparatus. A clock, *a*, of the simplest kind, is attached to a wall at a sufficient height to be above the reach of the watchman, or of any instrument he may hold in his hand. The hour hand, *b*,—and it may be observed that a minute hand is not necessary in a tell-tale apparatus,—is curved at its extremity, downwards, towards the face of the clock, without, however, touching it, and is provided with a pin, fixed at right angles in it. A thin, flat piece of wood, *c*, rather larger than the face of the clock, is fastened by a hinge to the lower part of it, and by means of the rope *d e d* running over a pulley at *e*, may be drawn up from a perpendicular position until it presses against the pin on the outward surface of the hour hand *b*. A piece of paper of the same form as the dial-plate, having the figures 1—12, marked on it in such a manner, that the numbers of the one cover the numbers of the other, when the paper is applied concentrically to the dial-plate, is pasted or pinned on, each time that the apparatus is to be used. If the rope *d e d* be pulled until the board *c* be pressed forcibly against the pin on the hour-hand, the point of the hour-hand will pierce a hole in the paper, and, as the hour-hand is elastic, it will resume its position when the pressure of the board *c* is removed. The hole thus pierced will denote the hour at which the rope has been pulled; and the number of holes in the paper will tell how often, and at what hours, the rope has been pulled. The watchman should be ordered to pull the rope each time that he goes his round, when the paper will of course shew how often and at what hours he has gone his round. If it be desirable that he go into several places once during each hour of the night, a separate apparatus may be put up in each, and each clock may be put a certain number of minutes slower than the preceding one on the watchman's beat. The expense, it is obvious, will be comparatively trifling.

USE AND OCCUPATION.—NUISANCE.

SMITH V. MARRABLE.

COMMON sense tells us that a man who lets a house to another, lets it under an implied condition that it is habitable. This implied condition the law will support. Very nice questions, however, arise as to the right of a tenant to quit, when he finds that the house is not habitable. The case, the name of which is prefixed to this article, will throw some light on the subject.

It was an action for use and occupation to recover the balance of five weeks' rental of a furnished house. The defendant pleaded the general issue. At the trial before Lord Abinger, an agreement in writing was proved as follows:—"Brighton, September 14th, 1842. Mr. John Smith, of No. 24, St. James's-street, agrees to let, and Sir Thomas Marrable agrees to take the house, No. 5, Brunswick-place, at the rate of eight guineas per week, for five or six weeks, at the option of the said Sir Thomas Marrable. Signed, Thomas Marrable, John Smith. The rent to commence on the 15th of September. T. M., J. S." The defendant entered on the occupation of the house under this agreement on Friday, September 16, 1842, and on the following day the defendant's wife informed the plaintiff that the house was infested with bugs, and a person was sent by the plaintiff to try and get rid of them, but Lady Marrable, not finding the means used for that purpose successful, wrote to the plaintiff's wife as follows:—"No. 5, Brunswick-place, September 19, 1842. Lady Marrable informs Mrs. Smith that it is her determination to leave the house in Brunswick-place as soon as she can take another, paying a week's rent, as all the bedrooms occupied but one are so infested with bugs, that it is quite impossible to remain." On the completion of the week, the defendant sent the key to the plaintiff and removed into another house. The judge told the jury that in point of law the house must be taken to have been let on the implied condition that it was fit for habitation, and that if they thought the defendant had left the house on account of the nuisance being so intolerable as to make it uncomfortable to live in it longer, they ought to find for the defendant; but if they were of opinion he had left merely because he preferred another residence, and made the bugs an excuse for leaving the plaintiff's house, then they ought to find a verdict for the plaintiff. The jury found for the defendant.

In Hilary Term Mr. HAYWARD moved for a new trial on the ground of misdirection, and of the improper reception of evidence. The second ground was supported by technical arguments only, and therefore we omit further notice of it. The first amounted to this:—the nuisance complained of by the defendant is no defence to the action, which was founded on a written agreement, and if it really existed should have been made the subject of a cross action.

Mr. BARON PARKE, in giving judgment, said "The first question is whether, in point of law, every person who lets a house must be taken to have done so under an implied condition that it is in a habitable state. Now there is a case of *Edwards v. Etherington, Ry. & Moo.*, 268, which is very nearly in point. That was an action of assumpsit for use and occupation, against a tenant from year to year, who had quit without notice; and the defence was that the premises were, by reason of their dilapidated state, useless to the defendant, and unfit to reside in. Lord Tenterden held that to be a good defence, and told the jury that "Slight circumstances would not suffice, but that such serious reasons might exist as would justify a tenant in quitting at any time, and that it was for them to say whether in that case any such did exist." A new trial was afterwards moved for, on the ground of misdirection; and the Court of Queen's Bench refused to disturb the verdict. There is also a case of *Collins v. Barrow, 1 Moo. & Rob.*, 112, in which a party who had taken a house under a written agreement, by which he was to occupy it for three years, had quit at the expiration of six months without any notice, and the landlord had brought an action for use and occupation, to recover the rent accruing after that time. The defence was, the house was unfit for occupation on account of insufficient drainage; and Mr. Baron Bayley said, "I do not see that the fact of the tenancy

in this case being under a written agreement is material. In any case the tenant is bound to pay rent during the time for which he has contracted, unless he satisfies the jury that, under the circumstances, he was justified in quitting. I think, however, that in point of law he will be free from his obligation to reside on the premises, if he makes out to the satisfaction of the jury, that the premises were noxious and unwholesome to reside in, and that this state arose from no default of his own." These cases quite warrant the position, that a tenant may immediately relinquish his tenancy of a house which is incumbered with a nuisance of so serious a nature as to make it uncomfortable and unfit to live in. There was no contract in this case on the plaintiff's part, that the house was free from the nuisance; the contract was by the defendant, that he would take the house of the plaintiff at a certain rent, and then the law attaches a condition that the house shall be in such a fit state as for the description of house might be reasonably expected." In this view the other judges concurred, Lord Abinger saying:—"I am glad that authorities have been found to support this defence, though, for my own part, I think the case one which common sense alone should enable us to decide. A man who lets a ready-furnished house, does so on implied condition or obligation, that it is in a fit state for occupation. Suppose the defendant had discovered the fact, that previous tenants had quitted the house in consequence of a person having recently died there of the plague, would not the law have justified him in leaving as soon as he discovered the fact? I entertain no doubt on the subject; and in this case I only wonder that the defendant remained so long, and gave the landlord so much opportunity of trying to remove the nuisance." The Court was against Mr. Hayward on the second ground also, and the rule, therefore, was refused.

We do not know that any remarks of ours could render this case more clear, or more instructive, unless it be that a warning to the reader, not to be misled by the fact that the house in the case of *Smith v. Marrable* was a furnished one, is necessary.

SINGULAR ANECDOTE OF GEORGE III.

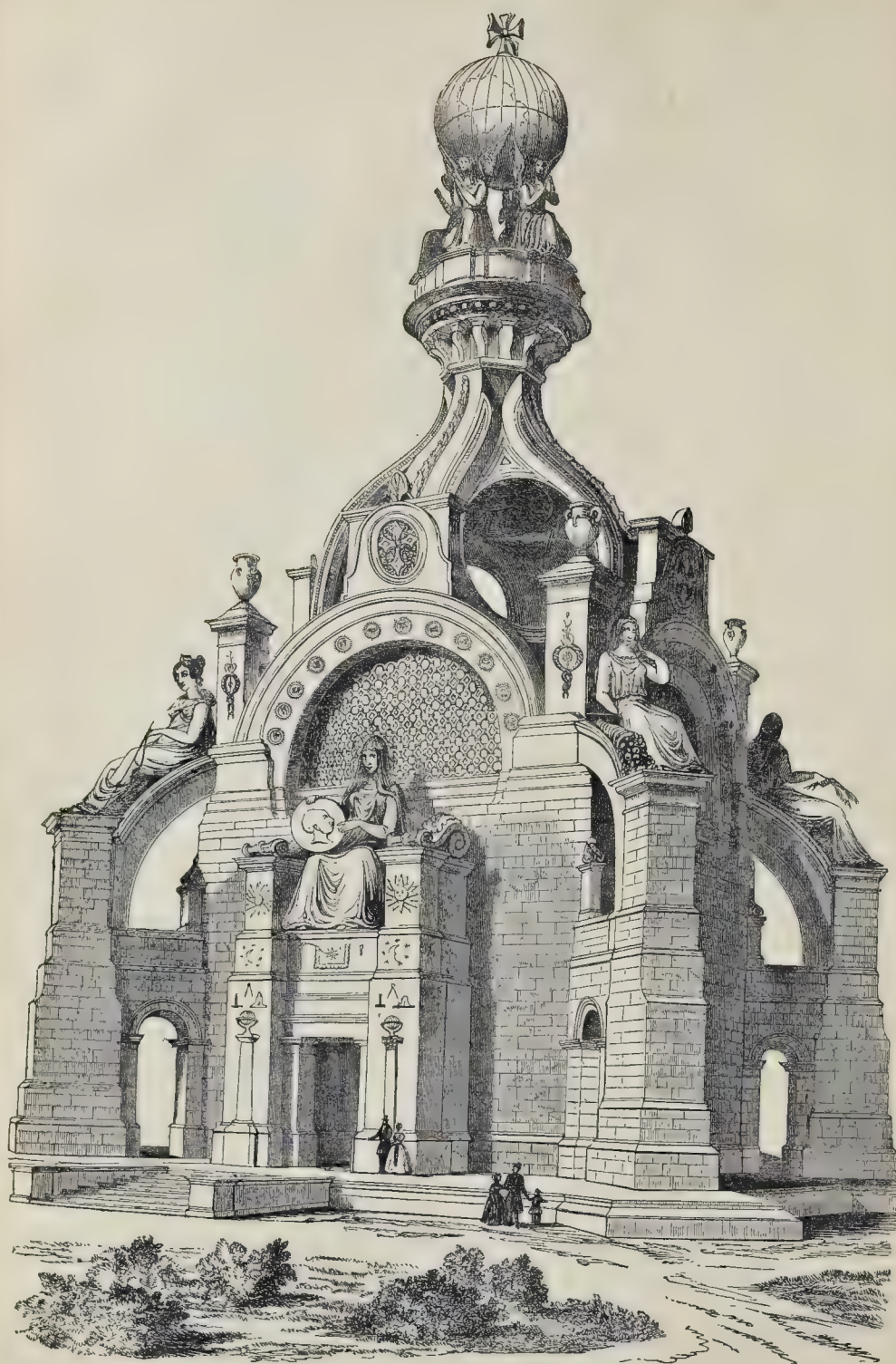
It occurs to us to introduce a biographical anecdote of an individual eminent in the annals of Freemasonry, recounted by a friend at our elbow, when just now handing for our inspection a very old masonic certificate, embellished with emblems which he thought might suggest some hints appropriate to the subject which so largely occupies our paper this week. The late Thomas Dunkerley, of Hampton Court Palace, who was Supreme Grand Master of the order of Masonic Knights Templars, and Provincial Grand Master for Hampshire, &c., was personally known to him in the year 1795, and he is probably one of the very few now living who were fully cognizant of the remarkable incident which, in procuring for that gentleman the notice and friendship of George III., raised him from comparative obscurity to wealth and station.

Thomas Dunkerley was an only child, brought up by his mother, who resided in the vicinity of Portsmouth, and who, passing as a widow, earned a somewhat scanty livelihood by the labour of her hands. When about sixteen he entered the navy, and his uniform good conduct procured for him, when about twenty-four years of age, the rank of a warrant officer, viz, gunner, on board the *Alexander*, a ship of the line of 74 guns. He was in this capacity when the father of our friend became acquainted with him, and who being a military officer, was embarked on board that ship with a detachment of troops about the year 1757, to garrison the island of Minorca, in the Mediterranean, then taken from Spain. It was in consequence of there being many masons, both on board the *Alexander* and among the troops, that the intimacy we have spoken of sprang up, and which became of so lasting a nature, as to have ceased but with Mr. Dunkerley's life. At Minorca these friends separated, each continuing his career in different branches of the service; that of Mr. Dunkerley was, however, interrupted in the following manner: about the year 1776, and while still serving as a gunner in the fleet, the death of his mother, Mrs. Dunkerley, took

place at the same village where she had long lived on the produce of her humble industry. It was within a day of the close of his life that she entreated the attendance of the rector of the parish to administer the sacrament, and this religious rite being concluded made to him the extraordinary declaration, that Thomas Dunkerley was the natural son of a late king, George II. The manner and circumstances under which this asseveration was made impressed the minister with its truth, and he in conscience and justice to a man from whom so important a fact had been most carefully concealed, and who, moreover, had raised himself to respectability by bravery and good conduct, forwarded a narrative of the case through channel sufficiently influential to reach the ears of George III. The worthy clergyman who was thus interesting himself on Mr. Dunkerley's behalf had refrained from acquainting him that he had done so, lest vague hopes and disappointment might be the result. It was not, therefore, until a command for his personal attendance upon the king at St. James's had been signified to him on ship-board, that he became aware of the cause for so singular and unexpected an honour. At the audience no other persons were present, and Mr. Dunkerley described the king as having at once advanced close to him, and after a scrutiny of his features extending his hand, saying, "I want no further proof; uncle, I am glad to have found and to see you." This recognition, almost spontaneous, and caused no doubt by the almost identical likeness borne by Mr. Dunkerley to George II., proved irrevocable; no one ventured to dispute a relationship thus acknowledged, and all the branches of the royal family concurred in kind acts of encouragement towards him. The king assigned to him a suite of apartments in Hampton Court Palace, the pay of an admiral, and a most liberal pension; he bore also the royal arms, with the bar of illegitimate descent, and used the royal liveries. George III., with his characteristic determination, was strongly inclined to distinguish Mr. Dunkerley by titles, and other modes at the disposal of royalty, but he was already growing into years, had not married very consistently or happily, and had no children for whom to be solicitous; further, previous habits would have rendered much of formality irksome, and he wisely preferred quiet enjoyment of the abundance that had been showered upon him; a large portion of which he distributed in acts of benevolence. Our friend, who relates these facts, well remembers Thomas Dunkerley, and when a boy was in the habit of accompanying his father on visits to him, and particularly recollects the striking likeness he bore to the impress on the coin of the preceding reign. The collateral evidence of the truth of Mrs. Dunkerley's declaration as to the paternity of her son was simply her having been a servant in a menial capacity at one of the palaces previous to his birth; but her retirement to absolute seclusion without provision, and studious concealment of the case until the hour of her death, is one of those extraordinary circumstances difficult to reconcile with the ordinary impulses of nature. Mr. Dunkerley died at a venerable age, towards the close of the last century, leaving no children or known relatives.

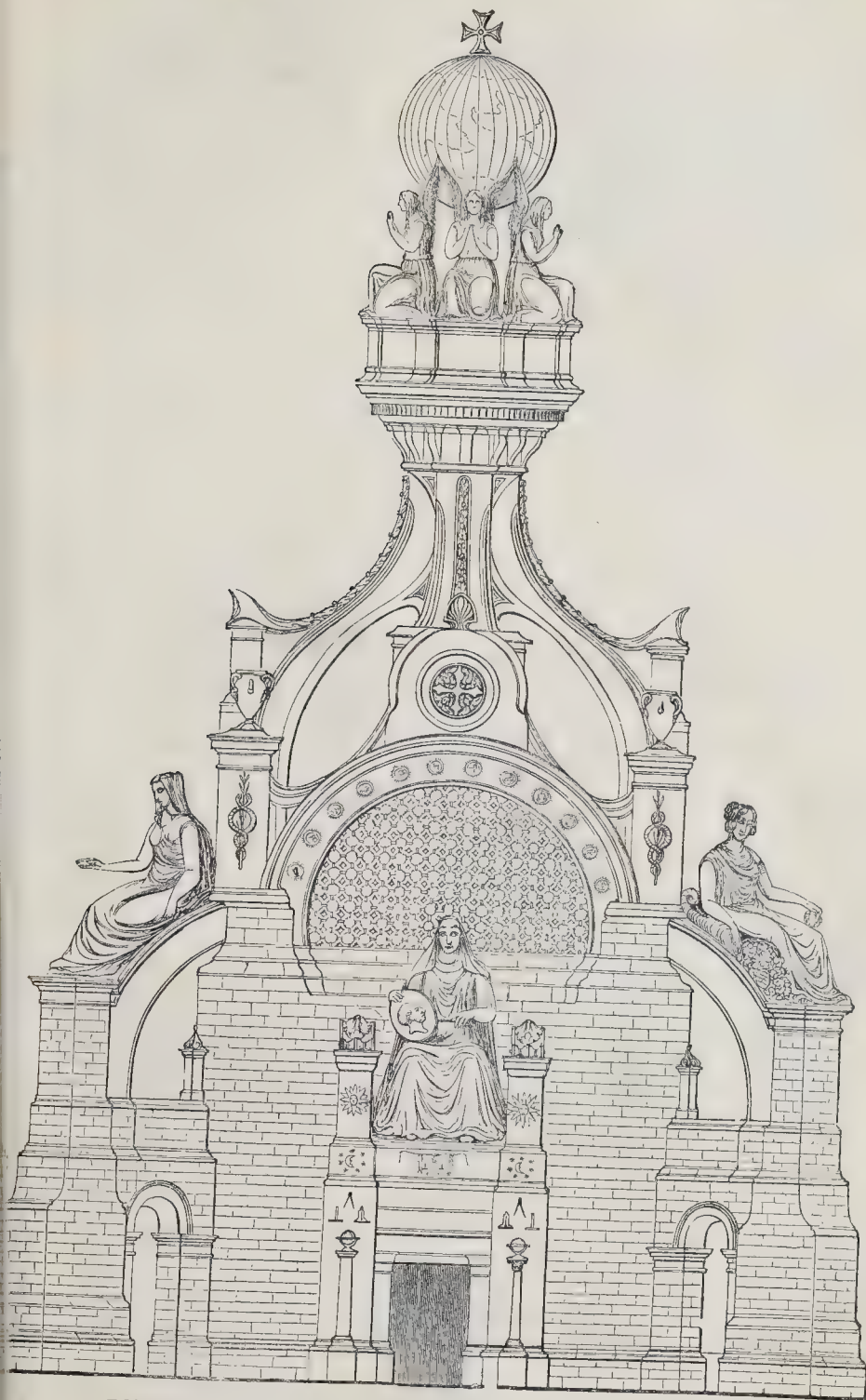
SIR CHRISTOPHER WRAN.—During the building of St. Paul's Cathedral, a country carpenter applied to the overseer of the works for employment as a carver. The overseer smiled at the man's temerity, on hearing that he had never worked in London. Sir Christopher, who was present, called the man to him, and inquired what work he had been employed on in the country. "Pig-troughs," was the answer. "Well, then," said Sir Christopher, "let us see a specimen of your workmanship in a sow and pigs." The man returned in a few days, having performed his task with such exquisite skill, that he was immediately employed, and some of the finest and the most intricate carving in the cathedral was executed by him.

The church of Ormskirck, near Liverpool, has two steeples, one of which is pointed the other square. This irregularity in architecture is thus accounted for:—two sisters, of the name of Orms, resolved to provide the town with a church, but they could not agree as to the form of the steeple. It was at length decided that each of their families should be carried into effect by having two steeples, built according to their different tastes.



DESIGN FOR THE PROPOSED SUSSEX MEMORIAL.

PERSPECTIVE VIEW.



DESIGN FOR THE PROPOSED SUSSEX MEMORIAL.

GEOMETRICAL ELEVATION.

as it is the fashion to decry religious celibacy, Holy Scripture certainly warrants our believing the single state to be more conducive to holiness than the married. Who can read St. Paul, and not see this clearly? Far be it from me to say, that equal holiness is not attainable in the married state; I merely mean, that the single woman has the *easier* task. She has not the temptations of making idols of husband and children, of loving the world for their sake, of devoting the whole of her time and thoughts to their welfare, to the neglect of her religious duties. And though, no doubt, most women are fitted by nature for wedded life, I am sure that there are more than the despisers of religious celibacy would believe, who are intended to remain single.

"Whatever the sceptical may say to this idea, it cannot be denied that there are a great number of single ladies in the world, who seem to lead an aimless, cheerless existence, because they are not at the head of a household, and because they live in expectation of being ridiculed as 'old maids.' Surely it would be a great increase of happiness, if women of this class could see the matter in the light I have shewn it, and find a centre for their thoughts and affections in the church, the true ark of refuge to the weary soul, which flies over the waves of this troublesome world, seeking a resting-place in vain.

"I have wandered far from architecture to-night; but I think you will pardon this digression, seeing that it is on a subject that cannot fail of being interesting. I have no more to say on the subject of altar-cloths but this—that if twelve young ladies chose to associate themselves to work an altar-cloth for their parish church, they would find that a very moderate share of money and time from each individual would enable them to get through their undertaking in a year. The material may be velvet, rich silk, or cloth. The altar-cloth at

Hill, near Bristol, worked by the four daughters of a clergyman, is of dark cloth, with a rich border of an ecclesiastical pattern, formed of scarlet and bright blue cloth *appliqué*, the edges being concealed by gold braid, and short sentences in Latin, such as 'Gloria Deo,' worked with gold braid in missal characters, within compartments, at stated distances in the border. Designs of a strictly ecclesiastical character may be obtained in London, together with embroidery materials, and directions for using them."

Subject to the remark already made as to the paucity of the illustrations, the work is well got up.

COUNTRY HOUSES OR COTTAGES.

SIR,—Some time since I noticed in one of the numbers of your really excellent paper a wish of one of your subscribers to see plans for small detached country houses or cottages. Not having seen any such plans from your more able correspondents, I have ventured to forward you the inclosed, to be disposed of as you please. The mode of construction is wooden framing, weather-boarded externally, and lathed and plastered on the inside. This, when well executed, makes a very comfortable habitation, and with good material and a little attention, may be made to last many years. The principal quarters or framings are to project beyond the weather-boards, and to have a fillet nailed to them over the boards, to exclude the wet from the joinings. One great defect generally found in structures of this kind is that the external door opens directly into the principal room, which is thereby rendered, in bad weather, extremely uncomfortable, as I have personally experienced; it is sometimes indeed sheltered by an open porch, but this affords only very little protection from wet, and less from cold. Another disadvantage is the small number of bedrooms, and having to pass through one to reach another; by a little contrivance, and at small expense, these inconveniences may be avoided.

On the enclosed plans* A is the principal room, B a scullery, C porch or entrance, D, E, F, bedrooms, G store for coals, wood, &c., I privy, J shed-roof, to place tubs or other utensils under shelter from rain, and K, on plan 2, a pantry, the want of which on the other plan may be supplied by a safe, as is usual in such cottages. The fire-places, chimneys, and shafts, must of course be built of brick.

Placing these at your disposal, with thanks for the information which I have received from your esteemed paper,

I am, Sir, your obedient servant,
D.

* Drawn to a scale of one-tenth of an inch to a foot.



Elevation and Plan No. 1.



Elevation and Plan No. 2.



Correspondence.

THE BRITISH MUSEUM.

SIR,—Though my letter appeared in the 30th No. of *THE BUILDER*, it has not, I regret to say, elicited any thing further relative to the façade of the British Museum, either from yourself or any correspondent. So long as no attempt had been made to direct attention to the matter, there was room for hoping that that being done, the public—that part of it at least who affect to take any interest in art—would express some solicitude about a structure which, whatever it may prove as to architecture, will be the only one of its kind in the metropolis. We shall no more have the opportunity of erecting another British Museum, than another Tower of London, or a second St. Paul's. What is more, we are not likely to have another edifice of any kind which will afford so appropriate an occasion of putting forth Grecian architecture in all its energy and intensity.

A very great deal has been said of late about the encouragement now given to art, the more intelligent views entertained of it, and the general interest it now excites: Fudge! It must be a very strange kind of sympathy with art, which induces artists and the public to leave their national museum to take its chance, for better or worse, at the hands of Sir R. Smirke, without their giving themselves any concern about it. The public seem to have taken a Father Mathew's pledge to that effect, at least all the newspapers do, for with the solitary exception of the *Morning Herald*, not one of them, as far as I can perceive and learn, has touched upon the subject at all; on the contrary, the *Times* has, to my own knowledge, positively refused to do so, by declining either to insert or otherwise take notice of a letter on the subject, addressed to it, although it could find space the very next day for sundry notes from correspondents, some of them on the most frivolous matters. Accordingly, it is easy enough to see how the wind sets in that quarter. For being silent, that paper may, however, have very strong though secret reasons; and for aught I can tell, Sir R. Smirke himself may hold a share in the property of that journal, in which case its silence would be plainly accounted for.

If not from the *Times*, we shall get explanation in time as to the architecture of the Museum from the building itself. And then? why then, there will be a "double discovery": the public will find out that the British Museum has been "damned" by Sir R. Smirke, and Sir Robert that his own professional character has been "damned" by the British Museum.

I remain, as before,
INQUIRER.

MASONS' PROVIDENT INSTITUTION.

SIR,—On the perusal of your last number, I perceive you have arrested our attention on the subject of the "Masons' Provident Institution," with a view (as I perceive) to assist in furthering its objects.

I beg to apologize for the neglect in not communicating with you upon the subject earlier, ever considering that the "press" is an invaluable channel (if properly directed) through which objects of any nature can consummate their wishes, and feel assured that in future I shall render you every information connected with the institution.

The matter being only in its infant state, I cannot give you any information, further than, having made personal calls upon several of the most influential employers, I feel proud to acknowledge the handsome manner in which the deputation has been invariably received, and the warmth of feeling expressed leaves no doubt of our most sanguine hopes being realized.

A public meeting will shortly be held upon the subject, of which due notice will be given; in the mean time we should appreciate to the fullest extent your exertions in behalf of such a benevolent institution.

I am, Sir, yours respectfully,
J. T. WHITEHEAD, Hon. Sec.
1, Johnson-street, Westminster,
September 18, 1843.

BRITISH ASSOCIATION OF ARCHITECTURAL DRAUGHTSMEN.

SIR,—It was with great satisfaction that I, with many other members of the Association of Architectural Draughtsmen, read the sensible letter of your correspondent "B.," inserted in your last number, but, to be honest, this satisfaction mainly arises from the proof that it affords of the growing interest the profession generally are taking in the society. Moreover, it is convincing testimony that its real objects only require to be well understood and more widely disseminated (which, thanks to your journal, is now rapidly taking place), to make hundreds rally round the standard that will eventually lead to an academy of our own.

The good feeling expressed by your correspon-

dent towards the society, and which is now heard on all sides, must be followed by something more than professions of friendly feeling,—we want men who will assist in carrying out the objects of the society, for by numbers alone can we ever hope to effect much,—we want men who can not only work for their own improvement, but those who can do it to the advancement of the profession generally, by bringing before the society such of the best examples of executed works that may be within their own immediate province to possess,—we want men who can assist, by their talent and perseverance, to get up an annual architectural exhibition, that may eventually lead to the public study of this, our much-neglected art.

Your correspondent may learn from this that it is the "way" we lack and not the "will" to carry out his suggestions, and which have for some time been mourned over. We anticipate better things shortly.

"B." takes for granted more than he should in supposing that ornamental draughtsmen as a body are excluded from the society! we have no such rule; on the contrary, I am of opinion that every one connected in any way with the study of architecture, whether as carvers, decorators, or the like, would be admissible after passing the usual ordeal; of course such men must be known to be as capable of producing works on paper as they are on stone or wood, though such a remark is unnecessary, for it may be inferred that none of the former class would feel sufficient interest in the society to become members, or if they did, scrupulous notions might be waived on such a rare occasion. With regard to sketching original designs on the nights of meeting, the members at present seem divided as to the results that might arise from it.

Your usual liberality in inserting all communications connected with the art, makes it but a mere ceremony to ask the favour of the insertion of this in your next number.

I have the pleasure of subscribing myself,
Your constant reader, &c.
MEMBER OF THE B.A.A.D.
September 11, 1843.

DETACHED COTTAGES.

SIR,—In No. 30 of *THE BUILDER* you gave a design for a Detached Cottage. As I perceive you are catering in that department for a class of individuals who are not overburdened with capital, and as the Elizabethan style causes, as it regards the plan of walls, roofs, &c., an additional expense in the carrying out, I should like some of the readers of your paper who have spare time to give one or two neat elevations, and the best method of laying out the apartments in a square building, as it gives the greatest quantity of room with the least quantity of walling; the money so saved might be laid out to advantage in exterior decoration at an after period if the party wished. For example, a house of two stories, 20 feet square, on plain walls 18 feet high, covers 400 superficial feet, and would take about 5 rods of brickwork; whereas, one 10 feet long and 20 feet deep, on plan, and the same height, would require 4 rods of walling, and only cover one-half the ground. The money so saved might at a future time, if the party thought fit, be laid out to advantage in decorating the exterior.

I am your obedient servant,

B. H.

P. S.—My time is so much occupied, or I would have sent you a rough sketch.

ON CLEANING MARBLE STATUES, &c.

SIR,—Never use soap or any other substance containing grease for cleaning marble statues, chimney-pieces, alabaster ornaments, &c., for this reason, that the soap will generally, if not always, discolour it with a yellow appearance. Use common rock soda, dissolved in cold water, and apply it to the statue, &c., and then wash it off with a sponge and cold water; let the figure dry by the air, and on no account use cloths. The marble so washed has, when dry, a most beautiful appearance. This will also take stains out of the marble.

For taking Grease, &c. out of Marble, Stone, &c.—Take 2 balls of unslacked lime, 3 lbs. of American potash, half a gallon of water; mix and boil them together for one hour, and then spread the sediment over the stained stone or marble.

Z.

CLASSIC NOT CHRISTIAN.

SIR,—In your useful journal, *THE BUILDER*, of the 16th inst., is "A Design for a Church in the Classic Style," so called by its designer. I hope the time is not far distant when such a title will be entirely laid aside, and the proper one substituted—as, A Design for the "House of Prayer." The words "classical style" imply the Greek style, when the Greeks were Pagans. The word "classical" is understood to "relate to antique authors," but it does not include the Hebrews or Christians in that interpretation, and therefore the

real meaning of the classical style would be Pagan style, and which is a most irreverent naming of matter (though not intended), when such is upon the highest and most important of all matters that man can take in hand. If the word style is to be connected with the subject of church design, then it should never be unconnected with the word Christian, and therefore Christian style; but there is no occasion for this, and nothing further than A Design for the House of Prayer, or for the Temple to the Living God; and from either of these titles it should be understood that the whole of the sculptured forms and architectural divisions and arrangements which make up the design of the house of prayer should be in accordance with the Word of God, and not with the words of the Pagan Greeks or Romans, as we see to our shame and disgrace in these days as well as in the days of the two last centuries. I could make many remarks upon the impropriety of making God's House out of Pagan materials, but at present I have not the time; but I will beg to direct S. B. J.'s attention to my works on Christian art and ecclesiastical design under the title of Illustrations and Descriptive Interpretation of Kilpeck Church, Herefordshire, and Early Fonts of England, in which I have given the true principles for designing the House of God.

It would have afforded me much pleasure to have made remarks upon S. B. J.'s design, but I have not the time for it. It will be seen that sufficient reasons are given in my work of Kilpeck Church for designing the House of Prayer religiously, and therefore there is no occasion for stating the matter over again at this time.

I am, Mr. Editor, truly yours,
Geo. R. LEWIS.

61, Upper Norton-street, Portland-place, London,
September 19, 1843.

P. S.—If I had the time, there are many points that I should be glad to say a few words upon which have appeared in *THE BUILDER* lately.

[We give insertion to our friend Mr. Lewis's letter, but must deprecate the introduction of polemics, even through the side door of a classic church design; and to avoid, if possible, the giving rise to a discussion on this head, we beg to be tolerated in saying a word or two ourselves. We conceive the great error to be expressed in the title of Mr. Lewis's letter, "Classic not Christian." Surely he will not take such sweeping ground as this. Why, we contend that all that is good and true, classic or what you like to call it, is Christian. As well might we object to stones wrought and dressed in the fashion of classic, or if you please Pagan, times, as to the form in which they shall be appeared; what, in the name of reason, is there of an un-Christian character in a column, or an assemblage of columns? While we do not dispute the as yet superior fitness of a Gothic pile for an English Christian Church, we must take care not to involve ourselves in the monstrous inconsistency of assenting to the dogma "Classic not Christian." There is a great deal to be said on this subject, but we are afraid it ought not to be introduced here, and as we have closed our own mouth against the utterance of it, so we hope the subject will not be unnecessarily obtruded on us by others.]

—ED.]

ON VARNISHING DRAWINGS.

SIR,—A Correspondent wishes to know how to varnish drawings. If you will allow me, I will give that gentleman the benefit of my experience:—"Dissolve 1 oz. of the best isinglass in two-thirds of a pint of water; when sufficiently cool, size the drawing with it four times; after which get the following, viz. Canada balsam 1 oz., oil of turpentine 2 1/2 oz., properly mixed, and give the drawing four coats of this varnish. For applying the size and varnish, use a flat camel-hair brush, 2 1/2 inches in width, and after each of the above coats, take care that the drawing remains in a horizontal position until dry; and it is important that the above operations be performed in a room free from dust."

I am, Sir,
Your obedient humble servant and subscriber,
THOMAS GLEGG.

Liverpool, September 16, 1843.

Our friend, "J. H. C.," has been pleased to forward the following useful extract from the *New Monthly Magazine* of Feb. 1833:—

"To fix pencil or chalk drawings, they should be washed in water in which a small quantity of isinglass has been dissolved. Any colourless glue will be available. Skimmed milk is used for the same purpose by some, but isinglass is preferable. To varnish the same drawings after having fixed and thoroughly dried them, pass over them a coat of spa, or colourless spirit varnish; and, when

perfectly dry, a second. These two will be sufficient.

"The isinglass-water must be applied lightly, and never passed twice over the same spot until the first coat be dry, otherwise the drawing will become smeary. Care also must be taken to clear the drawing from every particle of dust before commencing the operation, and to preserve it from the same afterwards, till it be perfectly dry; otherwise in the former case it will be cloudy and smutty, and in the latter the particles will so adhere as never to be removed. Finally, the brushes also must be perfectly clean. A better plan of passing over the isinglass wash than by means of the brush, is, to pour it into a flat vessel, such as a dish, and insert the drawing into the composition, laying the paper flat immediately afterwards. This will preclude the chance of its becoming smeared, which, in the case of drawings of considerable vigour in touch, or of powerful shading, will occasionally happen to the most cautious user of the brush."

SCAGLIOLA COLUMNS.

Sir,—It being a pretty general rule with architects to employ in interior decorations that require magnificence some one of the orders, in which is frequently employed scagliola columns of a strong colour, frequently green, capitals and bases of white marble, and the entablature of common plaster, I should feel obliged if you or any of your correspondents would inform me if such a mixture of colours and materials are considered good taste.

I wish it to be understood that I am not condemning the practice of employing columns in the decorative part of architecture, but it is to the strangeness of the mixture so collected I make an objection, and at the same time should be glad to be informed if there is any composition in use, or that may be used in connection, that would be more consonant and in keeping with scagliola than plaster?

By inserting this inquiry you will oblige

Yours very respectfully,
J. PICKARD.

September 19, 1843.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1485.)—Windows—Closing same—Continued occupancy.

A man, previously deceased, was assessed in 1834-5 for eighteen windows; his widow since that opened six windows which had been closed up with lath and plaster, and two with boards. She had opened two new ones also. Held, that the deceased husband being assessed in 1834-5, it was not to be considered as the assessment of the appellant, and therefore she was not entitled to open any new ones, and also that the two closed with boards only should have been assessed in 1834-5, and not being so, there was no due assessment thereon.

At a meeting of the commissioners, held at the Red Lion Inn, Dorking, on Monday, the 28th day of September, 1840 (48 Geo. 3, c. 55, sch. A.)—Mrs. Sarah Young, widow, appealed by her son, John Young, against a charge from eighteen to twenty-six windows or lights, in her house, for the year 1840. In the year 1834 the windows in this house were assessed to and in the name of her late husband, Mr. Young, and in number eighteen (43 Geo. 3, c. 161, s. 18). Since the passing of the Act of the 4 & 5 Will. 4, c. 54, Mrs. Young, who has continued in the house since her husband's death, has opened four windows which were closed up with lath and plaster, and two more windows which were closed up with boards. These six windows the commissioners adjudged to have been closed in the year 1834, and to have been re-opened since the passing of the Act of 4 & 5 Will. 4. Two other windows have been opened, one in the door, the other in the cellar, for which the appellant has now been assessed, increasing the whole number from eighteen to twenty. The commissioners have considered the continued occupancy of the widow the same as that of the husband for the purpose of this Act, he having died since 1834.

The surveyor thereupon demanded a case for the opinion of her Majesty's judges, and submitted that as Mrs. Young was not assessed in the year 1834 (the assessment in that year having been in her husband's name), she was not entitled to open any windows under the said Act, and further, that as two of the windows were made up with wood only, they were not duly assessed in the year 1834, and therefore that all the twenty-six windows or lights at her house are liable to be assessed for the year 1840.

W. CRAWFORD, } Commissioners.
Ed. KERRICK, }
18th May, 1841.—We are of opinion, that the determination of the commissioners is wrong.
J. J. PATTERSON. T. COLTMAN. W. WIGHTMAN.
Justice of the Peace.

NEW PATENTS SEALED IN ENGLAND.

(From the Repertory of Patent Inventions.)

SIX MONTHS FOR ENROLMENT.

Bryan Corcoran, of Mark-lane, London, merchant, for certain improvements in the grinding of wheat and other substances,—being a communication.—Sealed Aug. 25.

IRISH PATENTS.

To John Hutcheson, flax grower, and James Edgar, carpenter, both of Killycairn, near Market-hill, in the county of Armagh, for improved machinery, which may be worked by water, steam, or any other propelling power, for breaking and scraping flax, on a system entirely new, without danger to human life; whereby the flax is greatly improved and cleaned in a very superior manner, and the value of it much enhanced.—Sealed August 10.

Christopher Nickels, of York-road, Lambeth, in the county of Surrey, Gent., for improvements in the manufacture of plaited fabrics.—Sealed August 12.

Charles Payne, of South Lambeth, in the county of Surrey, chemist, for improvements in preserving vegetable matters, when metallic and earthy solutions are employed.—Sealed August 12.

Sir John Scott Lillie, of Chelsea, in the county of Middlesex, Kent., for certain improvements in roads.—Sealed August 17.

Thomas Cardwell, of Bombay, in the East Indies, merchant, for improvements in the construction of presses for compressing cotton and other articles.—Sealed August 17.

SCOTCH PATENTS.

To Thomas Oldham, of Manchester, manufacturer, for a certain improved mode of manufacturing bonnets and hats.—Sealed July 24.

George Parsons, of West Lambrook, near South Petherton, Somersetshire, for a portable roof for various agricultural and other purposes.—Sealed July 26.

Samuel Ellis, of Salford, Manchester, engineer, for certain improvements in weighing machines, and in turn-tables, to be used on or in connection with railways, and in weighing machines to be used in other situations.—Sealed August 3.

Charlton James Wollaston, of Walling, in the county of Kent, for improvements in machinery for cutting marble and stone,—being a foreign communication.—Sealed August 14.

Ernest Lentz, of Eastcheap, London, for improvements in machinery for raising and forcing water and other fluids, which machinery, when worked by steam or water, may be employed for driving machinery.—being a foreign communication.—Sealed August 3.

Edmund Morewood, of Thornbridge, Derbyshire, merchant, and George Rogers, of Chelsea, London, for improved processes for coating metals.—Sealed August 8.

Francis Roublilac Conder, of Highgate, London, civil engineer, for improvements in the cutting and shaping of wood, and in the machinery for that purpose,—being a foreign communication.—Sealed August 9.

Thomas, Earl of Dundonald, of Regent's Park, London, for improvements in rotatory or revolving engines, and in apparatus connected with steam-engines and in propelling vessels.—Sealed August 10.

Samuel Eccles, of Hulme, machinist, and Matthew Curtis, of Chorlton-upon-Medlock, machinist, for certain improvements in looms for weaving.—Sealed August 10.

Fennel Allman, of Salisbury-street, London, surveyor, for certain improvements in apparatus for the production and diffusion of light.—Sealed August 14.

William Bates, of Leicester, fuller and dresser, for improvements in the dressing and getting-up of hosiery goods and other looped fabrics, made from merino, lambs'-wool, worsted, cotton, silk, and other yarns.—Sealed August 14.

John Laird, of Birkenhead, in the county of Chester, ship-builder, for improvements in the construction of steam and other vessels.—Sealed August 16.

Gregory Seale Walters, of Coleman-street, London, merchant, for improvements in the manufacture of chlorine and chlorides, and in obtaining the oxides and peroxides of manganese in the residuary liquids of such manufacture,—being a foreign communication.—Sealed August 16.

(To be continued.)

Miscellaneous.

ANCIENT MODE OF PRODUCING PLANK.—At an early period, the trunks of trees were split into planks with wedges, and these were afterwards reduced by the operation of the adze. Before the middle of the sixteenth century, all the plank in Norway was hewn in this manner, and trees from which seven or eight boards could now be formed, then only produced two. This simple but wasteful mode has not in some parts of the north, been even yet entirely exploded; and it must be admitted that it is attended with some advantages which the use of the saw does not afford. The work is more expeditiously performed, and split timber is far stronger than that which has been sawn, for the fissure follows the grain of the wood, and leaves it undivided; whereas the saw, by cutting along a specific line, divides the fibres, and thus weakens its cohesion and solidity. Besides, as the fibres retain their natural position, they are easier bent, and this is an advantage in many kinds of work which more than compensates for the timber being sometimes warped.

WOOD PAVING IN CANADA.—The side-walks at Toronto are principally formed of wooden plank, placed longitudinally, as on a ship's deck, and forming a far more clean, dry, elastic, and comfortable material for walking on than any pavement of stone or brick. Not only are these wooden side-walks in general use, but in one instance a long road leading to Kingston has been formed with planks of fir. The planks are about fifteen feet in length, a foot in breadth, and an inch in thickness; they are sawn smoothly, but are not planed. The road is first levelled, and on the bed thus formed these planks are laid across transversely, and not lengthwise, as in the side-walks. A small portion of soil and dust is strewn over the whole, to prevent unnecessary friction on the wooden surface; so that, unless the attention of the traveller was called to the fact, he would not perceive the planks over which he was driving, though he would recognize the unusual smoothness of the road by the gentle motion of the carriage. But while to the casual observer this road presents the same earthy and dusty appearance as any other, there are no ruts or pits in it, scarcely, indeed, a mark of the horses' feet or the carriage wheels that pass over it. On close examination, however, he will perceive the separate planks, and trace their lines of junction; and he will also hear the peculiar, dull, smooth sound given out by the low rumbling of his vehicle over this wooden pavement.

THE AGE OF READERS.—If you travel by railway, in stage-coach, steamer, or omnibus, be sure two-thirds of your companions are reading. If you breakfast, lunch, or dine, in coffee-house or club, the majority of your co-masticators have a newspaper or pamphlet beside them, to which they turn in the intervals of their repast. Some cannot walk along the streets without a book in hand, into which they dip by snatches, to the imminent peril of their own shins and those of other passengers, living editions of "the pursuit of knowledge under difficulties." Nor are these driving, masticating, and peripatetic readers of the class who, unable to find other and more convenient seasons for their studies, pick up what they can at these odd moments. They are, for the most part, persons who spend the greater part of their time in reading. The habit has so grown upon them that they cannot lay it aside. They prefer these uneasy methods of reading to lying aside their books altogether even for so short a period. They read as some people take drams, who cannot keep their noses longer than a quarter of an hour out of the gin-palace; and the mental health of the one, in consequence of this excess of repletion, thrives much after the fashion of the bodily health of the other. These are extreme cases; but, more or less, the tone of thought in the present age is, among all classes, injured by excess of reading. Newspapers and similar publications have, among others, this bad effect, that they increase the tendency to isolation created by extreme subdivision of occupations and the constant hurry of business in which we live. Men vibrate between their homes and their counting-houses. They are engaged in self-contemplation, or in looking at a few familiar faces, and are content to see the rest of the world in the mirror of the newspaper. To run out and gaze at a fire, for instance, would be vulgar; but they read the account of one in the morning papers eagerly. They do not go to the theatres, or to the picture-exhibitions, or to the church; but they read the criticisms of each and all in their newspapers. Hence, even at public places, we have no crowd, no assembly, but a mere juxtaposition of a number of small family parties. All this has an unhealthy influence on the mind. It gives a second-hand, common-place, unreal character to all a man's opinions. It fosters a disproportionate estimate of his own importance, and a callousness

to the feelings and interests of others; accustoming him to cultivate even the more generous sentiments merely because they are pleasurable emotions. However, it is scarcely prudent in professional writers to beat too hard on a foible which encourages the craft "whereby they have their living."—*Spectator*.

The exhibition of pictures this year in Dresden is said to surpass most of the previous ones. Five cartoons by Prof. Schnorr and a picture by Bendemann are very highly spoken of. Respecting art in Belgium, we have a few words from a correspondent. "Though on a route more beaten than the old Bath road, on which the swarms of English, by their numbers, their impatience, and their noisy curiosity, remind me of the simile of Burns,

'As bees buzz out in angry fyke,'

you may still like to have a paragraph on art in Antwerp, especially about the new statue of Rubens. The ample richness of this seems suitable to the place and the man: rarely have the sumptuous undulations of velvet and satin been better turned into bronze; the expression, too, of the features is noble, the pose of the figure easy. In short, comparing this effigy with the new Albrecht Durer at Nuremberg, or the new Mozart which I saw in the Stiglismayr foundry at Munich, I think the grace of propriety pre-eminently attained in this portrait statue. To be sure, the gorgeous splendour of Sir Peter Paul is an easier thing to present in these our days than the more highly elevated spirituality of the old German, while his robust manly beauty offers a more tempting subject than the feeble if not inexpressive traits of the musician of Salzburg. But I was still more favourably struck by the present condition of Flemish art, while going through the collection of modern pictures now open in Antwerp. I am familiar with our own provincial exhibitions, and have seen one or two in the German capitals and smaller towns; but I think in some respects this show may challenge the best of its competitors. The young Flemings have come nearer their glorious predecessors than either the young Germans, or the young French, or the young English. There is much trash; but among it one or two gems. It would be hard to name the contemporary, for instance, who could have painted a more interesting picture on Peter the Great at Saardam than Prof. Wappers, the director of the Antwerp Academy. De Keyser seems to be forsaking his first forcible choice of subjects for more graceful and thoughtful combinations. He has a Tasso reading his verses to Eleonora, a Raphael and Fornarina—the last really an exquisite *tableau de genre*—and all the three works I have mentioned are executed with brilliancy and solidity of colour—exactly clear of lacquered tanniness or audacious flourish—most worthy of honour, and carrying down to our days something of the old gorgeousness of the land and its school. This is as it should be, worthy and characteristic. Some of the smaller pieces reminded me honourably of Mieris, and Terburg, and Maas; none, however, shared the coarseness which by fits visited all these clever artists. The landscapes were bad, and I was proud to see that in the cattle piece Paul Potters' successors are distanced by our own Sidney Cooper. One or two French artists, also, have contributed to this show: I may name MM. Collignon and Lepoittevin, though the nationality of their tones of colour made their pictures look by comparison far more leaden at Antwerp than at home."

An exceedingly strong cement, will that become as hard as stone and last for ages, may be made in the following way.—Take lime, well slacked, and sand, in equal proportions, and temper them with linseed oil to the consistency of mortar, then beat it well in a trough or upon a floor, and it will be fit for use.

When an old stone or brick wall is to be covered with this cement, let the face be chipped a little with a bricklayer's hammer, then drench it with linseed oil and white lead till it will drink no more.

The annals of last year's proceedings of the Archaeological Institution of Rome have been recently published, and contain drawings and description of the Temple of Mount Ocha, near Carystus, in Euboea, communicated by Professor Ulrichs, of Athens. This temple is generally believed to be the oldest and best preserved specimen of the kind in Greece, and is particularly remarkable for the massiveness of its walls, and the peculiar structure of its roof. The prize proposed by this Academy in 1842, for the best essay on the Coinage of Italy, has been gained by Dr. Achille Gnarelli, author of the text of the 'Museo Gregoriano.' He opposes many of the opinions advanced in the work published by Marche and Tessieri, under the title of 'Aes grave del Museo Kircheriano,' which, although up to this time the standard work on Italian coinage, was yet so faulty as to induce the Archaeological Society to propose a prize for another on the same subject.

Tenders.

TENDERS for building carcasses of two houses at Erith for — Jones, Esq. Quantities supplied.—Mr. Cooper, architect, Verulam-buildings.

Lushing	£1317
Redhall	1277
Cobham	1219
Little and Sons	1160
Stevenson	1042

TENDERS for repairs and alterations at Messrs. Brown, Lenox, & Co., Billiter-square.

Scott	£310
Redhall	274
Leach	251

TENDERS for a cottage at Maidenhead Beach, Aug. 29.—C. W. Eppy, Esq., Architect, of 21, Lincoln's-Inn-Fields.

Haward and Nixon	£519 10
Stevenson	427 0

TENDERS for the Westminster Chapel Sunday and Day Schools.—Under the same architect.

Ripon	£2,694
Freake	2,500
Stevenson	2,345
Spikins	2,325
Janson and Co.	2,297
Harrison	2,218
Woolcott and Son ..	2,190
Little and Son	2,180
Jackson	2,064
Messrs. Rigby	1,987
Bell	1,870

TENDERS for repairs to the Unitarian Chapel, South-place, Finsbury.—John Wallen, Esq., Surveyor, 68, Aldermanbury. Sept. 18.

Waterlow	£620
Skinner and Haynes ..	600
Burford	470

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification of which they may choose to avail themselves.

HOUSE OF CORRECTION, WISEBEACH.—Mr. Basevi, Architect, 17, Saville-row, London. September 29.

TENDERS for executing on the river Shannon, at Rooskey, a lock 112 feet in length and 30 feet in width, with its gates and machinery; two weirs, together measuring 730 feet in length, with their retaining walls; underpinning and altering the present bridge; constructing a quay wall and wharf, about 450 feet in length; excavating the bed of the river, and forming embankments; together with other works, as represented on the drawings to be seen at the Commissioners' office in Dublin.—Secretary to the Shannon Commission, Dublin. October 1.

Stations at Durham and other places on the Newcastle and Darlington Railway.—Mr. Andrews, architect, York. October 4.

CONTRACTS for cleansing the Kensington Canal, and repairing the slopes of the same.—Plans, &c., at Mr. Robert Stephenson's Office, 35½ Great George-street, Westminster, Sept. 27.

CONTRACTS for laying down and keeping in repair about 11,000 yards of Wood Pavement.—Mr. McGahy, 1, Gordon-street, Gordon-square, Oct. 3.

TENDERS for erecting a Workhouse for the Sevenoaks Union.—Mr. Carnell, Clerk to the Guardians, Sevenoaks. November 1.

COMPETITIONS.

Plan for a Pier at Hythe, near Southampton, 20½.—Mr. Moberly, 29, Portland-street, Southampton, Oct. 7.

Design for a testimonial to the late G. Clendinning, Esq., to be executed at Westport, at a price of 800 guineas.—Dr. Dillon, Infirmary, Castlebar, Mayo, 20 guineas, Jan. 1, 1844.

Premium of a gold medal or money for the best model of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

NOTICES.

TO OUR READERS.

We beg to announce that having made arrangements for an interchange of good offices with a friend in Paris, we shall be happy to promote the inquiries and business of our readers in that city. We propose to establish the same description of agency with the other principal cities on the Continent for the benefit of our undertaking, and for that of our friends.

TO OUR CORRESPONDENTS.

"The Provincial Press."—We have to acknowledge the receipt of several county newspapers containing favourable notices of our publication. "Mr. Smith."—His paper, under consideration. "B. G."—His offer is thankfully accepted. "Jean M. L." shall not have unlimited cause of complaint.

"P. T."—His excellent Farmstead plan next week.

"B."—His second communication.

"A Resident of Portsea."—Received.

"Received."—Freehold Property for Mechanics.

"A. Y. Z." need not be assured that we are as sensitive on the point as himself, but we cannot take exceptions at every piece of harmless sparring.

"B."—His design for a parsonage house will be given.

"B. A. A. D." will appear next week.

"H."—Our old Mentor; for once, however, he is right in the main.

"Z."—Bad taste, indeed! we quite agree with him, and worse sense; for our parts we have been constrained to leave this department in other hands, thinking our desires would be understood, and we are perfectly astonished to find it as our correspondent states; it shall be so no more: we thank him for his valuable contributions.

"Mr. Flitcroft" does not say to what prospectus he refers.

"H. S., Liverpool."—His drawing was put in hand a long time back, but delayed by the draughtsman.

Our Finsbury-square correspondent with a strange cognomen knows something more than he chooses to tell, we guess.

"A Weekly Reader" inquires who are the architect and builder for the New Church at Notting Hill. Perhaps some of our readers can inform him.

"B."—His plans for cottages and the almshouses under consideration.

"W. H. J."—We cannot get his sketch in this week; his painstaking is duly esteemed.

"W. Bennett, Portishead."—We do not recollect receiving that which he names; if he will please to forward another drawing, let him direct to "The Editor."

"A Clerk of Works."—We shall be most happy to have his proffered favours, and shall not be deterred from giving them that praise to which we think they are entitled.

"The Principles and Practice of Surveying" received, and will be noticed in our next.

"Hierobo."—What he asks shall be given.

"C. C. C."—The nice window will appear.

"Mr. Lockwood and J. L. C." next week.

"A West Countryman."—Is received as we are going to press.

"A Subscriber, Huddersfield."—The same.

"St. George's Chapel, Windsor."—The error will be corrected next week.

"H. B., Liverpool."—Many thanks: will be inserted.

The terms of subscription to THE BUILDER are as follows:

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Advertisements for THE BUILDER must be forwarded to the Office on or before Wednesday in each week.

THE BUILDER,

NO. XXXIV.

SATURDAY, SEPTEMBER 30, 1843.

SIR ROBERT SMIRKE AND THE BRITISH MUSEUM.

THE architectural reputation of Sir Robert Smirke and that of the British Museum are involved in one issue. So far as that gentleman and the structure have proceeded together hitherto, they have served pretty well as the reflex of each other, and no pen could better describe, or pencil portray, the architect, than that which applied itself to the analytical delineation of this the structure on which he has been so long employed. We must confess to never having felt any partial likings to the latter, and this would involve us in an admission of the like purport as regarded the gentleman himself; but when we examine into the merit or the value of the opinions we had formed, we find that much is not to be attached to it. We have walked through the British Museum, and around it, perhaps, in a too critical and fastidious spirit, thinking more of what might have been done according to our own estimate of the resources in art and finance placed at Sir Robert's disposal, than of attaching the right value to what had already been done. We pictured to ourselves a design in which genius of another cast should have been employed, and overlooked, or lost sight of, the character of that genius which had really been exercised upon it,—for genius Sir Robert Smirke undoubtedly has. It may not be soaring and ambitious in the sphere of art, but it is steady and practical, and indulges in the substantial—it may not reside in the inventive, the creative, and the imaginative region; but it has a discreet inkling in that direction, while it restrains itself within bounds with an instinctive tact that preserves it from the commission of many blunders; it lies in the mean, and avoids the extremes—and this is a happy genius in these days, or in those for which Sir Robert mainly lived. Wo to the man who goes in advance of his day, or lags lazily behind it—this is not what Sir Robert Smirke has done, he has lived well up to it—and we may make a trinity of our types, the architect, the structure, and the age are well worthy of each other; all that was *respectable* in the latter has been *respectably* answered and responded to in the other two.

But now it appears that Sir Robert has lived over the period for which he was so well adapted and run into another; we wish him heartily many days and happy ones in it, and we wish him more, for we cannot be serious in wishing him happiness without we would have him adapt himself to the age into which he has run. Our contemporaries, and many critics who, in their junior days, saw nothing so rare, nothing so perfect as the Post-office, the College of Physicians, &c., have the “*new light*” shining under the shadow of their puffed-hats, and as it has been Sir Robert's fate to travel steadily on, over the period in which railroads and aerial machines have whirled them to and fro, they wish that his *ice crack* and *respectable* “turn-out” could be a little steam “put on,” and that the tail of least of his structure, or it may be his head, though it come the last, should exhibit some of that superior vitality, that livelier spirit which characterizes all that surrounds it; they

look upon it as a national legacy, this Museum edifice, and very naturally too; and since the old gentleman has been so long making his will, they wish that this codicil should make provision, or be no bar at least to their enjoying themselves in “*the mode*.” We wish so too, so that the unities be preserved, and we think they may be.

Various have been the suggestions and the speculations of our contemporaries, and through them we detect a lurking purpose that would suggest the employment of another architect, or the formation of a commission to control the present architect in the completion of his design, or rather his design for the completion. God forbid, we say, that there should be either! God forbid that any such indignity should be heaped on such a man! On the other hand, we would affectionately and reverently importune Sir Robert to give some mark of confidence in the *ææ*. We would have it cherish his memory when he is gone—we would have it cheer his day of abiding among us; but let him in return confide in it, let the intimacy be on equal terms, and the parting will be in correspondence with it.

There is another Sir Robert, and to the two we think this matter may be safely confided. Sir Robert Peel knows the talent and the “turn of mind” of the architect of his own mansion of Drayton Manor, and with a keen susceptibility in matters of art, knows how to respect it. Let an enlarged estimate of their responsibilities take possession of the minds of the two, and we have no fear of the result. But responsible they are. The public who pay for, and for whose use this structure is erected, have as much of a right to be satisfied in respect of the design, as Sir Robert Peel had in respect of that of Drayton Manor, and they are as good judges of it, when not led off on a “false scent,” and when left to their own natural bias and reflections. They will not require too much, and Sir Robert Smirke can abundantly satisfy them.

MASONS' BENEVOLENT INSTITUTION.

THERE is no body of men connected with the building arts for whom it is so much required that provision should be made against declining years and accidents as the masons, and we are much surprised that steps have not been long since taken to establish an institution with this view. Masons are more exposed to the vicissitudes that affect trade than any other of their brethren of the building craft. Employment for them is far from regular; the use of stone in building is in many instances merely occasional, and thus they are thrown upon the necessity of constant migrations of *tramping* as it is termed, from place to place, having no fixed residence or workshop. Again, they are more exposed to the adverse influence of seasons. Bricklayers are much the same in this respect, but by no means so badly circumstanced. Bricklayers have jobbing and indoor work to fly to in the winter and wet seasons, but the mason has no such resource except in very limited instances. We once took occasion to compute the average period throughout one year in which a mason was enabled to work, taking all these drawbacks into account, and we found it not to exceed eight months, or at the most forty weeks out of the fifty-two. Now, very few of the sagacious and clever calculators whom we so constantly hear alluding to the high wages of mechanics, are found to take this into account. We shall hear them talking of a mason or a carpenter earning him 70*l.* to 80*l.* a year in

London, whereas, as we have shewn, the amount may be taken at from one-third to one-fourth less in positive earnings, and a great deal in many instances to be deducted for expenses in travelling to and in search of work.

Occasionally, it is true, in the summer season a press of exertion is made, and “long time” encouraged, by which seven days a week is accomplished, but this is not all gain to the workman. It may be well enough in harvest periods of agricultural employment to fall upon the extra push of a week or two's gathering in, the excitements and stimulants, and the harvest home, rewarding the peasant's toil; but we are prepared to contend that the application for weeks together of the handicraftsman, from five in the morning to seven at night, has not and cannot have a beneficial influence, and more particularly in regard of stonemasons. Their work is of a laborious and, in many instances, of a drudging and monotonous character, and to be confined to it through the live-long summer season, roused from bed with the sun-rise, as it were, and falling upon it wearied at the sun-setting, is but poorly compensated for by the extra day's wages—indeed, we say it is not compensation; and those who know the habits it superinduces, not from any perversity in the character of the man, but in the very nature of things, can corroborate us; Youth spends its energies, and seeks counter-vailing enjoyments, animal strength is called into requisition, and sensual excitements follow. The passion of gain in some is stimulated, and seldom sustained; the hard earnings are free spendings, and altogether, we say it is no gain, it is a Loss; therefore, for the purposes of our argument, we hold that little more than eight months of the year are secured to the mason; his 5*s.* wages in London dwindles down to 3*s.* 4*d.* or 3*s.* 6*d.*, and his 4*s.* in the country to 2*s.* 8*d.*, from which the relative abatement comes for travelling, tools, &c. But there are many things worse than all this—the uncertainty, the idle, or rather the unemployed season, the temptations of it and the rest aggravate what we have so feebly depicted, and not depicted fancifully, for the facts stand to prove it. The mason, therefore, has more need than most, if not all, of the building class, for the make-weight of institutions of a provident and hopeful character; he is liable, also, to serious accidents and illness, in heavy lifting and exposure to wet and cold.

But, it will be asked, how is it that nothing of the kind has existed before? and why call for its establishment particularly now? We could answer the latter query by many reasons drawn from the peculiar circumstances of the present times as affecting labour, but we need not dwell upon them at present; and as to the first query, we have to answer, that it is not true that nothing of the kind has existed before. We see in the relics of the once vigorous and important institutions of this country, the trade companies, as, for instance, the Carpenters' Company and the Bricklayers', in London, what was done or thought necessary to be done in times past in reference to their respective crafts; but where do we find the Ma-*ons*' Company? it will be asked. There is one word that will ring significantly in the ear by way of answer, though it be spoken in a whisper; but what a question! and who is not prepared to answer? The FREEMASONS—yes, the Freemasons were once the grand corporation and brotherhood that watched over the interests we would have provided for now; but they are gone or turned away to other ends and objects, and sixty

thousand masons of this country and century have yet to be rallied into the defensive against the aggressions of age, sickness, accident, and the like, for which the league of Freemasonry once in another age, but in this same, as well as in every civilized country, so amply and liberally provided.

Sixty thousand masons, at the least computation, are gathered and scattered over the face of these islands. Their unions and clubs have given expression to many of the requirements of the times, and, effectively or not is no matter, have done their best to meet them. They have been the best, because the only provision; and pray who is to blame if we have nothing better? Let the titled, the privileged, the wealthy, and the educated, look to it. Do they throw the men, heedless of their happiness and comfort, on their own resources? Oh! we are afraid they do! and then we hear the cant of "disordered" and "violent" and "turbulent." Well, after all, perhaps, there is not much of special blame for the time past, but there would be for that which is to come, if provision were not to be made, and if the leaders of the people were not to take a lead in it. We are confident, however, that it will be done, and done as speedily as so much work may admit of; but the impetus must be given and the work must begin amongst the workmen themselves.

It would be easy to shew how all could be accomplished, how the means reside in the hands of the masons themselves; how of the three or four months they are now compelled to waste, a portion could be turned to a fund of work in the erection of a masons' college or many colleges; how many things could be gathered, and accumulated, and stored, for the commonwealth of masonry; but it is not so easy to shew how the reasoning would be attended to. This is the first step, and, like most other first steps, the only difficulty. Sixty thousand masons could give a week's work each if they willed it, and this would not be less than sixty thousand pounds; but who would bawl into the ears of unwilling listeners? Let them take the hint. One thing they have now to favour them which they never had before, an organ of instant, constant, central, and wide-spreading information. **THE BUILDER** is at their service. This is the first element of success, let us see how it may be used.

METALLIC CEMENT.

THIS is the age of cements! and that which is a merit of the age in our opinion is handled by many in the way of reproach, as if a good fictitious stone were not better than a bad natural one; the combination of the elements or constituents of stone, after the fashion of Nature's own working, and selecting for such combination the best constituents, a better choice than to take this or that natural product, just as it may offer, and to prefer it simply because it is natural. But here, again, the non-reflecting mind commits an error; natural products are those produced under the operation of Nature's laws, and whether it be stone in the quarry, the brick of clay passing through the laboratory of the kiln, or the union by their natural affinities of particles of lime and particles of sand to form one coherent mass, the same NATURE has regulated the formation and production, and art is most in accordance with truth when she works obediently and diligently under the dictates of her laws. Men make large concretions of brick, and stone, and mortar, and call them edifices; so, in like manner, they make concretions of parts of those

edifices, or select a ready-made concretion; now the judgment with which the selection is made, and the materials are applied, determines the question of superior or inferior art, and the worker in cement may be much the greater and the more gifted artist than the operator in stone or wood; the former begins his operations, and trains or moulds the raw material according to his taste, at an earlier stage, or under conditions involving more of acquaintance with primitive natural laws than the latter; so we say the former may be much the greater artist, we do not say that he *always* is so.

But it will be beside our purpose to engage in a disquisition on the proper application of cement in this article; our object now is to shew to our building friends what are the peculiar properties or characteristics of another description of cement which has for some time been in the market, as the phrase goes; we have been interrupted by press of matter and other avocations from continuing our notices of each variety, and, indeed, we cannot hope to pursue any one branch, such, for instance, as that of cement, consecutively; our plan is better pointed out to us by the natural order of our working, and to this order we must be obedient.

Metallic cement, as it is termed, is that to which our attention is now directed—but the term is somewhat of a *misnomer*, the material sold under this name being a metallic sand or powder, coarse or fine as it may be required—which is to be mixed up with lime, with which it forms what may be designated a metallic cement; the epithet metallic, in such case, is aptly chosen, for it is the metallic constituent that gives the peculiar value to the cement, and a most valuable cement it appears to be, not only for joining brick and stone together in the ordinary manner, and for concretes for foundations, but for coating and facing and for moulding in the solid.

By the way, we cannot forbear putting in a query for the solution of the indiscriminate objectors to the use of cement, whose best argument against it is that it is *sham* and *mockery*. What do they say to the "*sham*" of an artificial stone foundation—a concrete to emulate the rock, a cheap—for cheap is another term of objection—a cheap substitute for blocks of granite, or other huge masses of stone, and their being locked together? Cement must be combated or opposed by better arguments than these, otherwise all art must fall, and the most favoured materials of the anti-cement men suffer in the debate on the proprieties of application.

For a concrete this metallic cement has extraordinary merits. It was used in the foundation of the new Houses of Parliament, and at the great tunnels of the Birmingham railroad. One measure of the metallic sand, one of lime, and six of gravel are the proportions recommended. We have observed it used for the concrete foundation of wood-pavements—for the road in fact to which the wood seems to be the casing—and it acquires a firmness and tenacity unexampled, as hard almost as a vitrified mass; indeed, we have heard that the proportions of the metallic sand have undergone a reduction in subsequent cases, the concrete having become so hard as almost to defy breaking into in the case of requiring to work at the gas and water pipes. We dare say that the damp situation of the concrete would somewhat favour the hardening, as a slight oxidation of the metallic particles would take place, and thus knit and lock together where there

might exist a deficiency of other cohesive agents.

We are the more inclined to this opinion from what we have seen of a rough cylindrical article made of the cement we are now describing. It has been used for a long time as a water-vessel, and exposed to wet and frost and all weathers: it is not more than an inch thick, yet it stands the test, and has been knocked about and carelessly used; cast-iron itself could hardly have withstood more.

As a material for constructing troughs and cisterns, it is therefore very valuable. Malt-house steeping-troughs have been made of it, and malt-house floors; in this latter respect, indeed, and for floors generally, it is equally available. We have seen specimens polished up to the highest and finest surface, and as hard as marble.

For exterior casings, as stucco, we have two very fine instances in the city—one at 57, Coleman-street; the other, the Alfred Insurance Office, Lothbury. Here it is used in combination with stone dressings, and in imitation of stone; and whether we would defend the principle of imitation or not, we must subscribe to the admission of its successful exterior emulation—the ornaments, such as modillions, trusses, balusters, pierced parapets, are wrought in it, and have a character and promise of durability which stone itself could not farther boast of.

Capitals, delicate capitals of columns, are exquisitely produced in it; and here we have to note a remarkable condition required in the working of it;—the sand and lime are to be used almost dry—not more moistened, in fact, than the ordinary state in which we find powdered sugar—it is pressed into the mould, or slightly punched in by a small hand pestle, and soon acquires the necessary hardness and intimate junction to be turned out a stone.

STONE is a CEMENT! but we use the words stone and cement to denote the different conditions under which the two are produced:—one by the slow process of growth in the mine, the other by a similar but hastened process in the laboratory of art. Who shall say that we cannot produce blocks of the supremest marble in this way? and who will then determine, and upon what grounds, the superiority?

Blue lias lime is to be preferred in using up with this metallic sand, and it is a valuable condition of it, that the sand alone has to be transported to the hands of the consumer; whereas, with Roman cement, the whole admixture, or that which exposure and lapse of time will damage, must be barrelled up.

Many instances of the application of the cement may be referred to, but the most valuable one in our estimation is at Herne Bay, where a small marine turret, or "*look-out*," has been stuccoed with it for ten years, and is now, we are informed, harder than ever. The Earl of Egremont's mansion, at Silvertown Park, near Exeter, an immense building, covering, as it is said, an acre of ground, has been in process of re-modelling, under the use of this material, for the last four years—a large number of foliated capitals of columns, and an interminable line of ornament, are being done in it—these furnish the best arguments or test of quality and fitness; but it was not exposed to them before every proper experiment had been tried on a smaller scale, so as to satisfy the architect as to the responsibility he ran in recommending it.

A new market-place for the district of St. Philip's, Bristol, is proposed to be erected.

THE NECROPOLIS AND GENERAL CEMETERY AND FUNERAL COMPANY.

PLAN FOR A FARMSTEAD.

We have appropriately enough now lying before us the prospectus of a company for forming a General Metropolitan Cemetery, under the above classic and significant title, and Mr. George Alfred Walker's work, entitled, "Gatherings from Grave Yards," to which we called the attention of our readers in No. 9 of THE BUILDER. We can only refer back to that article for our own opinion as to the indecency, the revolting indecency of the principal provision for interments in the city of London, and we may add to it in this place what is stated in the prospectus of the Necropolis—namely, that the deaths in London, being upwards of 45,000 annually, 5,000 of which number of persons dying are interred in the present suburban cemeteries, it leaves the astounding proportion of 40,000 still remaining to make up the pestiferous mass that is being constantly thrown into the tanks of the London churchyards. This of itself, however, hideous and loathsome as it is to the senses, and threatening as it is to the lives and health of the survivors, is not sufficient to induce a more decent and sensible practice, especially when expense and inconveniences of another kind attend it. To this, however, the attention of the Necropolis or General Metropolitan Cemetery Company has been directed, and it is proposed, in the words of their prospectus, "to supply a burial-place for the many at such a scale of charges, both for interment and conveyance to its locality, as may be within the means of persons of the most limited incomes."

It has been calculated, that by avoiding the enormous outlay which has been expended on the present cemeteries, and by combining in one comprehensive scheme both the interment itself, and also the conveyance of the body to its last resting place, attended by the relatives of the deceased, a decent and respectable funeral can be provided by this company at less than the most common interments in our metropolitan receptacles, and at 40 per cent. at least below the expense attending an interment in one of the present cemeteries. This appears to us to be the grand inducement, for even in matters of the most serious import, we are so much the slaves of custom and habit, that nothing less than a direct and unequivocal appeal to our pecuniary interests has its influence. Shareholders in this company can only be brought in by a sense of the money advantage; though it is a weighty reason with them if their benevolence and interest can be associated together, and that they can be so, we think is demonstrated by this prospectus. A large tract of freehold ground has been engaged at Harlesden Green, close to the metropolis, and with the provisos of economy already noted, we think every satisfaction will be given. There are extreme features peculiar to this company, and not embraced by any other, which may have their weight in determining many persons to aid in the undertaking, and these are the provision of funeral chambers, where the corpse and coffin may be, at a moderate charge, for the usual period, and thus get rid of that painful necessity in which thousands are now involved, of living for so many days and nights in the same apartment with their deceased relatives; and the other is provision by which the benevolent may urgently and gratefully aid the poor, as a proprietor of not less than 50 shares, on payment of 15 guineas, and any person not being a shareholder, on payment of 30 guineas will be entitled to a ticket annually during life for the interment, free of expense, of any poor person; and two mourners will be provided with decent cloaks and conveyance to the cemetery.

We cannot, in drawing attention to the subject, do justice at the same time to Mr. Walker's book, but it is an extraordinary one, and it could be read at the same time as the hand in the pocket awaiting the deliberate resolve to subscribe or not subscribing for shares in the Cemetery or Necropolis, it would determine many. Such a statement of facts, bearing upon the whole question of interments, and read up from every record, ancient and modern, and withal so interesting, it has not been so frequently to look into, but we must not lose our notice of it at a special and more profitable opportunity.

SIR,—Having been a subscriber from the first to your valuable paper, and having derived much gratification, will you allow me to draw your attention to the necessary improvement of buildings suitable for the allotment system, as through the expensive machinery of the New Poor Law system, and the want of natural and moral feeling displayed in too many instances in the carrying the same out, many landowners are disgusted with it, and

are adopting the plan of cottage allotment by spade husbandry; cottages to have three rooms each, with not less than half an acre of ground, to be occupied by day labourers; and small farms of five acres, part arable and meadow land, with a farm homestead; and it having been proved that spade husbandry is the most profitable to the land, provided a sufficiency of manure can be made, this is easily done when divided into arable and pasture.

The enclosed plan I beg to submit for insertion as suitable for a five-acre allotment or farm.



- A. Porch 4 by 4
- B. Living-room 14 by 10
- C. Bed-room 11 by 10
- D. Ditto 8 by 7
- E. Pantry 8 by 4
- F. Stove 8 by 4
- G. Dairy 7 by 7
- H. Scullery 8 by 8
- I. Privy.
- J. Paved yard with pump.
- K K. Pigsties.
- L. Poultry.
- N B. Stable for cows 14 by 11
- N. Dung pit.

- O. Barn 20 by 12
- P. P. Open sheds.
- R. Farm yard about 60 ft. square.
- S. Lawn or bleaching ground, 40 by 30
- T. Flower garden.
- V V. Sheds for garden produce, &c.
- W. Kitchen garden and orchard, half an acre.

The cost of a homestead of this description would be about 170*l*. I quite agree with your correspondent in No. 32, that the price of the designs, when completed, should be stated.

I remain, Sir, &c. &c. and constant reader,
P. T.

IMPROVEMENTS IN PIMLICO.—The mews at the corner of James-street and Stafford-row, nearly opposite the equerries' entrance to Buckingham Palace, were razed to the ground on Friday and Saturday, the building materials having been previously sold by auction, in order to clear the site for the intended improvements in the vicinity of the

Palace. The demolition of the White Horse public-house is deferred for the present, and the improvements to be immediately commenced will be limited to building a wall to James-street; the wide space thus obtained will enable government to remove the hackney-coach stand several feet from where it at present stands.

THE SMOKE NUISANCE.

We resume the summary of the evidence taken before the select committee. The first witness examined was—

"Dr. D. B. Reid, M.D.—Is professionally a lecturer on chemistry, and has attended a good deal to the ventilation of the House of Commons. The chairman having described the object of the committee, as a chemist, what he considered the nature of smoke? Dr. Reid observed, that it consisted essentially of carbon, separated, by decomposition, from the gaseous matters liberated from the fuel—mixed with minute particles of undecomposed coal, and with moisture and other materials. It might be considered as being produced by imperfect combustion. The cause of the production of smoke is the imperfect oxygenation of inflammable matter. Considers it can be corrected to an extreme extent with benefit to the proprietors, as well as to the public, and by a saving of fuel. There are certain chemical operations where it is important to have a powerful deoxidating influence brought to bear upon the materials, as in some reverberatory-furnaces. This objection, however, has no reference to the greater number of cases where nuisance arises. With respect to the effect of smoke upon air, Dr. Reid observed, he should not attribute greater essential impurity to the air from the development of smoke than from absolute combustion, but the impurity produced by the imperfect combustion which generates smoke, is of a much more offensive nature—in particular, by producing those black portions of soot with which all are familiar, and which, for instance, annoy them at the Houses of Parliament to such an extent, that he had been under the necessity of putting up a veil about forty feet long by twelve deep, on which, in a single evening, they could count 200,000 visible portions, with the naked eye, upon a square inch. On one occasion, at the Horse Guards, the amount of smoke deposited was so great, that the impression of the foot as he walked on it was as distinct as when snow lies on the ground. Considers it injurious to the lungs by inhaling it. It is obvious that, to individuals of a delicate constitution, it must be injurious where such an atmosphere is inspired. Patents have been taken out by many whose labours are advancing the cause. From the experience of twenty-five years, he had found that, when more precise knowledge was gained, the evil was reduced. Ignorance and carelessness on the part of the men, and want of knowledge among proprietors, are, in numerous cases, the causes of the nuisance. Stokers should be better educated; would prefer firing the masters, that they may look after the workmen. Cannot point out any one plan that he would prefer, as he is examining the subject in detail at present. Have declined giving any particular preference, being sometimes doubtful as to the patent right. Had suggested a plan of a common fire-place, which gives off the greatest heat from the least fuel—it will be introduced into the new Houses of Parliament. The fire is placed on a level with the floor, and which is thus warmed by radiation. The Doctor recommended the use of coke, against which, however, there is much prejudice; but all ordinary coal cokes itself, and becomes so in the fire, and is never properly calorific until it is in the state of coke. In by the greater number of furnaces where smoke is produced, there is no ingress for air whatever. Witness could point out 200 or 300 cases, where there is no legitimate ingress for air. Much is to be ascertained respecting the peculiar forms of boilers; he would leave it to the assistance of general education, with legislative enactments, and the interests of patentees. The nuisance of smoke may be abolished without injury to any one.

"William West, Esq., was next examined—Is lecturer on chemistry at Leeds; has paid much attention to the nuisance of smoke. The visible portion of black smoke is extremely injurious to health. Mechanical impurities in the air are more hurtful than chemical impurities. Many of the most revolting employments where the air is chemically impure, are not known to shorten life. The inhaling any material substance is injurious to longevity. Smoke arises from imperfect com-

bustion by an insufficient quantity of oxygen, or its being introduced too early or too late. A sufficient quantity of air should be introduced at the right periods of the process, and in the right parts of the furnace. Speaking generally, prefers those plans which diffuse or mix the air, instead of introducing it in one volume—so far as that can be practically effected. Likes those plans which admit the greatest quantity of air immediately after feeding, and which shut it off gradually, so that, when the coal is well charred, no more is admitted than what passes through the bars. There is a decided difference in the abatement of the nuisance at Leeds. The municipal authorities sent notice to all mill-owners, and have given much offence in doing so. The very knowledge that the Leeds Improvement Bill had passed, produced some effect. If the Act were strictly enforced, it would, in a great measure, abate the nuisance. Agrees with Dr. Reid that particular circumstances require different plans. Has inspected about ten different modes in operation at Leeds—Q. Will you detail to the committee the plans you most approve? A. I think that Charles Williams's, of Liverpool, is the best in theory; but I think there are great objections to that theory being brought into full effect. It is the theory of diffusion through small holes. I think it would be desirable to add to that plan some mode of shutting off the air completely, or shutting it off gradually, instead of suddenly, which, I believe, he now does. Then I should say the three or four does. That I should next recommend, are Pritchard's, of Leeds; Thomas Hall's, of Leeds; Rodda's, and Billingsley's, of Bradford. Billingsley's is a good one; Pritchard's is on the principle of admitting air when the fire is fed, and gradually shutting it off; Billingsley's is highly spoken of—there are two sets of bars over the door, which, as they are moved to the right or left, leave half the spaces open or shut. Had seen Samuel Hall's patent; should not put it in the first rank. There is no mode of testing these plans equal to the eye; if black smoke, or soot, can be judged by the eye. If, instead of complete combustion, a large portion of carbonic oxide were sent up the chimney, that carbonic oxide would be invisible. Smoke, for legal purposes, may be defined to be soot, sent up the chimney; scientifically, it is finely divided carbon, arising from imperfect combustion. Believes the carbonic oxide notion is a favourite hobby with many persons, but that there is very little in it. There are some persons who can only be induced to act by legislative enactments. Would, therefore, recommend legislation on the subject.

"Mr. John Smith (the next witness).—Is a commissioner at Bradford, under the Act for improving the town. Examined many patented plans. The commissioners were under peculiar circumstances. The owners of fire places were, by the Act of 1862, required to destroy them so as most effectually to destroy the smoke, provided they did not infringe on any patent. Mr. Billingsley invented a plan, but had no patent for it; offered to put up the plan for others; the consequence was, a good many were put up under Mr. Billingsley's own superintendence. Believes Bradford is most forward in eradicating the nuisance. Mr. Billingsley's plan combines every chemical requisite for complete combustion. At the periods of feeding the furnace, so much gas is given off, as to require an additional supply of air more than can get through the fire itself; by means of a sliding rack in front of the furnaces, this can be shut and opened, and regulated at discretion; if additional air be admitted beyond the bridge, it has to mix not only with the gaseous productions of the coal, but with the incombustible gases. Mr. Williams's plan is, that he conducts the air to the back of the furnace. The principle of consuming the gas is precisely the same as Mr. Billingsley's, but the mode of accomplishing it is different. A better definition of combustion cannot be given than Mr. Williams lays down in his treatise; the only fault is, the mechanical means of accomplishing the chemical process. The great distinction between Mr. Billingsley's plan and that of Mr. Williams is, simply, that Mr. Billingsley admits the air in front—Mr. Williams admits it after the gases have got beyond the fire, and in all sorts of ways, vertical and horizontal. Mr. Billingsley admits the air either by a rack, as shown by the model, or by a

door—the form of admission is perfectly immaterial; it is the air that is wanted, no matter in what form. By Mr. Billingsley's plan, it enters in one broad connected sheet, not in a divided form. It is one sheet of air going over the entire surface of the furnace.—Q. What advantage is there in admitting air in a sheet in front, instead of by a single aperture?—A. There is no difference; because, when it goes through many apertures, it is still reduced into one body.—Q. Then why do you adopt the plan of having a number of apertures instead of one? A. Merely for the nicety of the arrangement, that is all.—Q. And not from any utility? A. Not from any utility. Has made no experiments as to the advantages of Mr. Billingsley's or Mr. Williams's plans. Has never seen any experiments made which would show the economy or capability of one furnace over the other. Has not made any experiment on Mr. Billingsley's plan.

"Mr. Edward Billingsley examined.—Has succeeded in completing a plan (spoken to by last witness) which prevents the smoke nuisance. Has applied the plan to upwards of 200 furnaces in the last six months. In a plan for abating the nuisance, the gases must be heated, by radiation, to the degree of ascension which is requisite to their combining with an equivalent supply of air. The saving of fuel is proportional to the attention of the stoker and the nature of the coal; the attention of the stoker is required to its ever varying stages. If the coal is very bituminous, the most smoke will be made if improperly consumed. The master of a concern should be legally liable to a penalty for the smoke nuisance—the same to be stopped from the fireman's wages. Accounts for the saving, by the perfect combustion of the gases. The saving is 20 per cent. Speaks as a master manufacturer. His plan requires a great deal of attention on the part of stokers; it is a chemical manifestation; if it were a mechanical operation, it might go by itself. If the whole of the smoke escapes, the steam gauge invariably sinks; if thrown into combustion, it rises again. Could not produce the same quantity of work if he did not consume the smoke. Before commencing to burn the smoke, was obliged to work two boilers; now, works but one.

"C. Wye Williams, Esq., was the next witness examined.—Is managing director of the Dublin Steam Company. Founder of the first steam establishment, about twenty years ago. The principles of destroying smoke, as laid down by the first chemical authorities, is, that there must be a mechanical mixing or diffusion of the gas and the air, previous to combustion, so that the atoms of the one must come into contact with the atoms of the other, which are to combine in combustion. In the Argand burner, the gas is divided into films or jets in its passage to the air; if the air be divided in its passage to the gas, the effect is the same—chemically, there is no difference. The principle of his patent, then, is to introduce the air to the combustible gases in a divided form. The object is to effect a rapid mechanical mixture before the gases have passed into the flues and are cooled. In what the last witness said he is mistaken, that the air admitted in small divisions unites again into a body; like water issuing from the rose of a watering-pot, each drop of water comes in contact only takes place on the surface, the mixture is effected. In the furnace there is not time for mixing, because the gases, as fast as generated, are carried rapidly into the flues; the object, therefore, is, to effect mechanically, by dividing the air, what otherwise there is not time to do. There may be more convenience in admitting the air in one place or another; always admits a large portion of air in front by numerous jets. Some kinds of coal make a difference. In an Argand burner sixteen holes are used, instead of one large one. The last witness said it was a matter of indifference whether he used a number of holes or a single long orifice—why, then, does he adopt a number, if one will do? His using so many holes shews they are necessary. We use jets, because jets give an increased surface. The more surface is given, the quicker is the mixture in a state for chemical combustion. If brought together in a body, they become cooled down. The solar lamp is a further illustration; the flame, instead of being in a number of jets, is in a continuous line, and the

THE EGYPTIAN SOCIETY.

WE read in the *Athenæum* an account of a monthly meeting of the Egyptian Society, held at Cairo in the month of July, at which Dr. Lepsius gave an account of the researches made by the Prussian expedition.

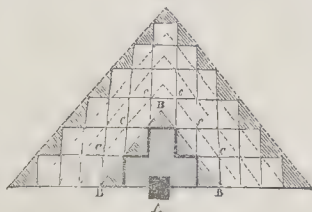
Mr. E. W. Lane being unanimously called to the chair, Dr. Lepsius commenced by stating that he felt it to be his duty, whenever he had the opportunity of visiting Cairo, to communicate any information that he might consider interesting to so useful and liberal a society. He felt assured, from the great progress already made in the few years since its establishment, that it was destined to fill an important place in the history of scientific research in this country. The Doctor then alluded, in proof, to the valuable memoir lately published by the society, contributed by M. Linant "Sur le Lac Moeris." He offered some observations on the mode of constructing the pyramids, and enumerated the many theories that had been advanced concerning the objects and the construction of these vast monuments. He, however, considered the fact established, that their object was simply to mark the places of tombs, and he then proceeded to explain to the meeting the manner in which they were constructed.

The great pyramids of Gizeh are (in comparison with many others) in a good state of preservation. From the largest, little besides the casing stones have been removed. In the second pyramid a part of the casing yet remains. In these it is impossible to see the interior construction of the stone work. But some of the small ruined pyramids at Gizeh consist of several steps, each of several courses of stone-work in height, instead of the usual form of four sides regularly converging to an apex; and in the more ruined parts of these pyramids it is seen that the steps are formed by walls built against each other, as shown by the dotted lines in the following sketch.



The masonry of the pyramids of Abousir and Sacarra is very inferior to that of the pyramids of Gizeh—in all of these the step construction is clearly seen, and also that the steps are separate walls built against each other. The pyramid at Merdoon, again, exhibits this mode of construction. In its present form it rather resembles a huge square tower, the walls of which are slightly inclined, than a pyramid; the outer layers having been mostly removed, the core or central part is left standing alone. In short, in the examination of a great number of pyramids, from Gizeh to the Fayoom, the same mode of construction was found.

To explain a mode of building apparently so contrary to sound masonry, we must suppose a chamber A for the tomb, in or under the small pyramid B B B, built over it; by filling



up the angles of the steps, and adding the fine smooth casing stone, this small pyramid would be completed; but if it were desired to enlarge the work, instead of filling up the angles to prepare for the casing, another step, of the same height and depth as the first, being added to each step of the first-mentioned pyramid, the outline touching the exterior angles of these steps, *c c c*, would be parallel to the outline of the first pyramid; and so on, by continually adding steps of the same section,

the pyramid would be increased to any size. The foregoing sketch thus shews five pyramids, one within the other. Dr. Lepsius stated that he was indebted to Mr. J. Wild, architect, for this suggestion, and it agrees with and explains the account given by Herodotus, who states that machines were placed upon the steps, and the stones raised from one step to another. The Doctor then explained, in confirmation of his views, the remarkable pyramid of Dashour; he considered the obtuse angle of the upper part, as the original angle intended. Moreover, Dr. Lepsius observed that this mode of proceeding is in harmony with that adopted by the Egyptians in their tombs excavated in the rock. It is found at Thebes that the first care of the reigning king was to excavate in the rock, and complete and decorate, a chamber for his tomb. If his life continued after the end of this labour, another chamber was added, and then another, and so on; and it is found that the largest tombs are those built by the kings who have reigned the longest. In the same manner, the pyramids may have been continually enlarged during the lifetime of the kings for whom they were intended. All the evidence that remains shews that the largest pyramids were of kings who reigned a long time. It must be remembered, that among the Egyptians it was the duty of the individual to provide a tomb for himself; his successor was immediately occupied upon his own, and thus we find many tombs either hastily or imperfectly finished, and chambers left in all states of progress. Could a monument of such stupendous size as the great pyramid of Gizeh have been contemplated as an original plan, to have been finished, or nearly so, in the lifetime of one man? but it is easy to conceive that by perpetual additions during a long reign, such a building may have been completed.

Dr. Lepsius then exhibited a selection of beautifully-finished drawings, of the subjects and inscriptions decorating the tombs round the pyramids of Gizeh and Sacarra, architectural plans, sections, &c. The time allowed was too short for more than a slight examination of them. The explanations given of some of the subjects were very interesting.

WOLFF'S PENCILS.

WE recollect the nuisance and inconvenience we were subject to in our early days in preparing pencils for the bow-lig of our compasses, and for the small bow instruments; and hundreds of our readers will be reminded of similar cause of provocation. Cutting down a large pencil and wasting the lead, with, after all, a clumsy, botching job, were the conditions under which we too frequently worked; but now, and it is a surprise it has never been thought of before, we have pencils prepared of all gauges and sizes for the purpose—and of a quality suited to the fineness of point required. Another advantage is, that the pencils are just of the length to be inserted without waste, and being leaded at both ends, with the blank of wood in the middle, can be cut across so as to supply two suitable-sized pencils in every case. There is another kind, the half-round pencil for the spring bow, manufactured with great care, for which we are also indebted to Messrs. Wolff's ingenuity and careful attention; and we can most satisfactorily recommend these articles to our readers.

NEW AND IMPROVED IRON ROOF.—At the cotton manufactory of Messrs. Garnstay and Co., at Liverpool, a fire-proof roof is being erected, composed of cast and wrought iron, which for lightness and elegance of appearance, combining strength and solidity, is perhaps unrivalled. The building, which is intended for the storage of cotton, is 150 feet long by 64 feet wide, the span of the principals being equal to the latter, as there are no central supports. These principals are formed of four pieces, locking into each other, and fastened with bolts and nuts, together weighing three and a half tons; they are handsomely moulded and perforated, forming a flatish elliptical arch below, and the usual straight pitch for the roof above. When the whole is securely bolted and tied together, it will be capable of sustaining a much greater weight than it will have to bear, and goods may be stowed up to the very slates; the laths for the slates are of wrought-iron secured edgewise, to give greater strength, while the whole is fire-proof. The splendid castings are from the Soho Foundry, belonging to Mr. John Clayton, Preston.

(To be continued.)

WESTMINSTER BRIDGE.—In consequence of a material sinking of the bridge, it has been determined to remove a great portion of the wall and the heavy balustrades, together with the covered stone recesses on each side, and to substitute a low or breast-high wall similar to that recently adopted at Blackfriars-bridge. The road and footpath will also be reduced, the steep inclination at each end rendering such an improvement imperatively necessary.



MILITARY CHAPEL, ST. JAMES'S PARK BARRACKS.

A correspondent has supplied us with the foregoing view of the Military Chapel of St. James's Park Barracks. It will provoke the bile in our Gothic fanciers, and at best find but few defenders, yet, after all, this is much the sort of classic art with which the popular mind has been familiarized, and such things are taken as standards whereby to estimate the fitness of the style for English edifices;—as well

might the vilest Gothic effusion of Church Commissioner's patronage be taken as a specimen of the true Gothic. After all, however, this Military Chapel is respectable compared with some of the apings of modern imitators in both styles. There is a deal to be done before the merit of designing better things in either style will be based upon a principle. There will be many critics, and few improvers.

THE CATHEDRALS OF THE RHINE.

By its position and by the genius of its inhabitants, the city of Mayence had acquired, even in the earliest times, a political importance of which art has been a faithful exponent. Situated on the left bank of the Rhine, at the spot where the river makes its strongest inclination towards the German territory, peopled by the Celts, fortified by the Romans, honoured and enlarged by the kings of the first two French dynasties, it was once the frontier bulwark of those races to which Providence had confided the government of Western Europe. After having been a mighty fortress, in the hands of the civil power, it became, in the eighth century, a focus of civilization, for St. Boniface, the apostle of the Germans, chose it as the centre of his mission, and obtained for the Church, which he there established, supremacy over all the Teutonic churches. The sovereign empire which religion then assumed in that city may be clearly seen in the cathedral which he there erected.

This great structure presents, not only the most exalted type that has ever been supplied by religious art in Germany, but a succession of all the forms which it has worn. Fire, which has consumed or altered so many Christian monuments, has also, on many occasions, waged a cruel war against it; but the flames have each time respected a fragment of the ancient buildings, and thus there stands a record of all the period of the middle ages. Founded by Archbishop Willigisius, who dedicated a portion of it in 978, the metropolitan church of Mayence was destroyed by fire in 1009, on the night of the very day on which it had been definitively consecrated. By the pious care of the founder it was at once recommenced, and burnt anew in 1081, under the episcopacy of Siegfried I., and again in 1190 under the episcopacy of Conrad von Wittelsbach. The Archbishop Siegfried III. undertook the reconstruction at his accession in 1231, and finished his work in 1239. The existing edifice exhibits most precious vestiges of these three great epochs. The critic may fearlessly attri-

bute to Willigisius and the 10th century the exterior of the eastern apsis; to Siegfried I., and the end of the 11th century, the eastern cupola and the general plan of the nave; to Siegfried III., and the commencement of the 13th century, the western cupola, the apsis that follows, and the accompanying cross. The semicircular arch reigns in these three parts so discrepant; in the first it has all the gravity of Latin art; in the second it takes an oriental costume; in the third it mingles with the richness proper to the schools of Constantinople the first departures from established form that mark the growing influence of ogival art.

The eastern apsis of this building, not less remarkable from its beauty than from its date, is one of the most important specimens of architecture in Western Europe. The tenth century, to which barbarity and barrenness are generally imputed, has exhibited in it knowledge, taste, and elegance, such as might aptly be compared with that choice Latininity which Loup de Ferrière was about the same time teaching in the Abbey of Fulda. The studies of this great community, which had a common origin with the archbishopric of Mayence, and was the seminary of German civilization, had preserved the traditions of ancient architecture in a state of purity, which the invasions of the oriental style soon altered. The apsis, built by Archbishop Willigisius, a rare and decided example of the construction proper to the 10th century, is almost completely Roman; composed entirely of stone, round, bordered by an elegant basement, with one lofty stage of windows, and crowned by a gallery boldly drawn, it bears a roofage, the angle of which, scarcely acute, merges into a pediment that approaches those obtuse forms which the ancients employed in similar places. The two walls, from which it projects, are pierced by the two principal doors of the edifice. That on the left is adorned with columns of which the Corinthian capitals, like the apsis, indicate an epoch still faithful to Roman traditions; the corresponding door on the other side is conceived in a style more barbarous, and belongs, undoubtedly, to the second construc-

tion, to the 11th century. Two round towers, destined to contain the staircases, flank the two entries, and rise to a considerable height above the roof. The upper portions of them have not been covered, and are evidently modern; while it is very doubtful whether either has preserved its ancient base.

To follow the progress of time in the order already indicated, let us enter the interior of the church. The two doors open on vestibules, curiously adorned, that, on either side, conduct to the low aisles of the nave, and press the flanks of a cupola that was erected, without any doubt, in the 11th century. The cupola, an octagon resting on a square plane, decorated with drops, naked of mouldings, and accompanied by two lofty tribunes, presents all the characteristics of Byzantine art, the invasion of which ought to follow, at an interval of one hundred years, the development of that beautiful Roman art of the 10th century, which is still impressed on the exterior of the apsis. For the rest, while it preserves internally the semicircular line in all its purity, it has been covered externally, and in modern times, by a large gallery, which forms, so to say, its second story, and is lighted by lofty pointed windows, surmounted by pediments. The vase, which is to be seen beneath the cupola; the lateral inclosures which keep it isolated from the rest of the church, lead to the conclusion that it was the baptistery.

At the western extremity of the nave, which reposes on square pillars, and is accompanied by low aisles the vaults of which are without mouldings, another cupola has been suspended above the cross, and the choir, adorned with three apses, has been projected behind the cupola. The complex plan of this mass of building evidently belongs to the 13th century; the actual construction has taken place at different epochs. The interior of the dome is like that of Cologne, and shews the pointed arch taking the place of the semicircular wherever it is necessary that pressure too violent should be reduced,—in the vaults, for example, and in the arches which sustain the buttresses. The two extremities of the transept are square, but the three apses diverging from the choir have a polygonal form, which, consequently, indicates a subsequent epoch.

The exterior of this part of the cathedral is even more diversified than the interior. We shall say nothing about the three pediments of the choir, the three polygonal apses that lean against the pediments, the two octagonal turrets that are raised on the common axis of the apses, and add their heads to those which, the two towers of the eastern front and the two domes, rear towards heaven. There are three portions, deserving of special consideration, that belong to the period in which the Byzantine style had obtained its greatest extension in Germany: the first is the belfry of the western dome, the base of which is decorated with a splendour altogether Oriental, supports a sort of octagonal tower, truncated and adorned with pointed arches from a hand of the 15th century; the second is the wall that closes the southern arm of the transept, and is pierced by three stories of arches, the lines of which are multiplied and intertwine with luxuriance; the third is the frontispiece of the opposite arm, in which the round form seems to have received the utmost subtleties of ornament short of self-abdication. It was this degree of maturity that architecture founded on the curve line attained, before it gave place to ogival art. It reached this extreme point in the course of the 13th century, in the reign of the emperor Frederick II. The accession of the house of Habsburg, which was unexpected, was accompanied by an era of disorder and barbarity, and followed by a revolution that naturalized the pointed arch among the Germans. In one of the side chapels that are built in the aisles of the Cathedral of Mayence one can see how far the Teutonic architects have pushed this new principle of art; the small columns that support the pointed arches of the vault are fashioned in the shape of shrubs, the slender stalks of which are adorned with fully developed leaves. The excessive complexity which the German genius introduces into all the forms which it touches is there plainly seen in one and the same monument, under aspects the most different.

It will now be sufficient to indicate briefly the manner in which the principal cathedrals of the Rhine have modified the principle which we have been studying in that one which appears to have been the model of the rest. Worms, which in the first centuries had enjoyed supremacy, both religious and political, lost it when St. Boniface transferred it to Mayence. The temple that was constructed, long time after these changes, in the first of these two cities, is but a repetition of that which we have just been considering in the second. A nave, having a cupola at each of its extremities, accompanied by two towers, is the plan common to both monuments; as in the edifice at Mayence, so in that of Worms, the choir placed at the west is posterior to the baptistery, which is at the eastern side; the polygonal apsis of the choir, adorned with arched round windows, and covered by an entangled roof, presents the character, nearly a mixed one, of the architecture of the 17th century. The eastern extremity, originally consecrated to the baptistery, instead of terminating in an apsis as at Mayence, affects a rectangular form, and exhibits in its severe disposition the Roman character, still adhered to with some fidelity; this part, in its beauty comparable with the eastern apsis of Mayence, like the latter, of a date anterior to the 11th century, an epoch of movement and transition, in which the plan of the two cathedrals assumed its actual form; in which cupolas and the polygons were introduced into buildings; in which the taste for simple and pure Latin traditions began to prevail. On the south side of the edifice at

Worms is a Gothic portal, loaded by the 15th century with grotesque figures. Even to this day the crowd of travellers has testified more admiration for the quaintness of these caricatures than for the melancholy majesty of the great temple which they disfigure.

Spire, which, under the Romans and under the first two races of the Frank kings, shared the fortunes of the Frank kings, shared the fortunes of Worms and Mayence, possesses a cathedral like those of these two cities. It is said to have been erected in the 11th century, and was founded by the emperor Courral the Salian, but finished under his grandson the emperor Henry IV., the celebrated rival of Pope Gregory VII. The octagonal cupola, which rises up at the eastern extremity, is accompanied by a round apsis that appears to have been accurately imitated from that of Mayence. The nave is, in the interior, in a taste at once severe and delicate; and, as the pillars on which it rests, and of which the date is certain, are more slender and ornate than those of the naves of Mayence and Worms, it seems natural to conclude that the latter belong to the primitive construction of the 10th century, and mark the end of the purely Roman architecture, while the former, with the cupolas, mark the invasion effected by the new Greek style on the curve of the 11th century. Under the rule of the emperors of the house of Saxony, the ancient tradition continued to maintain itself; the Oriental taste was propagated after the accession of the house of Franconia, the tombs of which are contained in the Cathedral of Spire, as though the better to indicate the revolution which was accomplished there.

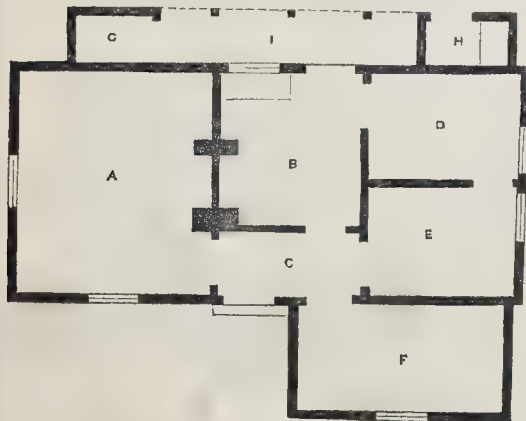
(To be continued.)

FIRES IN THE METROPOLIS.

THE PAULINE APPAREL.

The last week has been unfortunately marked by a series of calamities arising from fire. The numerous spots at which conflagrations have burst forth, the circumstances under which they have occurred, and the calamities which have resulted from them, have been alike the fruitful themes of consideration; still, however, no steps have been taken to inquire into their causes, nor to arrive at any conclusions from which future advantage may be derived, or the sufferings from these events in any way mitigated. An examination should occur after every fire, by authorities properly constituted; at present, unless a life is sacrificed, the public knows nothing of the origin, the causes of the spreading of the fire, nor the loss that is sustained. This is wrong—a private suffering often becomes a general good, if it be carefully and judiciously examined, and it is the bounden duty of a police to take every measure to protect those who commit themselves to their charge. Of all the dreadful spectacles a life in a metropolis affords, none sinks deeper on the mind than the horrors of a fire, where human beings are actually roasted alive, surrounded by thousands, who would almost, in the moment of excitement, peril their own existence to save the miserable beings whose shrieks sound dreadfully upon the ear. He who, returning from the delights of an evening spent in more than usual festivity, has had his footsteps stopt by rushing crowds, by the rattle of the fire-engine, and has been irresistibly borne on to a conflagration, who has witnessed the outstretched arms, who has heard the harrowing cry for assistance, who has believed that assistance could be immediately given, yet has seen his fellow-beings die in the midst of agony before his eyes, because the usual quantity of water was not in the pipes, or a ladder could not be obtained sufficiently high, will to the last hour of his days, have the remembrance obliterated on him, nay, even the darkness of the night will be no protection from the dreadful vision. In England every thing is effected by public establishments, and for their own sakes we believe those which are devoted to fire insurances do all in their power to remedy the evils which exist; yet they are not the only safeguards that a public should have: an inquest ought to be held after every fire, and if the parish were to be the insurers at a more moderate rate than any office, we are persuaded there would be more zeal shown than at the present time. The firemen are paid by the insurance offices, and no doubt are a most respectable class of persons, but, as in Paris, they ought to be under military discipline, to have proper apparatus, and be selected from the artillery corps. Napoleon established a brigade of firemen in Paris, who act under proper officers, who are dressed in the manner which we have represented, their faces covered with a glazed mask, the bodies protected by a dress which is incombustible, and they carry an apparatus for obtaining fresh air. From the commander who first ordered this dress, it is called the Pauline apparel.

Elevation and Plan No. 3.



COUNTRY HOUSES OR COTTAGES.*

REFERENCE: A is the principal room, B a bedroom, C porch or entrance, D, E, F, bed-

rooms, G store for coals, wood, &c., H privy, I shed-roof, to place tubs or other utensils under shelter from rain. The fire-places, chimneys, and shafts, must of course be built of brick.

The above elevation and plan are drawn to a scale of one-tenth of an inch to a foot.

* Omitted for want of space last week.



The great advantage offered by this brigade is its readiness at all periods for the public service, its obedience, and the confidence which each pomper has in his comrade. Here the eagerness of individuals often leads to daring which terminates only in the destruction of the courageous individual who rushes blindly into danger. There should be always ladders of escape in the hands of proper persons, and by the joining together on the spot a sufficient number of iron ladders, one of sufficient height to meet an emergency could easily be formed. We see an apparatus occasionally paraded in the streets, but we have heard that it is never near the spot which requires its use. Some years since, Aldini, the friend and coadjutor of the immortal Galvani, the discoverer of the power which is now performing such marvellous agency, delivered a lecture at the Royal Institution on the subject of preservation against fire, and exhibited a uniform mostly composed of asbestos, and a mask for the protection of the system against the effects of smoke. His experiments were perfectly successful, his apparatus was evidently well adapted to the uses for which it was proposed, his explanations were received with great approbation, and it was considered that any hints dropped from a man whose reputation was so firmly established, would be joyfully hailed and acted upon; still, however, no steps have been taken, and the devastation committed by fire in London is a blot upon the civilization of the country, shews the disregard of the means placed in our hands for our protection, and that that which is everybody's business is indeed nobody's.

The only care the legislature has taken is to be found in the provisions of the Building Act, by which the duties of the churchwardens are, to have keys to open the water-pipes, and plugs fixed at proper distances, and to have three fire-engines. The force under the superintendent, as established in 1833 by the different fire-offices, has ten engineers, nine sub-engineers, thirty-one senior firemen, and forty-one junior firemen, who are clothed, have an apparatus, and are an organized force capable of doing much good; but when we learn that five hundred fires in the year are not unusual, and that thirteen or fourteen lives are lost, we think that enough is not done, and that an inquest ought to be held after every fire.

DR. KUGLER'S LECTURES ON ARCHITECTURE.

THE Germans have views and perception of art differing from ours, and in some respects superior to us. We are the mechanics, the great builders and operators, while they occupy the province of design and deal with the more abstract essences of beauty—a combination of the two would benefit both, and to this both are fast proceeding. A few remarks from our excellent contemporary, the *Athenæum*, in treating on Dr. Kugler's Lectures on Church Architecture delivered in Berlin, may serve to usher in and sustain what we have ourselves to propound—and for the present we merely quote to call attention to the subject:—

"There are, says Dr. Kugler, two distinct theories as to architecture; one of which regards all that distant ages and countries have produced as wholly foreign and inapplicable to the tastes and wants of the present age, and seeks to create something perfectly new and original; the other pays implicit obedience to the laws established by antiquity, and maintains that the powers of the artist will always find sufficient scope and exercise in the application of those laws. The followers of this system either choose some particular style—as the Greek—to which they inflexibly adhere; or they copy different styles according to the character and distinction of the building they have to execute; as, for example, a theatre in the Grecian, a church in the Gothic, and so on. The adherent of this system is, however, constantly met by the conditions of time and place, by which all architecture is limited; and consequently can very rarely succeed in rendering his imitation pure.

"There is, adds Professor Kugler, a third system. This recognizes certain elementary and necessary laws, which lie at the bottom of all architecture, and have an internal and indestructible life and force, however various the forms under which they develop themselves. The object of the adherent of this system is, to discover and to master this necessary and natural element, and to separate it from all the local and historical peculiarities with which it is found combined. To one imbued with this view of the subject, there is no style of architecture, however rude or fantastic, which may not suggest useful and applicable ideas. In-

stead of servilely imitating particular models, he will endeavour to work out these fundamental elements according to the bent of his own genius and the conditions by which he is restrained. He will thus have secured a firm basis of laws and principles, without the fear of becoming a mere copier. Dr. Kugler proceeds to apply this last theory to Church Architecture:—

"The Gothic style, he says, lasted only a few centuries. The age of the revival of science destroyed its sway: it destroyed not only that which, as to form, may be called the peculiar expression of the taste of the middle ages, but also the entire law, according to which a completely symmetrical and significant architectonic whole had risen into existence. The fantastic element, which was inherent in the Gothic style, had sometimes been pushed to extravagance; and the world, surfeited of it, now demanded simplicity and clearness. It found them in the works of classical antiquity, to which the literary tendencies of the age also inclined. Men tried to re-introduce the antique; they created a learned architecture. But the classical forms seldom corresponded to the conditions of church architecture. The works of this time are mere returns to the arched basilica, either in the Roman or the properly so called Byzantine style; with the architrave and frieze prescribed by the classical rules, and with more or less of decoration. They were bastard productions, like those of ancient Roman art. St. Peter's at Rome is the great type of this modern ecclesiastical architecture; it doubtless imposes by the vastness of its dimensions and the grandeur of its proportions; but in no degree by a conformation inspired with life and harmonious meaning. In this state has church architecture remained for centuries, with unimportant variations; such, for example, as the tasteless and unmeaning scrolls and flourishes of the former half of the last century, which only deserve notice as an indication of a decided demand for more richness and variety of form, which this style was a tasteless and grotesque endeavour to satisfy."

COUNTRY BILLS AND COUNTRY BUILDERS.

A "WELL-WISHER to THE BUILDER and a West Countryman," writes us a letter in explanation of the word "boitel," which was introduced in an article headed "Country Bills and Country Builders." He, like another correspondent, finds fault with the tone adopted in that article to that highly respected and respectable body, the country builders, and so should we if we thought there was anything serious in the intention of the writer; but we think the sting was fairly withdrawn, and the meaning and motive made clear, in the concluding paragraph, where ample justice was done to that deserving body of men. The country builders rank among the pride of the British yeomanry—we now particularly allude to builders living in country and rural districts, careful and thrifty, yet open-hearted, generous, and hospitable; we know them well, and have enjoyed in our happiest days the unfeigned welcome of their unpretending, but well-appointed homes. Our friends may depend upon our not being found ranked with the enemies of the country builders; it would be ingratitude to a class, and ingratitude to principles as dear to us as the class. However, to the meaning of the word "boitel."

"A West Countryman" questions the authenticity of the blacksmith's bill. The words "To stealing a boitel," which were translated in the article alluded to "To stealing a wedge," "instead," says he, "of raising a laugh at the poor blacksmith's expense, recoil upon the narrator of the anecdote, boitel being only a misnomer for beetle, a heavy mallet that drives a wedge, and never requires 'stealing,' having merely an iron hoop at either end, to prevent its splitting."

We have thus given the sum of the explanation, and cut out the acrimonious matter which the article had provoked. We cannot watch every word that creeps into our columns, nor prevent occasional sparring, but we would beg to remind our friends that they may spare us some trouble if each will consider himself as far as he is himself concerned, for the good behaviour and good conduct of THE BUILDER!

HOUSES OF PARLIAMENT.

THE following statement, which has been abstracted from a parliamentary return made in February last, contains matter of interest to our readers, connected as it is with the great national work of the building of the New Houses of Parliament.

Total amount voted in sessions 1835 to 1842, both inclusive	£438,500 0 0
Amount unexpended to February last, required for works now in progress of completion	58,016 10 0
	380,483 10 0

Details of above expenditure:—

Purchase of property in Abingdon-street and the vicinity, &c.	90,605 6 6
For the river wall, &c.	55,902 3 2
For the general building ..	233,976 0 4
	380,483 10 0

Estimate of the further sums that will be required to complete the buildings	578,424 12 9
------------------------------------------------------------------------------------	--------------

Details of the above estimate:—

Mr. Barry's original estimate for the building ..	707,104 0 0
Additions to the above estimate:—	

For extra foundations, in consequence of quicksands and springs, and for strengthening the foundation of the Victoria and other towers	35,063 3 1
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Probable excess of cost by the use, for the whole of the exterior, of the hardest and most expensive of the stones selected for this building	22,000 0 0
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For rendering the building fire-proof	21,000 0 0
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For warming and ventilating the building, including the cost of the proposed central ventilating tower required by Dr. Reid to carry his system into effect	65,000 0 0
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For providing additional accommodation for attorneys, as recommended by the Law Society	5,000 0 0
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For providing an official residence for the librarian of the House of Commons	1,250 0 0
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Ditto for the Clerk of the House of Commons	2,000 0 0
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Contingencies — probable amount	12,000 0 0
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Expense incurred in building the river wall, including the coffer-dam	55,902 3 2
-----------------------------------------------------------------------------	------------

For purchase of premises and various miscellaneous expenses	90,605 6 6
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Total amount of Mr. Barry's estimates for the general building, and also of the actual expenditure for building the river wall; for the purchase of premises required to form a site for the New Houses of Parliament, and for miscellaneous services relating to the same	1,016,924 12 9
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Amount already voted	438,500 0 0
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Estimated amount of the future votes of Parliament that will be required in the present and subsequent sessions to complete the buildings	578,424 12 9
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In addition to what is above stated further expenditure will be required for completing the landing-places from the river Thames, connected with the new Houses of Parliament; for making good the pavings, &c.	
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of the streets and places adjoining; for providing furniture and fittings for both Houses of Parliament, the several offices and official residences belonging thereto; and for any decorations by works of art beyond what were included in Mr. Barry's estimate.

Literature.

Principles and Practice of Land Engineering, Trigonometrical, Subterranean, and Marine Surveying, &c.—By C. BOURNS, C.E. and Surveyor. Ollivier, Pall Mall.

This is a truly useful book, and goes far to supply the desideratum which Mr. Bourns so correctly states in his Preface to be wanted. We have only one thing to regret in connection with it, and that is its price, for although it contains much useful practical matter, and a good deal of an interesting kind in relation to some of the large undertakings in surveying, particularly as to the trigonometrical survey of Great Britain and Ireland, commenced under General Roy in 1783, yet this, with other matter, is of that miscellaneous cast which ordinary works of compilation give at an ordinary cost; fifteen shillings is too much for a work intended for popular use and reference, as this is. It is, however, the besetting sin of publishers of works on architecture, engineering, and the like; they mistake the class they would cater for; books of a suitable kind at a fair and reasonable price will meet with no lack of buyers and readers; but we believe there never was a class of men in this world who had more cause of complaint than those connected with the building art as to the want of a popular library—scarce and dear is all that has hitherto been offered to them.

This work, however, is not dear in relation to other works of its class; it has cost Mr. Bourns much labour and anxiety, as he appears to intimate, and is visible on the face of it, and we trust he will reap his reward at least. He has distributed his subject under two heads: the first, the "principles of surveying;" and the second, "the practice." In the first we have the rules and practice of decimals and of squares and roots, useful tables of gradients and curves, a succinct treatment of the necessary geometric, logarithmic, and trigonometrical matter, a description of, and of the use of, mathematical, surveying, and philosophical instruments, required by the operator, and rules for proceeding in surveys under various conditions.

In the second we have good and sound practical instruction on land engineering, trigonometrical, subterranean, and marine surveying, extending over 150 pages, and referring to seven folded plates at the end of the work. We have no hesitation in saying, although Mr. Bourns does not pretend to so much, that this work will be a complete guide in the hands of the student, and serve to carry him to every purpose to which the requirements of the fullest practice may lead.

COVENANT TO IMPROVE AND REPAIR—CONDITION PRECEDENT—BREACH.

COOMBE V. GREENE.

It is a settled rule of law that if a promise or a covenant be conditional on the previous performance of some act, or previous render of some consideration, the act must be done, the condition must be performed before an action can be maintained. Such a covenant is called "a dependent covenant," and the condition on which it depends "a condition precedent." Not only, however, must a condition precedent be performed, but its fulfilment must be averred; or, an excuse for its nonperformance must be shown. If performance, or that which is equivalent to performance, be not alleged and proved, the defendant can plead nonperformance of the condition precedent in bar to the action; and if the averment of performance be omitted or inaccurately stated, the defendant can, on demurrer, take advantage of it.

Now, there will not be any difficulty in averring, with accuracy, the performance of the condition. Proof, however, that it has been performed is another thing. The case of *Coombe v. Greene*, which came before the Court of Exchequer in May last, involved, in point of law, the question of the necessity for stating a certain condition precedent; in point of fact, however, the nonstatement arose from the nonperformance. The case, therefore, will throw some light on the doctrine of performance of conditions precedent, and of the extent to which it has been carried by the Courts.

The declaration stated that the plaintiff had demised certain premises to the defendant, subject to a covenant that the defendant should expend 100*l.* in substantial improvements of or additions to the dwelling-house, and in the substantial and permanent repairs thereof, under the direction and with the approbation of some competent surveyor, to be named by and on the part of the said plaintiff; and alleged for

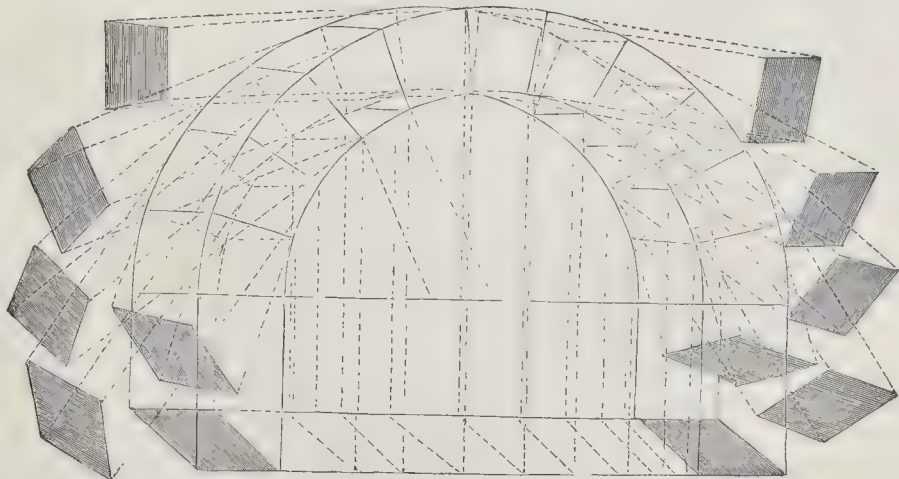
breach, that the defendant would not expend the sum of 100*l.* in substantial improvements and additions to the dwelling-house, and in the substantial and permanent repairs thereof, under the direction or with the approbation of a competent surveyor, to be named by and on the part of the plaintiff, but wholly neglected and refused so to do, although the plaintiff always, during the said term, was ready and willing to appoint a competent surveyor to approve of such substantial improvements of and additions to the said dwelling-house. To this declaration the plaintiff demurred, and, along with other reasons, assigned this, "that it is not alleged in the breach that the plaintiff had ever named a competent, or any surveyor, under whose direction or approbation the defendant might have expended the said sum of 100*l.* in improving the said premises according to the said covenant."

Mr. Bovill, who appeared in support of the demurrer, argued that it did not appear on the face of the declaration, that the defendant had broken his covenant. The surveyor was to be appointed by the plaintiff, and not by the defendant; and unless he was appointed, the money could not be expended. The plaintiff having the power of appointment, it was a condition precedent to his right to recover that he should exercise that power; and it is not enough to aver his readiness and willingness.

Mr. Ogle, on the other hand, contended that the declaration was good.

The Court said—"The appointment of a surveyor is a preliminary step, and, until that is taken, the defendant cannot fulfil his contract. He cannot begin the work until a surveyor is appointed to direct and approve of his proceedings. That appointment is a condition precedent to his liability to expend the 100*l.* It is not enough that the plaintiff is ready and willing." So the judgment passed for the plaintiff.

It is quite clear that the plaintiff, in this case, thought that there was no necessity to appoint a surveyor until the work was done, or, at least, commenced. It may be very fairly doubted whether there would have been any use in appointing a surveyor until the work had been, at least, begun. The decision, therefore, shews the extreme strictness with which the Courts will enforce conditions precedent, and will serve, therefore, as a warning to those who are about to sue because of breaches of covenant, and to those who are about to settle the terms of covenants.



SKREW ARCHES.

SIR,—Seeing in THE BUILDER many instances of contributions that encourage me to grow in my mite, I beg, as a working-mason, to supply a copy of my drawing for finding the ribs and joints of a "skew arch." It is a drawing I got up under the direction of one

who has rendered no little service to me and many of my fellow-workmen, by his instructions and the example of his skill. I allude to Green, who was employed as foreman of masons at the Birmingham Free Grammar School, in 1833 and 34, at which time I enjoyed the benefit I speak of, and drew out the paper I

now present. A little attention to the lines will make the problem clear, without any lengthened reference; and I shall be most happy if the benefit I have had should be thus still farther diffused.

I am your very faithful servant,

A STONEMASON.

ON KEEPING A HOUSE IN REPAIR.

EVERY person who occupies a house, either on lease, or which is his own property, must necessarily be aware that the annual expenses of repairs are very considerable; so much so indeed, that, in London and its suburbs, it will invariably be found much cheaper to live in unfurnished lodgings, at a much higher rent than would be paid for the same number of rooms in a house. The case is different in Edinburgh and Paris, and in most of the cities of the Continent; because there the houses have common staircases, and each floor is let out on lease to one or two separate families. The expenses of repairs are in a great measure unavoidable; but some of them may be diminished by attending rigidly to the following rule, which is founded on the principle of prevention rather than cure.

Agree with each of the different tradesmen who are employed to do repairs or make additions to a house, such as the carpenter and joiner, the bricklayer and slater, the painter, plumber and glazier, the smith and bell-hanger, and the locksmith and ironmonger, to look over every part of the house quarterly or half-yearly, on a certain fixed day; and either to repair or to report on what is necessary to be done the day following.

In small houses, the carpenter alone will be sufficient to point out what is wanting, and the other tradesmen need only be called in if wanted; but in very large establishments all the tradesmen mentioned, and even some others, may be necessary. The carpenter, in small houses, will perform the part of the locksmith in oiling all the locks and hinges; and he will also examine the roof, the boarded floors, the fittings-up, such as the window-blinds, curtains, &c., and in general all that, strictly speaking, belongs to the joiner and cabinet-maker. The plumber and glazier will attend to cracked or broken glass, and to every thing connected with lead gutters, painting, traps for smells, &c.

The annual expenses of houses in London and its environs are greatly increased by the frequency with which they are painted, papered, or coloured. These repeated operations are not only expensive, but they destroy all the sharpness of architectural ornament, whilst they are quite unnecessary as a preservative against decay. On examining the wooden staircases in some of the old houses in London, the sharp workmanship of the richly carved rails and balusters will be found to be entirely destroyed, on account of the several coats of paint which have been laid on at regular intervals of three or six years. The ornaments on the ceilings of these houses are equally obliterated by repeated coatings of whitewash. The excuse offered for this frequent painting and whitewashing is the dirt which attaches to the walls and ceilings of London houses, in consequence of the soot continually floating in the atmosphere; but a much better mode, both for the beauty of the rooms and the pocket of the occupier, and even for cleanliness, would be to wash all the work painted in oil with flannels dipped in warm water; and carefully to wipe with a dry cloth, and afterwards to rub over with a piece of bread, the paper, if not adapted for washing, and the ceilings. To lessen the trouble of reaching the upper part of lofty rooms, the cloth for wiping the paper may be put on the extremity of a brush attached to a long handle, and a contrivance might easily be devised for substituting a piece of bread, or a large piece of India-rubber, for the brush. In general, it will be found the best economy to have the ceilings of the living-rooms painted in oil, and to have the walls either painted, or covered with what is called washing-paper, the colours of which, being in oil, admit freely of being washed with flannel or sponge and water.

THE BREAKWATER LIGHTHOUSE.—On Monday fortnight the fourth story of this building was completed, the centre stone of the ceiling of that portion of the edifice having been then put in. The air chamber only has now to be put up, when the entire building will be ready for the reception of the lantern, which is now being made in London. The part of the tower now up is 46 feet above the level of high water, and when finished will be 56 feet in height without the lantern.—*Plymouth Times.*

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

(No. 1486.)—**Windows**—Cottage not assessed in 1834-5, nor occupied by appellant.

In 1834-5, a cottage was not assessed to the window duty, as it had not seven windows. In 1838 appellant came to reside in it, and opened some new windows. Held, that appellant not being the occupier in 1834-5, could not claim exemption from the duty in 1840, even though the cottage was not assessed at all in 1834-5.

On the 18th of September, 1840, (48 Geo. 3, c. 55, sch. A.)—Mr. Gude appealed before the commissioners of assessed taxes for the division of Godley, in the county of Surrey, against an assessment made upon him for window duty. Mr. Gude alleged that in the repairs made by him in 1838, of an old cottage belonging to him at Chobham, he had opened some additional windows upon the faith of the Act of 4 & 5 Will. 4, c. 54, s. 7, and that he was not liable to assessment, as the cottage had not before the repairs in 1838 been assessed to the window duty, by reason of its not having more than seven windows. Mr. Hall, the surveyor of taxes, on behalf of the crown, contended that as Mr. Gude did not reside in the cottage previous to the 5th of April, 1838 (which Mr. Gude admitted he did not), he could not avail himself of the exemptions in the Act, even if the cottage had not been charged to the window duty prior to the 5th of April, 1835, by reason of its not having seven windows. Mr. Gude contended that he not having been assessed, nor the cottage, nor the tenant by whom the cottage was then occupied, by reason of its not having seven windows, for the year ending the 5th day of April, 1835, he was within the exemption.

The commissioners present confirmed the charge on Mr. Gude, who being dissatisfied with their decision, demanded a case for the judges' opinion, which is accordingly stated.

WILLIAM ADAMS,
PER HERRICKS.

18th May, 1841.—We are of opinion that the determinations of the Commissioners are right.
J. FATTESON. T. COLTMAN. W. WIGHTMAN.
—Justice of the Peace.

Correspondence.

CHURCH ARCHITECTURE.

SIR,—In your last number of **THE BUILDER** I observed a design for a church in the classic style.

Setting aside prejudice, I will, with your permission, offer a few remarks upon church architecture generally, also upon the design just alluded to by way of illustration.

The classic style, to use a wide and vague term, appears to me to be totally inapplicable to ecclesiastical architecture; in the first place, because it is not calculated to convey the idea on first view of the purpose to which the building is appropriated, a circumstance which, though in some cases it cannot be carried to that extent as in others, yet ought in all to demand the architect's particular attention; and in the second place, uniformity of design exteriorly, in a classic building, is so strictly to be studied, that the internal arrangement is too frequently cramped in order to carry it out.

Blind adherence to conventionalities, either in the classic or pointed styles, I will not here touch upon, for there are too many who preach this doctrine but do not disentangle themselves from its clutches; and again, the majority of those sufficiently capable to judge the matter, would immediately prognosticate the downfall of art, were any one found bold enough to strike out from the beaten path; and indeed the effect produced by such a course, would, being novel, and not in accordance with present practice, prove unfavourable, although to a certain extent it might be true that all the decorations were made subservient to construction, as was the practice of the ancients and the Gothic architects of the middle ages, and alluded to by two architectural professors of late years, of a different school.—Chambers and Pugin.

The application of stucco by the moderns not only in their church architecture, but also other edifices, has, undoubtedly, in a greater measure than any other circumstance, tended to bring architecture into comparative insignificance, and the impracticability of using the material it is intended to represent in such situations as one frequently sees it, is to an experienced eye the very cause of its dislike.

It is to be sincerely hoped that, for ecclesiastical purposes at least, it will be entirely abandoned, and that the real material—if stone be too expensive, brick—be made to shew itself as it ought, and although a material not quite reconcilable to one's feelings, yet far preferable to any make-belief.

Perhaps I am somewhat digressing, but I will proceed to endeavour to prove the assertion with

which I set out, taking for granted that the architecture of the ancients and that of the middle ages are to be our models.

From the general appearance of your correspondent's design, the notion would be conveyed to one's mind, that it was an ecclesiastical building; the campanile at the west end would be the only feature to lead one to imagine that it was intended for a sacred edifice; the lights or windows are so numerous, and occupying so much of the area of the wall, that instead of the "dim religious light," so essential to an ecclesiastical structure, it would be quite the reverse, unless stained glass were introduced, which would be an expensive way of overcoming a difficulty. The inclination of the roof is here obliged to follow the angle of the ancients, in whose climate a steeper pitch would have been unnecessary; thus adapting, as did the mediæval architects in this country, their architecture to the climate they had to encounter; and this argument is by means new, having been urged by Pugin and other writers; but I feel it cannot be too repeatedly brought into notice.

The urns, which figure in the balustrade, are truly anti-Christian, and refer us to Heathenish rites of two thousand years since, instead of reminding us of the Christian times in which we now happily exist.

On the other hand, how admirably expressive of its purpose is a church in the pointed style, designed in a true feeling: the very plan is a cross; the chancel is not merely a projection of a few feet, but standing out boldly. The tower and spire, springing probably from the intersection of the nave, transepts, and chancel, rise to a majestic height towering to the sky. The high-pitched roof, the mullioned windows, filled with elaborate and beautifully-twisting tracery of a significant meaning, the crocketed pinnacles and buttresses, all admirably tell their purpose; and there is throughout that exalted and upward tendency, so peculiarly expressive, and which cannot be arrived at in any other style. Much more might be said, and of the interior, perhaps, it may be now sufficient to remark, that every part tends to impress the beholder with those sublime feelings so necessary in a sacred edifice.

Some there are who assert that, to the exclusion of all other styles, the pointed is the only fit one for buildings of every denomination. To this I must disagree, for there are many structures in which Greek or Roman architecture may be made to speak its purpose much better than the pointed, and are also better adapted from local circumstances.

The day is not far distant when it is to be hoped that true feelings for ecclesiastical architecture will prevail, and architects will alone for such purposes turn their eyes for examples to the glorious piles of York, Salisbury, Canterbury, Winchester, &c. &c., upon which to base their future designs.

I am, Sir, your obedient servant,
J. W.

Oxon, September 21.

SIR JAMES THORNHILL.

SIR,—In looking over some back numbers of **THE BUILDER**, I found a brief notice of Sir James Thornhill in one of them, with an engraved fac-simile of his autograph. Some little time since, having occasion to go down to Greenwich on business connected with the works of the Hospital, I was shewn into what is called the Committee-room of the Office of Works, where, much to my surprise, and no less gratification, I saw a number of original designs and drawings by Sir James Thornhill and Benjamin West hung round the room, all well preserved in good substantial frames and glasses, in which state I trust they will be kept for many a long year yet to come, as they are worthy of preserving, although they are but sketches.

Doubtless many, if not most, of your architectural readers must have been to the beautiful chapel of the College, and have noticed the fine elaborate carving of the pulpit, niches, and other parts of that superb little edifice: the sketches by West, hung up in the Committee-room above mentioned, are nothing more or less than the original designs by himself for the various carvings there, as well as one or two others for the statues, which are placed in different parts of the building, two of which I only now remember to have seen in the vestibule of the chapel.

There is also the original design of the great window in the chapel, by West, which, however, I am sorry to say, is quite unworthy both of him and the place in which it so fearfully obtrudes. The subject is the Wreck of Saint Paul, but the whole picture is so crowded with figures, jumbled as it were one on another, that it is really difficult to trace the action of the design; and the colouring is decidedly not by any means of the first order; in fact, West's reputation would not suffer the least injury if this specimen of his pencil was removed from its present commanding position, for which it is quite unsuited. In my estimation, the gem of

all the drawings in the Committee-room is Sir James Thorahill's design for the ceiling of the Painted Hall; though it is but on a small scale, and merely a pen and sepia sketch, yet it is very effective, and shews much judgment in the execution; I need not here enter into a detail of the subject of this sketch, as it is familiar to all the sight-seeing visitors of Greenwich, who invariably take a turn into the Painted Hall. There are two other little sketches by Thorahill, one representing himself explaining the design to the Prince of Wales, and the other, Sir S. Jennings shewing a plan of the Hospital to the same party. From this sketch we are able to trace the portrait of the painter, which is introduced in the bottom corner of the painting at the extreme end of the hall.

There are two other drawings in the room, being designs for the sculpture of the tympanum of two pediments, but where these pediments are I had not time to ascertain; there are also two ancient views of Greenwich, copied from drawings in the Bodleian Library. All the above drawings are merely pen sketches, slightly tinted in with sepia, with here and there a little blue to heighten the effect; some of them are very good, but others want that fine fiery spirit and energy which we always expect to see in the works of a master.

There are also two or three oil-colour views of the baronial residence of the unfortunate Earl of Derwentwater, whose life was forfeited along with his estates, at the termination of the "old Pretender's" rebellion. The estates, I believe, now form part of the College property, which, I suppose, accounts for these paintings being here.

I am very much pleased to find that these drawings are so carefully preserved, but I will venture to suggest that the sketches of Thorahill ought to be placed in the Painted Hall, say in the dais, especially as they exclusively relate to the painting of the hall itself.

I am, Sir, &c.

JOSEPH LOCKWOOD, Surveyor, &c.
52, Lime-street, City.

LEADS NEW GAOL COMPETITION.

SIR,—In reply to the inquiry of "H." in the last BUILDER, I supply the information which he seeks.

The first premium has been awarded to Messrs. Hurst and Moffatt, of Doncaster, and the second premium to Messrs. Perkin and Backhouse, of Leeds; the former of these parties sent in three sets of plans, two of which are to be combined to make one.

The plans selected for adoption are quite different from the model plans prepared by Major Jebb, which accompanied the "Instructions to Architects." Most of the competitors followed that plan, but Messrs. Hurst and Moffatt have made all the wings to radiate from the central building, and this consists the superiority.

Some parties think it questionable whether the committee have acted fairly in giving the premium to a plan the arrangements of which are at variance with the lithographed plans furnished for the guidance of competitors, and it is also questionable whether the plans of Messrs. Hurst and Moffatt were entitled to either premium, as no detailed estimate was furnished of the masons' work and brickwork, although the "Instructions" required that all designs should be accompanied by an estimate in detail of the cost.

A SUBSCRIBER.

September 20, 1843.

MEASURING AND VALUING.

SIR,—Having seen your notice of a new work entitled "The Students' Guide to the Art of Measuring," I was induced to purchase it, and, like your correspondent J. D., find that it is far from being complete. Though there is a great deal of practical experience embodied in it which could not have been collected without considerable labour and expense, still I think if you or some of your elder readers who have been in the habit of measuring the various works executed connected with buildings, and in taking quantities, would supply the deficiencies, it would be of infinite service to some of your student readers. For instance, the method of measuring plumbers' work is entirely omitted, and in the smiths' work the student would but hardly succeed in taking the quantities of cast-iron columns, bressummers, girders, &c., from the information given under that head. And as there is a great difference in the mode of measuring brickwork here to what is laid down in this work, perhaps it will add to the information of some of your readers if I were to state the method usually practised, which is by ordering all brickwork to a standard of 1 brick length thick (or inches), and brought into superficial square yards, openings being deducted, and labour charged extra to door and window jambs for plumbers, &c. The flues are not measured (except from the ceiling line to the top of chimney-shaft, which is taken as solid), but charged for work and material at

so much per flue, averaging the height of the stories. The method given of abstracting quantities I think quite unnecessary and attended with considerable trouble and loss of time. If in taking quantities each kind of work is kept under its proper head and proceeded with in order, they can be at once copied into the bill when squared.

Hoping this may find a place in your valuable journal,

I remain yours,

H. B.

Liverpool, September 19, 1843.

NORMAN ARCHITECTURE—HEREFORD CATHEDRAL.

SIR,—I will readily allow that the clerestory of the compartment of Hereford Cathedral (page 377) ought to be dated 50 or even 80 years later than the two lower stories, but as I could not well detach the upper from the lower part, I suffered it to remain, thinking that any one moderately acquainted with Norman architecture would be able to see the difference between the upper and lower parts; however, as C. thinks that all of it ought to be 50 years later, I will endeavour to convince him by respectable authorities that he is wrong. In Britton's account of Hereford Cathedral the date is 1107; this of course is intended only for the lower parts; knowing Britton's general accuracy in regard to dates, this ought to be sufficient to convince any body; but I will bring another respected antiquary, the Rev. J. Dalloway, who shall settle the question. In the "Discourses" he mentions this part of the cathedral as being built by Robert de Losinga, date 1079-1093; I think this is enough to satisfy C., or any body else.

I may perhaps be allowed to remark further, that the groining of Norwich and the clerestory and groining of Gloucester Cathedrals is considerably later than the Norman period; but I should not have considered it necessary to have remarked this but for the notice from C.

As some atonement for the barrenness of the foregoing remarks, allow me to conclude by appending the following table of the various classifications of the styles of ecclesiastical English architecture. From this table it will be seen that not one of these antiquaries agree with the other as to the time a style lasted, or when it came in and when it went out; I do not pretend to offer an opinion as to which is right, for "Who shall decide when doctors disagree?"

NAME OF AUTHOR.	STYLES OF ARCHITECTURE.									
	Norman.	Early English.	Decorated English.	Perpendicular.	Fluted.	Fourth Period.	Fluted English.	Decorated English.	Decorated English.	Decorated English.
Rickman	1065-1189	1189-1307	1307-1377	1377-1546	1400-1550	1400-1557	1400-1557	1400-1557	1400-1557	1400-1557
Civil Engineer and Architects' Journal.	1065-1189	1189-1307	1307-1377	1377-1546	1400-1550	1400-1557	1400-1557	1400-1557	1400-1557	1400-1557
Millars	1065-1200	1200-1300	1300-1350	1350-1400	1400-1500	1400-1500	1400-1500	1400-1500	1400-1500	1400-1500
Adey Bampton	First Period. Before and to 1100	Second Period. 1100-1250	Third Period. 1250-1400	Fourth Period. 1400-1500	1400-1500	1400-1500	1400-1500	1400-1500	1400-1500	1400-1500
Britton	Anglo-Norman. 1066-1189	English. 1189-1272	Decorated English. 1272-1461	Perpendicular. 1461-1559	1461-1559	1461-1559	1461-1559	1461-1559	1461-1559	1461-1559
Dalloway	Anglo-Norman. 1100-1170	Early English. 1170-1220	Decorated English. 1220-1400	Perpendicular. 1400-1500	1400-1500	1400-1500	1400-1500	1400-1500	1400-1500	1400-1500

I remain, Mr. Editor, yours obediently,

J. L. C.

IN RE BRITISH MUSEUM.

SIR,—A letter having appeared the other day in the *Morning Herald*, wherein the writer stated that the model for the intended façade of the British Museum might now be seen by the public, and

was attracting a number of artists, I lost no time in repairing thither, but found there was no truth in the report.

I ascertained, indeed, that there was such model in the building, and it has probably been there for many years; but it was not allowed to be seen, except by a written order from Sir R. Smirke himself, therefore is no more accessible to artists or the public than Sir Robert's own house, which I should perhaps much more readily shew, upon application being made for such favour, than the model of his design for the front of the Museum.

One thing, however, I did see, which is that the south-west angle of the new portion is begun and rapidly advancing, therefore within a short time such progress will have been made as will entirely frustrate all attempt to set aside the present design for one that shall be more worthy of the occasion.

Though it must be confessed that the matter has not been taken up as it ought to be, that the public press has, with few exceptions, carefully avoided touching upon it, and that no one of influence and authority in the world of art, and among those who pretend to watch over its interests, has come forward on this important occasion,—notwithstanding all this, it cannot be hereafter said that no warning voice was raised in time to avert mischief, no anxiety expressed in any quarter.

Has not the British Museum a single sincere friend who can manfully step forward to its rescue even now? Are its own trustees, are the patrons of art, nobles and commoners alike, one and all asleep? or are they one and all indifferent and faithless? If they be only slumbering, they are likely to be awakened very disagreeably when the voice of the country shall pronounce the National Museum of Britain to be a national disgrace as a production of architecture.

I remain, yours, &c.,

VINDICATOR.

ORMSKIRK CHURCH.

SIR,—Perhaps you will permit me to correct your account of the church at Ormskirk (13 miles from Liverpool), as given in the last BUILDER. There is a tale told in that town similar to the one you have related; it is also given in Baines' "History of Lancashire," but no person who examines the spire and the tower will, I think, say they were built in the same age. The spire is very early perpendicular in style, about 1380 to 1440, and appears to be the oldest part of the church now standing. The tower is quite different in style, and has to all appearance been erected since the Reformation. Baines says, "A more probable tradition is, that the tower was built after the suppression of the monasteries, for the reception of the eight bells from Burscough Priory. In a chapel within the church of Ormskirk is the cemetery of the Derby family, being a vault, the descent to which is closed by folding doors; and here the dust of that illustrious race has been deposited every since the dissolution of the priory at Burscough, at which period the bodies of the deceased Stanleys, not then reduced to ashes, were brought to this place. The chapel and cemetery were erected under the direction of the will of Edward, the third Earl of Derby, dated in 1572. This nobleman died at Latham House on Friday, the 24th of October, 1574."

In the "Valor Beneficiorum," taken in 1291, Ormeschirche, a vicarage, is valued at 13*l.* 6*s.* 8*d.* Leland, when mentioning the church in his "Itinerary," does not state the circumstance of its having two steeples. There is an inscription on a brass plate in the north wall, bearing date 1661, whereby Henry Moskoever avers that his ancestors have been buried here 385 years.

Your obedient servant,

T. H. C.

Ruthin, 26th September, 1843.

ON TAKING STAINS OUT OF MARBLE.

SIR,—I see by THE BUILDER of yesterday an excellent recipe for taking stains out of marble; it is one that I have many times made use of, and in many instances with success. By making the following addition to it, I have found it still more efficacious in removing all stains (iron-moulds excepted): After removing the ingredients, the lime and the American ash, lay on a coat of good fresh plaster, say half-an-inch thick; put the work before a brick fire, or hold a hot iron over the plaster at a sufficient distance from the marble as not to injure it. Get the plaster hot, let it remain on the marble a few hours, remove it, and in nine cases out of ten the stain will have disappeared. Should it fail to produce the desired effect, by repeating the process, success will be the result. The American potash and lime, as proposed by your correspondent "Z," will remove old paint, though twenty coats should have been put one upon another. It is necessary that real American ash should be used; it may be known by its being of a granular appearance, something like common sago.

I am, Sir, yours, &c.

Leicester, September 24, 1843.

W. L.

WAX FOR MODELLING.

SIR,—Will any of your numerous readers be kind enough to inform me, through the medium of *THE BUILDER*, the best method of preparing a wax for modelling?

I am, Sir, yours, &c.

L.

SIR,—Will you oblige a constant reader and friend, by requesting some of your numerous and talented subscribers to favour me with a design for a small cottage in the *Suisse* style.

It is to stand by a lake in a pleasure-ground; it is not to be inhabited, but used as a summer-house. To be two stories high (ground and first floor); the staircase to be on the outside; a fire-place in each room, to be deep for dog irons; the chimneys and fire-places to project behind as much as possible, so as not to detract too much from the size of the rooms, which may be about 12 feet square. A balcony round the house (don't care about the back); would be preferred that the balcony should be supported on pillars, so as to form a colonnade, and also requiring less strength than if supported on cantilevers. The expense not to exceed 100*l*. By inserting this you will oblige,

Yours truly,
THOMAS GEORGE.

Hendon, September 25, 1843.

SCOTCH PATENTS.

(From the *Reperory of Patent Inventions*.)

John Barnes, of Church, Lancashire, manufacturing chemist, and John Mercer, of Oakenshaw, in the said county, calico-printer, for certain improvements in the manufacture of articles used in printing and dyeing cotton, silk, woollen, and other fabrics.—Sealed 19th August.

John Burns Smith, late of Salford, but now of Stockport, cotton-spinner, for certain improvements in machinery for preparing, carding, roving, and spinning cotton and other fibrous substances.—Sealed 21st August.

James Overend, of Liverpool, for improvements in printing fabrics with metallic matters, and in finishing silk and other fabrics, being a foreign communication.—Sealed 22nd August.

FRENCH PATENTS.

FOR FIVE YEARS.

Arnould, of Paris, for improved trouser-straps.

Astier, of Nantes, for a new mode of calcining sulphate of lime.

Auxenfans, of Paris, for a new inkstand.

Baucher de Montuel, of Paris, for an improved coining press.

Belicard, of Montmartre, for an improved apparatus applicable to privy vaults.

Bergue, of Paris, for an improved comb.

Berteaux de Chaillevois, of Paris, for an improved paste for cleansing teeth.

Bigot, of Paris, for an improved cock.

Blevanus, of Paris, for improved lamps.

Brehon and Rivette, of Paris, for a method of extracting gluten from flour.

Brouard, of Havre, for improved tents.

Canteloube, of Marmier, of Aurillac, for an improved primer.

Carraine, of Salernes, for a machine for cutting panes of glass.

Chambardel, of Poitiers, for a distilling apparatus for separating alcohol from wine.

De Chavagneux, of Paris, for improved waggons for railroads.

Claudot, of Verdun, for a mode of turning into use the gases which escape from coal fires.

Clayette, of Paris, for an improved syringe.

Cognier, of Paris, for a solar lamp.

Damy, of Berry St. Christophe, for the application of ventilation to the English system of grinding flour.

Dangé (Mademoiselle) for a method of imparting to paper and other fabrics the property of colouring hair.

Daudé, of Paris, for improved buckles and hooks and eyes.

Debry, of Brest, for improved trusses.

Dennelle, of Herouville, and Burdett, for an improved stopper.

Deslandes, of Paris, for an improved mode of setting metallic eyelet-holes.

Digné, of Paris, for an improved hat.

Dubus, of Paris, for an expressive organ.

Dujet, of Dinan, for an improved wheel for spinning flax.

Fournier, of Aigre, for an improved distilling apparatus.

Galesloot, of Liege, for an improved brick machine.

Garbais, of Paris, for pearl buttons.

Garnot, of Paris, for an improved candlestick.

Gantier, of Valenciennes, for an improved mode of distilling coal-gas.

Girardot, of Fougères, for an improved mode of carbonizing peat.

Gossin, of Lisieux, for an improved kitchen stove.

Guerin and Co., of Paris, for an improved bucket, to be used in case of fire.

Guerin, Bouchon, and Co., for an improved mill.

Guindorff, of Paris, for a machine for making metallic eyelet-holes.

Guyot, of Paris, for improvements in lamps.

Guyot, of Paris, for the application to coaches and vessels, of a system of illumination founded on liquid hydrogen.

Harding-Cocker, of Lille, for improved combs and cards used in the preparing of wool and other fibrous materials.

Hayem Brothers, of Paris, for an improved stock for gentlemen.

Herbé, of Paris, for an improved canvas.

Héru, of Paris, for Mauritan lozenges, for clearing the voice.

Miscellaneous.

MANUFACTURE OF MOSAIC AT ROME.—It is well known that mosaic work consists of variously-shaped pieces of coloured glass enamel, and when these pieces are cemented together, they form those regular and other beautiful figures which constitute the celebrated pavements. The principal manufactory of mosaic is at Rome, and belongs to his Holiness the Pope. The enamel, consisting of glass mixed with metallic colouring matter, is heated for eight days in a glass-house, each colour in a separate pot. The melted enamel is taken out with an iron spoon, and poured on polished marble placed horizontally, and another flat marble slab is laid upon the surface, so that the enamel cools into the form of a round cake, of the thickness of three-tenths of an inch. In order to divide the cake into smaller pieces, it is placed on a sharp steel anvil, called *tagliuolo*, which has the edge uppermost, and a stroke of an edged hammer is given on the upper surface of the cake, which is thus divided into long parallelograms, or prisms. These parallelograms are again divided across their length by the *tagliuolo* and hammer into pieces of the length of eight-tenths of an inch, to be used in the mosaic pictures. Sometimes the cakes are made larger and thicker. For smaller pictures the enamel whilst fused is drawn into long parallelograms, or quadrangular sticks, and these are divided across by the *tagliuolo* and hammer, or by a saw; sometimes also these pieces are divided by a saw without teeth, consisting of a blade of copper and emery, and are polished on a horizontal wheel of lead with emery. Gilded mosaic is formed by applying the gold-leaf on the hot surface of a brown enamel; immediately after the enamel is taken from the furnace, the whole is put into the furnace again for a short time, and when it is taken out, the gold is firmly fixed on the surface. In the gilded enamel used in mosaic at Rome there is a "thin, transparent coat of glass over the gold."

NEWGATE STREET.—It is not generally known that some very good buildings are being erected behind Christ's Hospital, in connection with the new street from the Bank to the Post-office.

VAUXHALL BRIDGE.—That deserted locality, the Westminster approach to Vauxhall bridge, shews promise of life at last. A railed inclosure for a square has been laid out, and building is actually going on in the neighbourhood.

THE NEW LINCOLN'S-INN HALL.—This very extensive and commodious edifice has so rapidly advanced since the commencement of the year as to insure its being roofed by the early part of the ensuing spring. In the southern section is the banquetting-room, of sufficient dimensions to dine upwards of 400 persons. In the northern is the library, destined to contain the finest collection of books on British and foreign jurisprudence to be met with in Europe. Superb windows of painted glass will adorn these two principal apartments, which, together with the numerous heraldic emblems of distinguished alliances will produce an effect perfectly in keeping with all around it. The offices and other minor rooms are admirably planned, and the spacious and well-arranged kitchen will be the first of its kind in the metropolis.

A GIGANTIC SCHEME.—Instead of a superficial burying-place, Mr. Wilson proposed a pyramid cemetery:—"A metropolitan cemetery on a scale commensurate with the necessities of the largest cities in the world, embracing prospectively the demands of centuries, sufficiently capacious to receive five millions of the dead, where they may repose in perfect security, without interfering with the comfort, the health, the business, or the pursuits of the living." This stupendous structure would occupy eighteen acres, but was intended to afford accommodation equal to one thousand acres of church-yard. The great pyramid of Giza would be no longer one of the wonders of the world, as Mr. Wilson's would far surpass its magnitude. The design of this Babylonian work covered a base as large as the area of Russell-square, and towered twice as high as St. Paul's cross: for cyclopean flights of stairs ascending from the pavement to the pinnacle. The whole mass was to be faced with square blocks of granite, and surmounted by a plain characteristic obelisk, having a circular stone staircase, and terminating in an astronomical observatory. The inclosure surrounding the pyramid would contain several acres beyond its base, which might be tastefully laid out for the reception of cenotaphs and monuments. Next there were to be within the walls a small plain chapel and a register office; also four neat dwellings for the keeper, the clerk, the sexton, and the superintendent. There were to be four terrace-walks along the four walls, each angle crowned with a watch-tower. The approach would be through a lofty Egyptian portal. The estimate of the expense was two millions and a-half; a startling sum in the days when the cost of the London and Birmingham Railway was unknown; but assuming the annual number of interments to be 30,000, and the accommodation for each to be 5*l*, the income of the pyramid would be 150,000*l*, or fifteen millions in one hundred years!—thus saving not less than 12,500,000*l* of the public money in the short space of a century—and what signifies a century in the progress of a work designed for eternal duration, or for a period as long as the earth shall endure!—*Westminster Review*.

TERMINUS OF THE BRISTOL AND EXETER RAILWAY.—The contract for the erection of the requisite buildings at the terminus of the railway at Exeter has been taken by Messrs. Hooper, and the works will forthwith be commenced, and we have heard are to be finished in six months.—*Exeter Flying Post*.

HUNGERFORD SUSPENSION BRIDGE.—We have received several communications respecting this undertaking, and, as a general answer, may state that the very slow progress which has appeared to take place in the construction of the piers (as explained by the engineer, I. K. Brunel, Esq., in his report to the proprietors, at the half-yearly meeting of the company), and the circumstance of the south pier being so far behind the north in its erection, arose from a bed of gravel existing on the spot selected for the foundation, of such extreme hardness, that it resisted the driving the piles to sufficient depth, and prevented the cofferdams from being water-tight. As this cause is now no longer in operation, that pier being carried up to high-water mark, it is to be hoped we shall now see the works proceed with that spirit which has hitherto marked every undertaking placed under the management of Mr. Brunel. We are informed that in about three months the whole will be ready to receive the chains and platform, nearly the whole of which is delivered and ready for raising, and it is to be hoped that this apparently interminable work will be open to the public early in the ensuing year.—*Mining Journal*.

SUSPENSION BRIDGES.—(From a Correspondent.)—Having in previous numbers noticed various plans for the construction of suspension bridges on principles which each designer considers to combine the most scientific development with perfect economy as Motley's, Dredge's, &c., I hand you the following slight description of the plan of Mr. J. H. Clive, of Bath, which he affirms, and I believe to be, the most eligible mode yet adopted, both for its security and economy. For a bridge of 240 feet span the platform is divided into twenty-four parts, ten feet each, supported by twenty-four rods of iron each side, braced by ten upright connecting-rods. For the purpose of economising the masonry work the towers are made tapering towards the top, which is very narrow, but which gives equal strength with square buildings; the chains pass through the towers in three divisions, four at two-thirds, and the remaining four at the top. This arrangement Mr. Clive considers the true system of economical constructing suspension bridges, as by proportioning the weight of the rods to their number, and the weight they have to bear, bridges may be erected with mathematical correctness, and at far less expense, with equal security, than on any other plan hitherto adopted.—*Mining Journal*.

CONTRACT.

TO BUILDERS.—By direction of Her Majesty's Commissioners for Building Additional Churches, notice is hereby given, that a CHURCH is about to be ERECTED in York-street, Lambeth, upon CONTRACT. Any Builder willing to tender for the same is requested to signify his intention before the 10th of October next, by letter, addressed to Mr. Rogers, architect, Palace-chambers, Lambeth, at whose office the drawings, specifications, &c., may be seen and full particulars obtained. Her Majesty's Commissioners do not pledge themselves to accept the lowest tender.—Lambeth, Sept. 28, 1843.

THE BUILDER,

NO. XXXV.

SATURDAY, OCTOBER 7, 1843.

THERE is no position in life in which a man may be placed wherein great responsibilities do not devolve upon him. He may or he may not be unconscious of his responsibility,—he may, like a well-regulated machine, *travail* on, or like the lower animals, with little better than instinctive motion, choose this which suits and avoid that which opposes his nature, seldom or ever exercising the God-like faculty of reasoning, analyzing, weighing, and deliberating—he may be the mere creature of impulses on the one hand, going by fits and starts in pursuit of this or that object as they arise, or, like the dull current of a heavy river, may roll on heedless and unobservant of all that lies between—he may lead, run with the crowd, or follow—he may fly off in this direction with one party, or linger behind with that—and in every case be performing a necessary part in the great economy of nature. But he is responsible! conscious or unconscious, he is responsible—and according to the measure of his consciousness, he will be the more or less responsible.—“To whom much is given, of him much will be required.”

How do we apply all this? Does any of our numerous readers think we are going to make a point at him individually, or is each preparing himself, like the old lady with the sermon, to see which of his neighbours this allusion will fit, and which that, and in the midst of all, good creature, in his *generosity*, wholly to forget himself? However, we are not going directly to apply it beyond ourselves; it may have its indirect bearings, its action and influences may, and necessarily will, have an expansive range as well as a central point; but it is to ourselves we apply the moral involved in this our setting out. Our editorial responsibilities are the theme upon which we would now dilate, out of which such general instruction may be drawn as we shall best succeed in illustrating.

The responsibilities of an Editor! some one will exclaim with astonishment; what responsibilities can an Editor have? Have a care, gentle readers—and some not of the gentlest, though very good fellows in the main, we dare say. Have a care! how you select caps for your own fitting, for we protest we are only rummaging over the stock to fit ourselves. Have a care that, in the free movements of our hands and arms, or our editorial fingers, dressing, and trimming, and adjusting, that we may look becoming in your presence, have a care that they fall not upon your own heads, carelessly obtruded in our way. Some caps are of wood, and some of lead (not the heads, don't make that mistake as many do), and a blow not intentionally aimed by us may make these caps fit too tight, and cause the heads to be identified with them. Caps have bumps, too, as well as heads, and if driven too hardly

on, may find out the hollow. Have a care, therefore, we say, and sit still, if you please, while we adjust a cap to our own cranium, nor do any one cry out a fool's cap, either for us or himself, lest he should make another mistake, and that should be on the awkward side.

There are some unruly, however, who will not sit still; there is friend “H.” there, ever and anon poking among the ugly bonnets, and rudely donning this and that, according to his irresponsible fancy, upon the heads of some well-intentioned of our company who may venture to put a head forward in compliance with our friendly challenge; and he actually has the audacity to beard ourselves, and even now is mounting high on his seat, threatening to throw rotten eggs at us, or to strip us of our editorial toga, which we mention not in fear either of the commodity he handles, or of any thing particularly unseemly in us, in our undress; we will not have him turned out of the company; we have more than once invited him to friendly converse, and to display his own ability in matters so obnoxious to his criticism, but he maintains somewhat of his old perverseness; we let him stand out once to shew himself, thinking a little display of his unamiableness would do him no harm, and might ensure good behaviour in the rest of the company predisposed to follow his example, and we think it had that effect; but he breaks loose again, and is after his old tricks. We thought to cozen him into good-humour by telling him he was a clever fellow, when, like the precocious American boy, who made a guess that two and two were five, and was patted on the head for being within one the first guessing, we told him on some such guess of his that “he was right in the main.” We cannot afford to keep a romping critic, a clever unemployed, on our establishment. He may have, and we have no doubt has, useful talent in the matter he chooses to criticize, but we would rather he would display it, aye, even to the setting up of another *shop*, for we cannot abdicate our editorial seat, our deportment in which he also chooses to criticize. We wish him well, however, we would not part company with him as an incurable; we believe him not to be so, and that there is good and useful stuff in him; but we will have no censor's chair perched up above our own, and of our own carving too. There is a seat for him down below, and there let him take his place, till the reward of humble merit overtake him, and he be told, in the language of real promotion, “Friend, go up higher.”

Good reader, excuse this interruption, it was worth the while to restore order; we were about to descant on our own responsibilities, and all unconsciously it may seem have gone over part of the ground. Plague upon it! why should we be diverted thus from our purpose? there is another of the malcontents, to put our good nature to the test, or to make us say something that may commit us with a section or a party, on one side or the other. There is one of our own craft, “Torus,” it might have been *Taurus*, and he had got into a *China-shop*, as well, for the havoc he threatens, and the antics he indulges in. Hey-day! what is to do here? What is that he parades on his forehead? “Strength, activity, low wages!!!” Oh, I see, he is pouncing upon some poor chop-fallen, unskilled rustic or citizen, and pummelling him for want of spirit; chalking on his back, “white slave,” and with the imprint of his own fists writing out a character for himself, as a “white tyrant.” But is he only in the wrong, or is the other altogether an offender? Sit down both of you, and be

friends; we will have no pugilism here. And now let us take a measure, in this breathing space, of what we set out upon—our own responsibilities.

Are we responsible for the good behaviour of these two, and of the class they represent? Yes, indeed, we fear, or rather we tremble to write it, we believe we are. Oh, there are others looking on, there is a busy crowd outside the circle; nay, there are two crowds, party-crowds, fearful party-crowds, urging on the combatants, or eager to urge them on, but that our eye is set upon them, and our poor eye is enough to face the scowl of the multitude. It is set in the middle of our forehead, full in the region of thoughtfulness, and deep-seated under the brow of benevolence (who shall say so much for themselves!) and it can confront the wildly-gazing, the eyes lit up with frenzy-flashes, the eager orbs of the lovers of conflict. Stay the combat, we command you, and sit down in deep attention while we read you your fates.

That young man, strong and active, and begging for employment at low wages, is the precursor of a class, and that class a heaving wave of the ocean of human circumstances that must roll on. No Canute from the other side can command or dam it back.

Oh, we have told it you in whispers, but the sound of that whisper was unheeded; we trembled when we spoke it, and we suffered for it, for we wanted courage, and our accents fell feebly and ill-formed. The powers were not against us, but our own infirmity; nevertheless, the word was to be whispered, though it had blistered the mouth of the utterer. We told of the coming conflict, and we have told you again; our whisper was taken up, and the words of it made audible; and they have been res spoken in higher quarters, and have spread, as words from the heights spread the more around, and we return to the speaking, catching up the tone from the gale that bore it from us at first hand, to give it enforced clearness and shrillness, and to make it heard to the bounds. We told you the conflict was coming; you have bravely staved it off, or patiently borne its advent; but the terrors are thickening, and it is not by fights in the household of the children of labour that it is to be impeded a second time; you have had nostrums for remedies, and every quack of party has tried his hand, or bids high to be permitted to give you the *coup de grace*; labour must descend to humbler pittance, and no force or violence can withstand it. Must descend, said we? no, there is a remedy, there is the old and saving remedy, there are the guilds. The guilds were once the protectors in the emergencies of feudalism of another sort; they may be so again, and spare the sons of labour from the feudality of machinery. The guild must flourish ere the workhouse fade.

The responsibilities of an Editor! for want of better speech we shall hear it said, “the ravings of an Editor!” and there will not be wanting some Festus to judge and pass a verdict; but we may have to push it farther, nor fear to be much charged with over *learning*; responsible, however, we are, and one item of responsibility is involved in the matter of these identical guilds. Our Learnington correspondent asks for more than we have yet said concerning them; this is something like the first fruit from our planting, though we have had a response before in the shape of a somewhat different proposition, a builders' company—companies or guilds, call them what you like; it is an enrolment we mean, a chartered brotherhood, of masters and men, of which every man

who had served a proper apprenticeship should be a FREEMAN. Masters and other select should be eligible to the office of eldersmen or aldermen, and from these should be chosen the guild master or mayor. The corporation should enjoy and hold property, should build schools, and endow colleges or hospitals for decayed members; they should hold courts of assessment as to wages and prices of work, and adjudicate on disputed matters pertaining to their craft. No freeman of the guild, unless he had forfeited his privileges by crime, should be abandoned in the hour of need; his diploma should be a passport through every guild in the empire; mechanical inventions, and other matters involving the interests of the craft, master or man, should be submitted to the guild, and to a certain extent regulated by it, and placed under its control. These are a few of the prominent heads of our GUILD PLAN, which we sow again, and shall stand watchful of their growth till the reaping time.

Our friend at Leamington holds us responsible as to our pledges, and in this he is right. We did "charge ourselves to enter upon the investigation and elucidation of the character and principles of Gothic architecture," and we shrink not from our undertaking; but how did we propose to do it? Not by any set school plan, not by any rigid, uninstructional method, but practically and familiarly imparting the knowledge as men best imbibe it, in our daily walks, in our weekly communings with our readers. But we did more. We challenged the painstaking and inquisitive student in every quarter. We set about no egotistical or imperious teachings, we would bring out the better talent than our own. Ours is no school of pedagogue and pupils, but one of free associates; the cramp of the master has been taken off the mind of the pupil, and he is himself a teacher and a learner, without any marked effort either at teaching or learning. By this means we arrive at that "happy ignorance" which feels not, nor is inflated with its own knowledge. We are wise without boastings, and solve that enigma of the poet, "If ignorance is bliss, 'tis folly to be wise."

We have "entered upon" and made no little progress in our task; thousands have already had conveyed to them that which they knew not before; but we have not made much progress. The alphabet of Gothic art is being laid out, and thenceforth we may have our "reading made easy." Many correspondents have most laudably responded to our call, some have held themselves a little too high, and enshrouded themselves in a narrow selfishness; but this we will conquer by shewing them the beauty of essential charity, the loveliness of true humility. A word, however, we may add: we expected more. We expected from the clergy and amateurs, who discourse so learnedly on art, some practical contributions; pictures we should have been content with; and by-and-by we would have laid down, or there would have grown out naturally (which is best) a system of dissecting structures and parts of structures; but we have not been much favoured by contributions of the kind adverted to, except from plain, practical craftsmen. This, however, will come. We must not omit, however, to acknowledge that we have some grateful exceptions, foremost among which we ought to be proud to mention the offer of a lady of frank, far away, and a stranger to us, to exercise her pencil "if acceptable," in favour of THE BUILDER.

This brings us to dealing with the note of a Bristol Correspondent, who, Heaven reward him, takes up cudgels for us most lustily, and

lays about among the "Ecclesiologists" for their threatened attack upon us, anent a fancy they have got in their heads of something "unsound and mischievous." Our correspondent will perceive that we have anticipated the compliment in a previous number. The Ecclesiologist, which we suppose is to be translated into plain English "*The church-knowing-one*," may do much good, but it must not arrogate too much. It is the organ of a class whose new-born zeal contrasts strangely with their long neglect of duty. Let them reflect, that zealots are not always "sound" guides, and let them mistrust themselves awhile seeing how much "*mischievous*," according to their own pleadings, they have been guilty of in their chrysalis state; let not the moth flutter too gaily—she may find her wings fail her, and flying too near the light which she mistakes for THE SUN, discover to her cost that it is only a farthing rushlight.

Connected by this thread, or strung upon it, we have the bead "Classic not Christian," by Mr. Lewis, and the antithesis of an "Old-fashioned Architect." We would that these things sparkled none the less, nor do we think they would suffer by some abatement of their roughness; hard points and long prickly beads stand out somewhat unpleasant to our handling, and that of our friend Mr. Lewis, as we have before said, runs crookedly, and all askance; it worms in where we had not designed to go, or so worms in, as would take us by surprise at the following. We are not yet the "Churchman Architect" as Wykeham was. We suppose "An Old-fashioned Architect" is like ourselves, *he likes every thing good that is new, and hates every thing bad that is old.*

If we have not said much in the midst of all this of our responsibilities, we have left room for something to be inferred, and we have shrewd readers, upon whose minds the matter will not long lie fallow. "Good boys, all."

STREET PAVING AND CLEANSING.

Our attention has been directed to this important subject by an announcement from the Practical and Scientific Association for the Promotion of Improved Street Paving, who very liberally offer a premium of thirty guineas for the most approved plan for effectually cleansing the public streets, combining the requisites of convenience, efficacy, and economy. We have been favoured with a paper addressed by Mr. Cochrane, the president of the society, to the Royal Institute of British Architects, on the importance of well-made and efficiently-cleaned streets. It commences by referring to reports issued by the Government on this subject, giving also a brief history of the different kinds of carriage-ways and foot pavements, and shewing how little the resources of art and science have been consulted, which is illustrated by the system of making Macadamized roads, their formation being nearly dependent on the amount of traffic upon them.

Mr. Cochrane remarks that—

The professor or lover of architecture must be forcibly struck with the different effects produced on buildings according to the immediate locality in which they are erected. What a marked difference there is in the appearance and condition of a line of houses along a street which is ill-paved, ill-cleaned, badly-drained, and without any foot-pavement, and one with all the opposite advantages. Let us contrast the effect of Regent-street on the eye, with that of the Rue de la Paix at Paris, the admiration and boast of the Parisians. The beauty of the former greatly depends on the exquisite uniformity created by the admirable condition of the foot and carriage way. From the absence of this advantage in the latter, although an infinitely superior pile of buildings, its beauty and general effect are very considerably diminished.

Few houses situated in public thoroughfares within twelve to fifteen feet of the carriage ways escape being greatly defaced by the splashes of mud in wet weather. Not only is this a disfigurement, but it is attended with considerable expense

from the frequent cleansing which ensues, and the wear and tear created. That handsome enclosure of railings, on the south side of St. Paul's Cathedral, is deprived entirely of its beauty from the successive coatings of mud it is constantly receiving, and which the City authorities evince no very great anxiety to remove, so as to restore the railings to their pristine beauty. Indeed there is not a single church in any of the leading thoroughfares in the city that is not greatly defaced from the filth and dirt of the streets.

If mud be a disfigurement to architecture in wet weather, not less so is dust in dry. Floating as it does so lightly in the air, not a single room of the highest house, wherever situated, can escape its influence. The most exquisite gems of art, and the skilful labours of the house decorator, fall in their turn a prey to its destructive effects.

From inquiries made in various parts of London, it appears that the estimate of the loss sustained from the dirt and mud of the streets, by householders varies from 10*l.* to 100*l.* per annum, and from 20*l.* to 300*l.* by shopkeepers.

It is stated that wood-paving is more durable and economical than any other form of road; and that the slippiness may be traced to the mud now brought from the other kinds of paving, and allowed to remain on it. It appears, from a tabular statement, that if streets are cleansed by machinery three times a week, the quantity of mud produced on the surface is five times less than when they are swept twice in three weeks, and thirteen times less than when swept but once a week.

To enlarge greatly on the importance of wood-paving must now appear altogether unnecessary, the precision and skill with which it can be laid down and taken up—the strength of its construction—its extraordinary durability—absence of all noise—facility of traction—the diminution of mud in wet and dust in dry weather, and the increased facility of their removal—its salubrity as regards the health of the public—and, though last not least, its superior cheapness over all other kinds of roads: all these advantages combined tend to render it a pavement of peculiar eligibility. The only tangible objection against it, is its *slipperiness*, although it must be self-evident that any kind of road, the surface of which is hard, and where the greasy mud of London is allowed to be brought upon it, must inevitably be attended with this evil; but it is maintained, and very properly so, that if the mud be removed, the pavement would not be slippery, as wood is by no means of a slippery nature.

We trust that the day is not far distant when the following valuable hints submitted by the society will be generally adopted throughout the metropolis and the provincial cities:—

1. Carriage and footways of populous and large towns ought to be swept every day.—2. The manure ought to be removed as soon as possible, and before being trodden down and scattered—its utility and value being thus increased, whilst the road is better preserved and the atmosphere freed from much unpleasant effluvia. When the manure is thus removed, the road scraping becomes available for combining the loose and fresh stones employed in repairing the Macadamized roads.—3. The surface of a road should be preserved as uniform as possible—without ruts and hollows for the water to lodge in.—4. Wherever mud is permitted to accumulate, the surface of the road invariably becomes irregular.—5. Streets should be so watered as never to create puddles; if they are properly cleansed much less water is required to lay the dust, and it is much better to water them *sparingly* and more frequently than abundantly and at distant intervals, when large quantities of mud are created, to the annoyance of the public and injury to the road, impeding also the draft of public vehicles.—6. Macadamized roads and streets should in the first instance be made fit and complete for the accommodation of public traffic, and not be dependant on public traffic for their completion.

CALEDONIAN CANAL—CONTRACTORS' ESTIMATES.—The estimates for the execution of the works for the improvement of the Caledonian Canal shew the extraordinary differences which sometimes occur in the calculations of contractors. Only four tenders were given in; the respective amounts were, in round numbers, as follows:—Lowest, 134,000*l.*; second lowest, 136,000*l.*; third lowest, 223,000*l.*; highest, 230,000*l.* It seems that the second lowest offer has been accepted.

SMALL STREET HOUSES—NO. II.—VENTILATION, &c.

WHEN erecting a house, the prevention of damp rising up the walls and ventilation should be considered. To effect this I beg to propose to leave, as the works proceed, a vacancy or channel in the centre of the walls, as shewn at

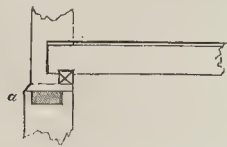


Fig. 1.

a, see fig. 1, laying over the same slabs of hard cheap stone or slate in cement, which may be chamfered off so as to form a neat finish to the plinth round the outside of the building; this would prevent the damp rising. At various intervals small openings, with gratings communicating between this channel and the interior and exterior of the building, as shewn



Fig. 2.

at b b, fig. 2, should be made, so that a constant current of air may be driven through the openings under the floors; the openings through the walls should be more numerous than is usual, to allow the air to freely pass under the timbers, and by having a ventilator placed in the floor or skirting above, would admit the same into the room; an air-flue should be formed by the side of the flues of the chimney, with a ventilator fixed in the same in the return of the chimney-breast, just under the line of the ceiling, up which the foul air would escape at the same rate the pure air arrives from the outside through the ventilator in the floor; to facilitate the exit of the foul air one of the improved corkscrew cowls should be placed on the top of the air-flue, which being constantly kept in action by the wind, would draw off the same. By following a similar plan with the other floors, the same effect would be obtained, and for a small house, I think two air-flues would be sufficient. If at any time there should be too great a draft, the ventilator might be partially closed.

By ventilating houses of this class in this manner, there would be no necessity for opening the windows and doors, consequently less labour in keeping the rooms free from dust, also bed-rooms would not have the unpleasant smell which is frequently the case at present, after they have been shut up all night. B.

In my first letter read 350 feet instead of 550 feet.

No. III.—PLANS.

A house as generally erected under the Building Act, to contain $3\frac{1}{2}$ squares supl. on the ground-plan, has the following rooms:—

Front parlour 11 ft. 3 in. by 12 ft.—a full-sized room.

The front bed-room, one-pair story, and kitchen in the basement, 14 ft. 3 in. by 12 ft.—comfortable rooms.

The three back rooms only 9 ft. by 9 ft. 6 in.—very small and inconvenient.

By increasing the number of feet supl. to be covered to 4 squares would give a much better plan at a small extra expense, not above 25*l.* on the first outlay. Fig. 1 is the one-pair story plan increased to 4 squares supl., and would have the following rooms:—

The front parlour would be 11 ft. 3 in. by 12 ft. 6 in.—6 inches wider than present plan.

The front bed-room, one-pair story, and kitchen on the basement, 14 ft. 3 in. by 12 ft. 6 in. ditto.

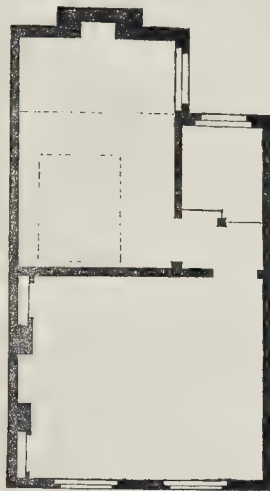
The three back rooms, 13 ft. 9 in. by 9 ft.—much better rooms, and well worth the extra expense.

As the Building Act is now under consideration, I beg to call the attention of architects and builders to this fact, as I have no doubt

many other great improvements might be suggested if the number of supl. feet to be covered be extended as before described, and the risk from fire would not be greatly increased, as only one of the party-walls would be lengthened, and that only about five feet. I am glad the subject has been noticed by one of your correspondents, Mr. Newnham, and the more it is brought forward the better, as then we might hope the referees of the Building Act would be induced to recommend some beneficial alteration. With respect to fire happening from the bed and hangings being so close to the chimney, as your correspondent remarks, I have no doubt that if the returns of the Fire Brigade were examined, it would be found that in private houses more fires occur from this cause than any other.

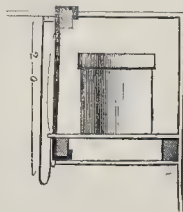
CONTRIVANCES.

No. 1.—Cupboards and closets are useful appendages in a small house, particularly when they are obtained without encroaching upon the space devoted to the rooms. In the back



No. 3. One-pair Plan.

bed-room one-pair story (an inferior room used by the servant or children) closets for bonnets, hats, clothes, &c. could be formed as shewn in the annexed sketch, fig. 2, along all sides of the room if required, under the ceiling hung from the timbers above by small iron bars, and the fronts inclosed by sliding doors, or curtains running on rings along an iron rod to match the curtains of the bed, which would have a neat appearance. A pair of small moveable steps would be requisite to reach the closets, and be useful to get into bed.



No. 3. Cupboard.

No. 2.—In all the back rooms the fire-places may be under the windows, except the one-pair, the window of which I have shewn in fig. 1, at the side, with the whole of the brick-work projecting outside, consequently the bed would be 7 feet from the fire, as shewn, an increased extent of 6 or 7 feet superficial be gained in the room, and the recess (14 inches deep) over the mantel of the chimney-opening be a good situation for a few plants, summer and winter, and have a pleasing and cheerful effect; in the warm weather, when the fire is not required, a moveable board, panelled to fit, would hide the fire-place, and have the appear-

ance of a window-back, making the whole window front complete.

No. 3.—A small ironing-board or temporary table in the front kitchen in the basement story, might be hung to the window board, of the width of the window, with two swing brackets under, so that, when not in use, it would fall down against the window back below, and be out of the way, and at night be turned up, and form the lower half of the shutter to the window, the other half of the shutter being formed in the usual way, hung with lines and weights. B.

CADASTRE OF FRANCE.

ANCIENT surveys of foreign countries are not of the same interest to us as those of our own; but the survey or Cadastre of France, now in progress, is a very important work, and is the more interesting from its having been the moving cause, and indeed the foundation of the ordinance surveys of these kingdoms.

The French Cadastre, which is composed of the acreage partition, and of the correct delineation of each proprietorship, has been organized by the establishment of a school of geography, and the creation of a central and general agency of contributions. This agency, known under the name of the Bureau, for the direction of the direct contributors, is placed under the immediate authority of the Minister of Finance, and consists of a director, an inspector, and a comptroller, and about sixty members, who are charged with the surveillance of the department employed in taking the acreage, and in uniting uniformity of principles by communication with the best informed; and by a coincidence of ideas, which has in particular contributed to the perfect success of these operations. The valuation of the lands is confined to the municipal council, which is composed of the mayor and his assistants, and of twelve persons, selected from amongst thirty of the most intelligent persons residing within the commune; and the distribution of the lands, according to their qualities, by three resident proprietors of each commune, who are selected by the municipal council, and who are assisted by the comptroller of the direct contributors. In this same way errors are rectified which may have occurred in measuring the boundaries of proprietorships, on the complaint to this effect of any proprietor, being addressed to the préfet. *La contribution foncière* is calculated on a uniform principle, and is of a certain variable number of additional centimes, above the contributions exacted by government, to cover the expenses of the communes: the proportions of tax to territorial income is generally about one-ninth to one-tenth. In the valuation, the number of classes of land have been limited to five, from the nature of the culture. There are consequently five classes of meadow and pasture, and five of arable land.

The maps are lithographed, and are beautifully executed, to a scale of four centimetres to one hundred metres; which is equal to about 25½ inches to an English mile.

The Cadastre of France was first commenced in 1796, under an order of the Directory; but Bonaparte not approving of the mode in which it was conducted, abandoned that work, and commenced the present survey in 1807. The scale being so large, enables the surveyor to exhibit with accuracy, the smallest divisions of property. France contains about 128,000,000 of English acres; the estimated expense of the survey is 4,680,000*l.*, or rather more than 8*d.* per acre.—*Bourn's Principles and Practice of Surveying.*

ST. MARY'S CHURCH, BURY ST. EDMUNDS.—An opportunity is now afforded to the admirer of architectural beauty, such as in all probability will never again occur. A scaffolding is erected along the whole extent of the nave on each side, which is accessible by the enclosed staircase, and as safe as a permanent gallery, and from which all the exquisite carved work of the roof may be closely inspected. Those who are not aware of the beauty of the workmanship may be induced to take advantage of the present opportunity, when we state that this roof has been pronounced by so high an authority as Mr. Pugin to be unequalled. We are sure that the inspection will open the hearts as well as gratify the taste of the visitors.—*Bury Post.*

ACTION FOR WORK AND LABOUR—IDENTITY OF THE PERSON TO WHOM CREDIT WAS GIVEN WITH THE DEFENDANT ON THE RECORD.

SEWELL v. EVANS.—RODEN v. RYDE.
Two cases were decided by Court of Queen's Bench in last Easter term that will have considerable influence on the fate of future actions for work and labour. One was determined on the authority of the other, and both went to negative an alleged necessity for proving the identity of the person, whose liability to the plaintiff in the particular action is established, with the defendant on the record;—in other words, with the person on whom process has been served, who appears to that process and defends the action. They are, however, far from conclusive against the necessity for such proof in many cases that can be readily imagined, nay, it may fairly be doubted whether they do not establish the necessity for such proof when the handwriting of the defendant has not been proved.

In *Sewell v. Evans*, an action was brought by an executrix against the acceptor of a bill of exchange, and in the declaration there was a count for goods sold and delivered. At the trial, which took place before Lord Denman, at the sittings in London, after Michaelmas term 1842, proof was shewn of the delivery of goods to the amount of 27l. to one William Serle Evans, which was the name of the person who was defendant on the record; and a witness who had known a William Serle Evans for years, and had introduced that person to the plaintiff's testator (a woollen-draper), proved that person's handwriting to a letter addressed to the testator, acknowledging the receipt of goods. It was objected, on the part of the defendant, that the plaintiff was bound to shew, that the William Serle Evans, to whom the delivery was proved, and whose handwriting to the letter was proved, was the person defending the action. The learned judge overruled the objection, and a verdict passed for the plaintiff, upon the count for goods sold. The matter was brought before the full court, on a motion for a new trial, but cause was not shewn, on the ground that the case was disposed of by the decision in *Roden v. Ryde*, which had been pronounced the day before.

In *Roden v. Ryde*, an action was brought by an indorsee against the acceptor of two bills of exchange. At the trial, a banker's clerk, in the London and Westminster Bank, was called for the plaintiff, who proved the handwriting of the acceptor, John Thomas Ryde, from having been in the habit of paying across the counter cheques by a party bearing the same name; and that a person of the same name kept an account at the London and Westminster Bank, but there was no proof of the identity of that person with the defendant on the record. The learned judge thought the evidence sufficient. Verdict for the plaintiff. A rule nisi for a nonsuit having been obtained, the Court called on Mr. Wordsworth, who had obtained it, to support it. He relied on several cases, of which *Logan v. Alder*, 3 Tyr. 557, n. was one. There Mr. Baron Bolland said, "The rule of law is the same in civil as in criminal proceedings. Now, suppose a person to be tried for forging the signature of W. R. A. of H. to a bond, and that the subscribing witness said, 'I saw that bond signed at the inn I keep, but I never saw the party executing before or since,' could the case against that prisoner be left to the jury?" To this citation Mr. Justice Patteson answered, "The witness here does know the party who accepted the bill, and has often seen him. The question is, whether he is the same with the defendant on whom process was served. Now, in criminal cases, the prisoner is in court, so that the witness may be asked whether he was the person whom he saw write, and this peculiar difficulty could not arise. Suppose, on the other hand, this proof of identity to be necessary, how, in an action against the executors founded on handwriting of their testator, could the identity be proved?"

Lord Denman, with whom the other judges concurred, gave judgment as follows:—"I think the doubt, in this case, has been raised by the decision of the Court of Exchequer in *Whitlock v. Musgrove*, which does not necessarily create it. There the defendant was a marksman, which may have rendered greater strictness of proof necessary. And in *Jones v. Jones*, the judgment proceeded on the ground

that the defendant's name, Hugh Jones, was very common in the district. These, and many similar circumstances, might create a necessity for some proof of identity. But, in ordinary cases, I cannot conceive any necessity for calling a witness for the mere purpose of identifying the party who is charged on his handwriting with the defendant in the suit; and I question whether a witness was ever called simply with that object, except in the case of *Jones v. Jones* on the new trial. The name of John Thomas Ryde is not a common one, nor was any reason suggested for supposing the existence of two of the name. I think the observation of Baron Bolland in *Logan v. Alder* has been sufficiently shewn, by my brother Patteson, to have no bearing on this case. In *Whitlock v. Musgrove*, Lord Lyndhurst is reported to ask, 'Why should the onus of proving a negative, viz. that he is not the person named in the note, be thrown on the defendant?' I cannot but think the answer is, because it is so easy for him to disprove the identity; and because great danger would be incurred by any one who should so abuse the process of a court, as knowingly to serve a wrong party with process. The Court would probably exercise its jurisdiction for contempt in a very serious manner; and it is scarcely conceivable that a fraud of so daring a character, and so easily detected, would occur to any one to commit. The constant practice of the Courts, from the earliest period, proves, indeed, that no such frauds have been discovered, for no doubt on the subject existed until lately. It is unfortunate that such a doubt was ever raised." The rule was accordingly discharged.

Now, we venture to think that so much of this judgment as refers to the punishment that would be inflicted for abuse of the process of a court is altogether beside the question, and for the very obvious reason, that the possibility of such a punishment being inflicted did not avail for dispensing with the proof of identity in *Whitlock v. Musgrove* and *Jones v. Jones*. The judgment in *Roden v. Ryde* proceeds on the fact that the defendant was "charged on his handwriting;" so, in *Sewell v. Evans*, the handwriting of a person named Evans was proved. But, how will it be when there is no document in the handwriting of the real debtor? When the handwriting of the defendant is to be proved, there can be little doubt that a witness will be brought forward who knows the handwriting of the defendant on the record. It is difficult to suppose fraud in such a case. But when handwriting does not form part of the proof, the case is different, and the fact that *Roden v. Ryde* and *Sewell v. Evans* were decided on the ground of handwriting proved will be urged as a reason why proof of identity must be given when handwriting is not proved. In an action for work and labour in the shape of repairs done to a house in which the person ordering the repairs by word of mouth does not live, the evidence might be this—a person of the same name as the defendant gave the orders, superintended the execution of the repairs, and was the owner of the house. The cases reported in this paper would not be an answer to the demand of proof that the defendant on the record was the person who gave the orders, for the parallelism of the several schemes of facts would fail. It is material, therefore, to provide the means of proving the identity of the person shewn to be the debtor with the person who defends the action.

The proper way will be for one of the plaintiff's witnesses, who at the trial will prove the orders, or the superintendence of the execution of the orders, by a certain person, to accompany the man who serves the process on the defendant, and then to identify him with the person whom he saw giving the orders and superintending the execution of them.

We have thought it right to lay these cases, which, at the first blush, may appear to be strictly lawyers' cases, before the reader, because experience has shewn us that the failure of actions brought by tradesmen frequently arises from their ignorance, at the time when a debt is contracted, of the proofs that will be required from them when they seek to establish it.

A FACT.—Brickmakers have become quite scarce; as not a labourer can be found, since the growth of temperance, who will undertake to wet his clay!—*Punch*.

OLD ENGLISH AND MODERN FURNITURE.

In no respect has there been so signal an improvement in modern times as in the ordinary domestic furniture. The artisan now enjoys luxuries of this kind, which were but three centuries ago beyond the reach of the crowned head. Heavy tables, formed of planks laid upon trestles, massy oak benches or stools for seats, and floors covered with straw formed the accommodation which satisfied the princes and prelates of our early history. Even in the time of Elizabeth, the comfort of a carpet was seldom felt, and the luxury of a fork wholly unknown.

But though the balance in point of comfort is infinitely in favour of modern upholstery, on the other hand the splendour of our hangings and bed furniture is far inferior to that of the earlier periods. Carved and inlaid bedsteads, with hangings of cloth of gold, embroidered with heraldic badges; blue velvet powdered with silver lions; black satin, with gold roses and escutcheons of arms; tapestry of cloths of gold and silver for hangings on the walls;—these are pomps and vanities occurring in every page of the elder time—and no doubt their effect must have exceeded in magnificence any thing we see or hear of in the present day.

Although there are no models for our imitation in the furniture of an early English house, yet in the age of Elizabeth and her immediate successors, we meet with a highly rich and elegant style of moveables, capable of easy adaptation to all the luxurious wants of our most fastidious Sybarites. The couches and settees of carved and twisted ebony, the velvet and damask cushions, piled upon one another like our ottomans, the canopied hangings, the ebony and ivory, or inlaid cabinets, elaborately carved oaken buffets, tables spread with velvet or damask, the great folding screen covered with figured cloths, or stamped leather, or needlework, and the embossed andirons—these are admissible in the present day; and the elegance of no modern boudoir would be disparaged, or its comforts diminished, by their introduction. And though there may appear some anachronism in the application of furniture of the style of the sixteenth century to buildings of the thirteenth or fourteenth, yet this is fairly excusable of such perishable articles, and the associations connected with the one harmonize sufficiently with the other. Such a style of furniture is, at all events, infinitely more appropriate than our modern upholstery. What a disagreeable rebuff have our highly-wrought feelings sometimes experienced, when, on entering the arched porch of the Gothic abbey or embattled castle, and penetrating its vaulted galleries, we have found ourselves in a room fitted up in all the flimsy frippery of a Brighton or Cheltenham lodging-house, with marble chimney-pieces from Leigham, spindle-shanked rosewood chairs from Oxford-street, Grecian sofas, Italian cornices, and French chiffoniers!

We are, however, pleased to be able to trace a growing improvement in the taste of the furniture of our living apartments, and a predilection for the rich and elegant designs of the Elizabethan age. Already there is a great and constant demand for its carved cabinets, scrolled chairs, tapestried hangings, and figured velvet cushions; and France and Germany are ransacked for these articles in order to restore to our ancient manor-houses and Tudor mansions their appropriate internal fashion of attire. Our upholsterers (or rather, we beg their pardon, *decorators*) are now imitating the festooned canopies of Queen Bess; and many a carver is employed in framing seats after the model of the "great Turkey leather elbow-chair, with the tapestried cushions," which accommodated the person of his "most sacred majesty" at the castle of Tilletudlem. In short, though the *wisdom* of our ancestors is rapidly going out of fashion, it is some consolation that we are becoming daily more and more alive to the correctness of their taste.

POTATO PAINT.—Take a pound of potatoes, skinned and well baked, bruise them in three or four times their weight of boiling water, and then pass them through a hair sieve. Add two pounds of chalk in fine powder, previously mixed with double the weight of water, and stir the whole well together. This mixture will form a glue, to which any colouring powder may be added, even charcoal, brick, or soot, for painting gate-posts, &c. which are exposed to the action of the air.

Collectanea.

BUILDING MATERIALS.

THE mode of construction of our ancient houses, and much of their architectural character, was determined by the nature of the materials afforded in the neighbourhood of the site.

The influence of these local circumstances is seldom sufficiently appreciated. The architecture of the ancients seems to have originated in Egypt, Chaldea, and other eastern countries, where timber is rare, but which abound in strata of soft freestone, easily excavated, and of granite, which, though difficult to cut, is raised with facility in large and solid blocks. The first habitations, as well as the first places of worship in these countries, were doubtless caves cut out of the soft rock; for we find innumerable examples of such cave dwellings, temples, and tombs, throughout Persia, Asia Minor, Syria, Egypt, &c., bearing the marks of high antiquity. The entrance is often ornamented with pilasters on either side, and an architrave above, rudely carved in the surface of the rock. In these grottos we think we see the rudiments of the Egyptian, and, ultimately, even of the Grecian temple. When, afterwards, the building was raised in the open air, the dark and narrow cella still retained much of the character of the cave. Immense blocks of transported stone, generally granite, were raised on each other to form the walls, and still larger slabs, laid horizontally across the roof. Hence the flat entablature characteristic of the ancient architecture. But among the vast forests of the alluvial regions of the north, where stone was rare and timber most plentiful, the log hut or the osier cot was the earliest and rudest kind of habitation. For the larger sort of buildings, a frame of massive timbers, resembling the inverted hull of a ship, formed the skeleton of the ancient hall or place of worship; the principal beams springing from the ground, and naturally curved, united in a pointed or Gothic arch overhead. The intervals were filled up with wattled osiers plastered with clay or lime.

Again, in the southern climates, where ancient architecture arose and perfected itself, little shelter was needed from the elements. Life was passed almost wholly in the open air. The cell, which formed the sanctuary of the deity, and represented the original cave, was never entered by his worshippers, and the open portico or peristyle was invented to protect them from the scorching sun. But the tribes of the bleak north must at an early period have found the advantage of a building closed against the external air for the purposes of worship; and in rearing these edifices of the only materials they could command, it was natural that they should endeavour to imitate the high over-arching groves within whose sacred recesses they had been accustomed to hold their religious meetings. And long after these wooden churches gave way to more costly structures in stone, we cannot but fancy that the original idea of the forest-sanctuary was constantly present to the mind of the architect, as he reared the tall and taper shafts on either side the nave,—spread them upwards into branching ribs which over-arched the lofty vault,—confined his sculptured ornaments almost exclusively to imitative foliage, and admitted, through the tracieried net-work of the high and narrow windows, just that dim light which penetrates the gloom of the deep forest, and produces a reverential awe predisposing the mind to religious adoration. The intention and spirit of Gothic architecture is certainly to be looked for in the effect produced by the interior of the building. In the Grecian temple, on the contrary, the interior is nothing, the exterior every thing. And this consideration will explain much of the contrast which these modes exhibit: as physiologists have illustrated the structure of the human frame by likening it to a vegetable turned inside out—so we shall perhaps better understand the characteristic differences of the two principal modes of architecture, by considering the Gothic church as a Grecian temple with the outside turned inwards. The beauty and symmetry of the Grecian exterior is the essence and object of its construction. The Gothic exterior is wholly subsidiary to the interior. Its ornamental parts, including the towers, battlements, and pinnacles, are inventions intended to relieve as much as possible

the ungainly and heavy aspect of the exterior of a huge barn-like building, and to conceal or make the best of the buttress-work required for the support of its lofty and spreading roof.

The same local circumstances of climate and accessible materials occasioned a like contrast between the domestic buildings of the northern and southern nations of Europe. The flat terraced roofs of the latter were evidently intended to give the inhabitants the enjoyment of the cool morning and evening air from the tops of the houses—the steep ridges and pointed roofs of the former to throw off the weight of snow which in high latitudes would often break in a flat roof. There was also another cause for this difference. The shores of Asia Minor, Greece, and Italy produce a volcanic sand (pozzolana), which, mixed with lime, forms a cement of as firm a texture as stone itself. A flat roof covered by this cheap and simple mixture is, in the climate of the south, as perfectly impenetrable to moisture, and as durable, as if sheeted with lead. But in the north, neither is there any such solid cement to be procured, nor perhaps, if procurable, would it stand the frequent alternations of frost and moisture common in those climates; and the northern architects having only slate, shingle, or tile for the coverings of their roofs, were thus driven into the adoption of the ridge and gable, as the only form in which these materials can be employed. The Gothic label and drip mouldings form another characteristic feature of this style, required by the northern atmosphere as a protection for the stone-work from the injurious attacks of moisture and frost. The stories, projecting one beyond the other, as commonly met with in the early northern houses, were doubtless intended to shelter the foundations from the wet; and as this was only required, so it could only be completely executed in timber-houses—though we find the same feature imitated, after habit had brought it to be esteemed ornamental, in the corbelled oriels of stone habitations.

THE GLASS MANUFACTURE.

THE very great improvements in this manufacture, together with constant announcements of new decorative varieties, and the lively interest we take in their application to domestic architecture, induces us to give a digest of its early history and progressive introduction to general use in this country.

This beautiful art was certainly known in extremely remote times, and the current fable from *Pliny*, ascribing the invention to Phœnician sailors, who, coasting in a barque laden with fossil alkali, formed a temporary cooking-place on the bank of the river *Belus*, by building a stand for their kettles with that material, which fusing with the sand of the shore, produced glass, needs correction. That it originated in Egypt, the cradle of the arts, there can be no doubt; beautiful imitations in glass of precious stones have been found adorning mummies which had reposed in their cases for three thousand years; and this proves, moreover, that the colouring of the fluid metal was practised at a period coeval with the invention itself, though requiring much chemical knowledge and expert handling: the circular rings and amulets of coloured glass which have been found amongst British druidical remains, may also be ascribed to Eastern manufacture, procured during casual visits of the vessels of other countries to these coasts; these trinkets, which no doubt bore a high, if not mystical, value, are usually green and blue, but others have been found waved with streaks of blue, red, and white. These mummy ornaments and amulets are, then, the most ancient examples of glass-making, and of a date preceding the foundations of Rome. All the most ancient writers agree in mention of the existence of specimens in glass of great beauty and value, the produce of the East. The Roman emperor Nero, is stated by *Pliny* to have paid 6,000 sesterii for two glass cups, which sum has been erroneously rendered as equal to 50,000 of our money; the mistake has arisen from taking sesterii for sesteria, which reduces the price to the more probable sum of 50*l*. Later in the annals of the empire we are informed that upon the visit of the Emperor Hadrian to Egypt, which took place A.D. 126, he was presented by a priest of Alexandria with two glass cups that had been used in the

service of the temple, and which sparkled with colours of every hue; and that these specimens were so highly prized as to have been afterwards procured but on festivals and high solemnities. With respect to the Roman period, of which alone we have any thing approaching to accurate historical data, it would seem that the ancients were content with an application of the art to the requirements of the wealthy, for it does not appear to have extended beyond the tables and sideboards of the luxurious chiefs and patricians of the empire, and to mementos of the obsequies of persons of rank, a practice which had descended through the stream of time from Egypt to Greece and Rome, and of which the emblem is still retained in our own funeral vase. A great variety of the funeral pottery and glass ware of the ancients is preserved, and is almost invariably turned up in examinations of sepulchres and tumuli. The most splendid example of this kind, and which proves the great degree of perfection the art had attained, is the Barberini, or Portland Vase, in the British Museum. It is composed of deep blue glass, with figures of a delicate white, opaque substance in relief, and was found in the tomb of Alexander Severus, who died A.D. 235. The curious in inquiries of this nature, and who desire more detailed information than our space permits, will do well to consult the works of *Caylus* and *Winklemann*, who are sufficiently diffuse in citing instances of ancient skill; amongst others, the formation of pictures by means of glass fibres of various colours, which being accurately fitted so as to produce the design, were afterwards fused into a solid mass.

CHINESE METHOD OF MANUFACTURING THE EXTREMELY THIN SHEET LEAD WITH WHICH THE CHESTS CONTAINING TEAS ARE LINED.

FROM the appearance of the laminæ in which teas are packed by this ingenious people, many have supposed that they are produced by the process of rolling; such, however, is not the case; they are actually cast in the state we see them, by the following primitive method, which may afford hints for operating upon other metals fusible at low temperatures. Two men are employed in the process; one of them is seated upon the floor, with a large flat stone before him, and a moveable flat stone at his side. The other stands beside him with a crucible containing the melted lead, from which he pours upon the large flat stone, or slab, a sufficient quantity for each separate operation; the seated workman then lifts the moveable flat stone, and placing it suddenly upon the fluid metal, presses it out into a thin flat plate, which he instantly removes; and thus the process goes on with the rapidity incident to practice. The rough edges of the plates are then cut off, and they are soldered together to any required extent. Zinc has been thus treated to obtain very thin plates for galvanic purposes.

THE GREAT RAILWAY STATION, MANCHESTER.—This splendid and extraordinary work, which will unite the Liverpool and Manchester and Manchester and Leeds lines at Hunt's-bank, is progressing rapidly. The station, including the sliding lines, turn-tables, arrival and departure platform, &c., will be the most extensive in the kingdom, surpassing the justly celebrated one at Derby; it will include a space of 852 feet in length, by an average breadth of 130 feet, having five main lines of rail; 700 feet of this length will be covered with an iron roof in three compartments, of 59 feet 6 inches, 28 feet, and 26 feet 3 inches span respectively, supported by elegant iron columns. The station-house, containing the waiting and refreshment-rooms, booking-offices, &c., all erected in the most convenient and extensive manner, is a handsome building in the Roman Doric style, 256 feet long and 36 feet wide, raised one story from the ground, and surmounted by a parapet; the refreshment-saloon is lighted by elegant circular-headed windows with stone pilasters and dressings, and surmounted by an elegant cornice, in the centre of which is to be placed a handsome clock. The entrances to the booking-offices are under a covered way, supported by brackets nine feet six inches long, which, though perhaps not equal in architectural beauty to pillars, surpass them in convenience, as it leaves a clear space for vehicles and foot-passengers, and will be unexampled for general convenience.



CHURCH OF CURRY RIVEL, SOMERSETSHIRE.

CURRY RIVEL, an extensive hamlet, of which our engraving represents the church, is situate two miles west from Langport, and eleven east from Taunton, Somerset. We are unable to ascertain the date of the erection, but the site is among the earliest on record occupied by an ecclesiastical building. Doomsday Book, the notable record of the Norman survey of England, has this entry respecting *Churi*, or Curry—'The king holds Churi. King Edward the Confessor held it. It never paid tax, nor is it known how many hides (of land) are there. In demesne are three carucates, five servants, and twenty villanes, and two cottagers. In the church of Churi is half a hide. A priest has one carucate. Eddida, the monk, holds in free alms of the king twelve acres of land, eighty acres of wood and pasture. It is worth five shillings.' The demesne appears to have continued in the crown until the reign of Richard 1st, when it was granted, together with Langport to Richard Rivel, a person of great note, sheriff

for several successive years of the counties of Devon and Cornwall, and from the tenure of this individual derived its present name of Curry Rivel.

The church stands on an eminence, and is a fine structure, composed of a nave, chancel, and two side aisles, covered with slate, with a large embattled tower at the west end, containing the belfry. Under the battlement, on the south side, is a statue of the patron (St. Andrew), to whom the church is dedicated. The roof is twenty-eight feet high, but plain; that of the chancel twenty-six feet, wrought in square compartments between the arches. The roof is supported by light and elegantly-clustered columns. The pulpit is a comparatively modern appendage, richly carved in mahogany, with gilding. The oldest visible inscription on a tomb within the church is 1593; but there are others, upon which time has done its work of obliteration, of a much more remote period: under the north wall, at the end of the aisle, are five gothic niches, containing effigies in

stone of the ancient families of Trevelyan and Jennings, so much mutilated and decayed, as to preclude an inspection of dates. In 1292, 20th Edward 1st, the living was valued at thirty marks: 26th of Henry 8th, at £13. 16s.

The locality of Curry Rivel is remarkable for rural beauty. Within a cove open to the flat land of Sedgemoor, but situate on the top of a ridge of considerable altitude, stands the noble seat of Burton Pinsent, with its fine slopes and richly-wooding woods; commanding prospects extending northward over all the flat country, between Mendip and the Oarstock hills, the Channel and Welsh mountains. From this point more than thirty churches are in view. On the north-east point of the ridge, at a distance of about two furlongs from the house, stands a conspicuous object; on a fine green projecting knoll, with a steep declivity descending to the flat below, is a column of white stone one hundred and forty feet in height, erected to the memory of Sir William Pynsent, a former possessor of the estate.

SMALL STREET HOUSES.—NO. IV.

Figs. 1, 2, and 3 are plans of a house of this class, in accordance with one passage in my first letter, *viz.* to let off three rooms without having the annoyance of lodgers, and by these means helping to pay the cost of the erection through the building societies; I have taken 4 squares on the ground-plan for the reasons given in letter No. 3.

The first feature to be noticed in this plan is the two entrances, and having one staircase over the other, so that the person occupying the apartments A, would have the staircase leading from the basement, on which story there is a parlour in front 12ft. 3in. by 10ft. 6in., with two closets, a kitchen 15ft. 3in. by 10ft., with a large closet under the stairs. Entrance into back garden, and a bed-room over same on

ground story 12ft. 3in. by 10ft.; in the front area there is a capital coal-cellar and larder. The party using apartments B would have the entrance on the ground story, with passage through the house into back garden, and the staircase leading to the one pair story with a parlour in front 15ft. 3in. by 10ft. 6in., with three closets, a kitchen at back 15ft. 3in. by 10ft., with a larder and closet over the stairs with sink, &c.; and a bed-room in front on ground-story 12ft. 3in. by 10ft. 6in., with two closets, so that B's apartments would be quite separated and distinct from the other parts of the house. If it should be thought desirable to have both entrances on the ground-story, it may be easily arranged by making a passage through B's bed-room (which it would reduce three feet), and turn the stairs of basement; this alteration would make A's parlour three feet larger. The back garden might be

divided off by a light iron fence; the two entrances in front give a good outline elevation for decoration, which could be done when building the house, or at any future time. The porches are intended to be partially open on the inner sides and ends next the street as shown, and also at top; they will be found useful in protecting the doors and windows from high winds, keep the house warm in winter and cool and shady in summer, in addition to the quietness and seclusion, preventing the neighbours from having a command of the entrances, and save the trouble of answering the doors to beggars and lucifer sellers (a great nuisance), as from all the front windows the entrance-gates can be seen. By this plan the occupiers will have the full enjoyment of a three-roomed house, with all the respectability of neighbourhood and ap-



Fig. 1. Elevation.

ance of a six-roomed one. Fig. 4 is an elevation in the modern style, but any other might be adopted, which is a point in its favour, as we sadly want variety in our street scenes.

To erect a house of this class by the aid of the Building Society, the following will be the calculation, putting the actual cost at 275*l*.

To raise this sum it will be necessary to take 65*l* per share, is 276*l* 5*s*.—rather more than the sum required, for which a borrowing will have to pay—

shares at 10*s*. per month is . . . 2 2 6

Interest on 4½ shares at 4*s*. per month is . . . 0 17 0

Multiplied by . . . 2 19 6

Is, per annum . . . 35 14 0

10

ten years, gives the total amount

to be paid for the building . . . 357 0 0

part to be let off will fetch,

at the least, 28*l*. per annum,

which, multiplied by ten years,

gives . . . 200 0 0

157 0 0



Fig. 2. Basement Plan.

So that we have a house which cost to each 275*l*. for 157*l*., after having had ten years' occupancy of three rooms; and after the expiration of the ten years, there will be 50 years to run of the lease, with only the ground-rent and repairs to pay, which we will put at 8*l*. per annum.

To occupy a house of this description, the rent to be paid the landlord would be 30*l*. per annum multiplied by 50, gives no less a sum than . . . 1500 0 0

8*l*. per annum for 50 years is . . . 400 0 0

Making a saving of . . . 1100 0 0

or, 22*l*. per annum, which, if again invested in the Building Society, would pay for nearly four shares, and would, in ten years more, produce 480*l*., part of which sum might be applied in decorating the elevation, and in other improvements. At any time, at a very small expense, the house might be turned into a single dwelling of six good-sized apartments, but if continued to let three rooms, there will be a clear income of the difference between the 8*l*. for the ground rent and repairs, and the 20*l*. received of the tenant, viz. 12*l*. per annum.

Having now made a few remarks on each subject glanced at in my first letter, in conclusion, I beg most respectfully and earnestly to

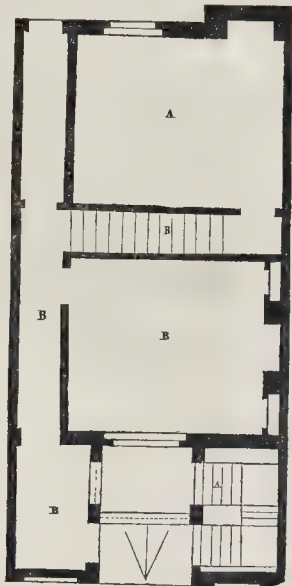


Fig. 3. Ground Plan.

call the attention of all parties connected with building to well consider whether improvements cannot be made in this class of houses, and freely communicate their ideas to this publication, in which they will be registered for use when occasion may require them for the benefit of all; even if it is only the better arrangement of a closet, shelves, or a fire-place, it will be something towards obtaining a more complete plan; it will be an act of benevolence to endeavour to improve the dwellings of the poorer class, if possible; and if we could only instil in them a feeling to wish for and have, which they can by combination, a better and more comfortable description of dwelling, then the class immediately above them, and all others higher up in the scale of society, would set about improving their habitations, so as not to be behindhand with their poorer neighbours; consequently would benefit ourselves by being engaged in making such alterations as would then be necessary to satisfy their extended views and wants; and after the many had felt the comfort of a well-arranged and improved dwelling, they would be led to think and inquire more into the capabilities of architecture, which would, in due course, bring on a better taste for decoration and furnishing; and consequently more employment for the whole of the building profession. B.

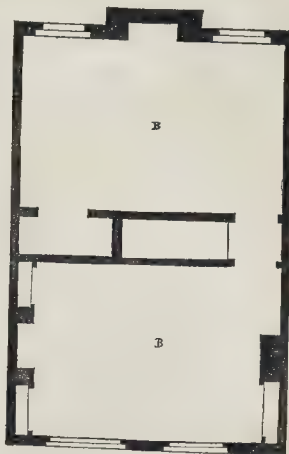


Fig. 4. Chamber Plan.

INTERIOR ARRANGEMENTS OF DOMESTIC BUILDINGS.

The chief feature in the interior of an ancient residence was the *hall*, which often gave its name to the whole house. It corresponded to the refectory of the abbey, and its disposition and plan varied very little under any circumstances, or at any time. The principal entrance to the main building, from the first or outer court, opened into a *thorough lobby*, having on one side several doors or arches leading to the buttery, kitchen, and domestic offices; on the other side, the hall, parted off by a screen, generally of wood elaborately carved, and enriched with shields and a variety of ornament, and pierced with several arches having folding doors. Above the screen, and over the lobby, was the minstrel's gallery, and on its front were usually huge armour, antlers, and similar memorials of the family exploits. The hall itself was a large and lofty room, in shape a parallelogram; the roof, the timbers of which were framed with pendants richly carved and emblazoned with heraldic insignia, formed one of its most striking features. At the upper end of this chamber, furthest from the entrance, the floor was usually raised a step, and this part was styled the *dais*, or high pace. An one side of the dais was a deep embayed window, reaching nearly down to the floor; the other windows ranged along one or both sides of the hall, at some height above the ground, so as to leave room for wainscoting or arras below them. They were enriched with stained glass, representing the armorial bearings of the family, their connections, and royal patrons, and between the windows were hung full-length portraits of the same persons. The royal arms usually occupied a conspicuous station at either end of the room. The head table was laid for the lord and principal guests on the raised pace, parallel with the upper end wall, and other tables were ranged along the sides for inferior visitors and retainers. In the centre of the hall was the *recre-dosse*, or fire-iron, against which faggots were piled, and burnt upon the stone floor, the smoke passing through an aperture in the roof immediately overhead, which was generally formed into an elevated lantern, a conspicuous ornament to the exterior of the building. In later times, a wide arched fire-place was formed in the wall on one side of the room.

The halls of our colleges, at either university, and the inns of court, still remain accurate examples of the ancient baronial and conventual halls; preserving, not merely their original form and appearance, but the identical arrangement and service of the tables. Even the central fire is, in some instances, kept up, charcoal being burnt in a large brazier in lieu of the *recre-dosse*. In other respects, probably little, if any thing, has been altered since the Tudor era; the service of the kitchen, butteries, and cellars is conducted, at the present day, in every point precisely according to ancient unvaried custom.

The hall, such as we have described it, is found in every old English mansion down to the Elizabethan period; and there is scarcely any finer example left than that of Longleat, in spite of its Italianized exterior. But about that time, or still earlier, the nobles began to disuse the custom of dining in company with their retainers and household in the great hall, and a separate apartment was reserved for the use of the family, and called the dining-parlour, or banquetting-room.

The chapel was another principal feature in the early English residence of every class. It usually formed one side of the first court, and was occasionally quite detached from the main building. Both the hall and chapel were often overlooked from windows in galleries and upper rooms.

The other apartments were the *great chamber*, or *withdrawing-room*, usually reserved for state occasions, and hung with tapestry, and the *gallery*, appropriated to the reception of visitors, to amusement, and in-door exercise. The gallery was a long room with several bay or oriel windows, projecting externally, and forming agreeable nooks for private conversation. It was often embellished with royal or family portraits, maps, and genealogical tables. The larger houses had, in addition to these apartments, the *parlours*—sometimes divided into summer and winter rooms. Of these, some were hung with arras, others wainscotted in small panels of richly grained oak. The ceilings were framed into panels by moulded ribs, enriched with bosses and pendants at their intersections. When plaster was substituted for timber in the ceilings, the patterns became more intricate, and the ornaments still more numerous.

The staircase in the older houses was carried up in a separate turret, generally circular, the steps being of stone, running round a central pillar, and the outer handrail grooved into the substance of the wall. In the reign of Elizabeth, staircases first became splendid ornamental features in houses, being framed of wood, enriched with massive handrails and balustrades curiously carved, as also were the bracketed string-boards and soffits. The newels at every landing supported the figures of heraldic animals or other devices, as well as pendant ornaments at their lower extremity. The effect of these elaborate staircases was highly ornamental and characteristic; and their introduction is always advisable when that style of building is attempted.

That the whole interior of a modern house should be made to correspond precisely with the external architecture is unnecessary, and would be highly inconvenient. The space occupied by the great hall would be thrown away on an apartment now never applied to its ancient purposes, from the total change in domestic habits. It is for this reason, that the attempt to give the appearance and proportions of the ancient hall to the modern vestibule, which goes by that name, is usually a failure. The idea of fitness and utility is wanting. The room we know not to be applied to the purposes of the old hall, and the association is therefore injured, if not destroyed. The gallery is, perhaps, one of the characteristic features of old interiors most suited for adoption in our modern residences. When employed as a corridor for communication with the principal range of apartments, whether below stairs or above, it becomes equally ornamental and useful. Its lofty embayed windows, emblazoned with armorial coats, its vaulted or fretted ceiling, with the full-length portraits, old high-backed chairs, couches, and cabinets, which form the appropriate furniture of its walls, compose a rich substitute for the more homely passage, and an agreeable place for indoor exercise and amusement.

A WINDOW IN CUSTODY.—A few weeks ago a gentleman in Bakewell having to make some alterations in one of his houses, applied to a mason to take out a very large shop window, which was immediately done; but instead of taking the window out of the house, the mason put it inside, and replaced it with a much smaller. He completely forgot how the large window was to be got out, and proceeded at once to make all right with mallet and tool. To the gentleman's mortification, he found the large shop window in safe custody and so it remains. The new window will have to be taken out again, or else the large shop window must be taken to pieces before it can be got outside.

MASONS' MARKS.

SIR,—I have been a subscriber to THE BUILDER since its commencement. I have watched its progress carefully, and read it with pleasure. On its appearance, I certainly thought you were, like a great many others, pretending to be of the craft, but really I do honestly think you are one of us, and as such, I heartily and sincerely wish you success.

Being bred a mason, I was forcibly struck with an article in No. 30 entitled, "Masons' Marks," in which the writer identifies their uses as belonging to the ancient order of Freemasons. This has been long my opinion, and I know a great number of the old marks to bear a close approximation thereto, for when a boy, carrying the tools to the smithy, I could almost tell the difference between a good and bad mason by the appearance of his tools. I am, however, in possession of some facts regarding masons' marks which I shall relate, and, if you think them worth your notice, you may make what use you please of them.

About fifty years ago, the late Earl of Bristol, Lord Bishop of Derry, built a splendid episcopal palace at a place called the Ballyscullion, in the County of Derry; it was scarcely finished when he died, and it was taken down and the materials sold. Among other splendid specimens of masonry (for he had carvers from Italy, &c.) he brought entire, out of the ruins of Herculaneum, ten beautiful columns of Sienna marble of the Corinthian order, with statuary capitals, and bases, 13 feet high in the shaft, and 18 inches diameter; they were of a pale kind of Sienna with red streaks, and very handsome, but the gallery in which he intended placing them not being finished, they lay till the cases were rotted about them; no person knew their value, and about seventeen years ago the remains of them were purchased from the bishop's heirs for a small sum, by Mr. Alexander, of Portglenon, and I manufactured them into columns and ante for his hall, and chimney-pieces for his house. In examining them I found "masons' marks," I dare say nearly 3,000 years old!!! They must have been about that, or older. It is a fact, known to masons at this day, that in working a column, the mason puts his mark on the front of the head, to denote the handsomest and soundest front, no matter whether it is at a diagonal line or no, and this I found invariably the case.

The marks were generally Greek letters, but on four of them this mark was quite plain, with the addition of the lower score on two of them. The Greek Delta was, I think, on three, and different Greek characters on the rest. I also found patches inserted with cement, the identical kind we use at present, for I had it analyzed, except it being mixed with the reddish part of the Sienna, pounded. The columns were one-third up from the bottom the same diameter as the lower cincture, and were exceedingly well and true worked, the scotia being beautifully hollowed; but a strange fact still I have to relate, that on the ends were the mark of a hack tool. Now, I remember the first introduction of such a tool here about twenty years ago by myself, to work Galway marble, since which it has been used for Slanty stones, and is considered a great improvement, so that the use of it must have been known at that time; in corroboration of this, I read some years ago, I think in the *Lancet*, of a surgeon's shop or house having been discovered in Herculaneum, and on the body of the occupant were his surgical instruments, one of which was a fac-simile of an instrument for which a patent had been secured but a short time ago for cutting in fistula, or some such disorder.

I remain, Sir, Editor,

Your obedient servant,

J. J.

Steam Marble Works, Great Patrick-street,
Belfast, Sept. 18, 1843.

The restoration of York Minster is proceeding in the most satisfactory manner. The expectation is that the whole work will be completed by the next spring.

METHOD OF SILVERING CAST-IRON.

AS PRACTISED BY MAJOR JEWKEINOFF AT ST. PETERSBURGH.

THE combination of iron with carbon (cast-iron) from the ease with which it melts, and the consequent possibility of taking the finest impressions of form, has come into very extensive application. The art of founding converted cast-iron into enormous arches, columns, caissons, and also into the most delicate bracelets, ear-rings, &c. Unfortunately the moist atmosphere very soon alters the surface of these objects, and it is found necessary to coat them with paint, which gives the cast-iron, the colour of which is itself not very attractive, the appearance of mourning. In the present state of the art of founding, cast-iron might easily be substituted for bronze, were it not for its sombre appearance, which entirely excludes it. This disadvantage may, however, be entirely overcome, from the possibility of plating it with silver; in fact, cast-iron may be readily silvered, and equally as well as copper and bronze. Some successful experiments which I have made on this subject, induce me to give a short description of the method which I have employed. The liquid for silvering is prepared in the following manner:—Cyanide of potassium, prepared according to Liebig's method, is introduced into a stoppered vessel, and freshly-prepared pure chloride of silver, still in a moist state, added; the whole being covered with water, and shaken violently for some time at the ordinary temperature. An excess of chloride of silver is taken, and should a small quantity of it remain undissolved, a few pieces more of the cyanide are added after some time, taking care, however, to avoid having an excess of the latter salt, but always a small quantity of undissolved chloride at the bottom of the vessel. This last circumstance is important, because when the liquor contains too much free cyanide of potassium, it is easily decomposed, and, moreover, does not silver so well. Before employing it, it is filtered, and is thus rendered perfectly clear, iron and a little chloride of silver remaining on the filter. I effect the plating by means of a galvanic battery of one pair, consisting of zinc and a coke cylinder, which are separated from each other by means of an earthen diaphragm. The pair are placed in a glass vessel containing dilute sulphuric acid, and dilute nitric acid is conveyed into the earthen diaphragm. Experience has shown me that the best mixture for the coke cylinder should consist of five parts by weight of fine pulverized coke, and eight parts pulverized coal, and two parts common rye flour. When the cylinders are dry, they are placed in earthen crucibles, in the lids of which there is an aperture for the escape of the gases, and are then heated to redness. These cast-iron objects may be most easily silvered which have not been painted, as the removal of the paint from the surface of the metal is somewhat difficult. The cleansed object is immersed in the silver solution, and connected with the zinc pole by means of a conducting wire, and a platinum plate immersed in the liquid at some distance from the object to be silvered, and connected with the coke cylinder. A plate of cast-iron of four square inches surface, is generally completely plated in thirty minutes.—*Bulletin St. Petersburg.*

SUBSTITUTE FOR IRON IN THE MANUFACTURE OF RAILS.—The *Journal des Chemins de fer* says:—"An inventor announces that he has found a composition which will reduce to a mere trifle the price of rails for railroads. He replaces the iron by a combination of Kaolin clay (that used in making pottery and china) with a certain metallic substance, which gives a body so hard, as to wear out iron, without being injured by it in turn. A kiln of this substance would cost less than 15*fr.* and would furnish 2½ metres of rail. The Kaolin is abundant in France, and the valley of the Somme contains immense quantities of it."

LONDON AND ITS EXTENT.—London, which extends its intellectual, if not its topographical identity from Bethnal-green to Turnham-green (seven miles); from Kentish-town to Brixton (seven miles); whose houses are said to number upwards of 200,000 and to occupy twenty square miles of ground, has a population of little less than 2,000,000 of souls rather mouths. Its Leviathan body is composed of nearly 10,000 streets, lanes, alleys, squares, piazzas, terraces, &c.

Correspondence.

"CLASSIC AND CHRISTIAN."

"*At vestri proavi Plautinus et numeros et
Laudavere sales; nimium patienter utrumque,
Ne dicam stultè, mirati; si modo ego, et vos
Scimus inurbatum lepido seponere dicto,
Legitimumque sonum digitis callemus et aure.*"
Horatius, *De Arti Poetica*, 270.

SIR,—One of the curses of our profession is the ease with which a smattering in technicalities is acquired; and the manner in which we are bored by the use of them by quacks and their superficial followers. It seldom, however, happens that these worthies have either time or head-piece enough to acquire any information about more than one style of architecture; this they laud to the very skies, and pour all sorts of contempt upon every other. Thus some time ago the Adam's style was all the rage, and your "men of true taste" would have square and oval tablets, with vases and festoons on them, stuck up everywhere. Then at another emergency everything must be Greek; we had the oneysuekile and toutous at every enrichment; huge, tall, gouty columns at every door; and the lantern of Demosthenes formed the model for every thing it could be tortured into, even down to a cast-iron arish pump.

We are not all deaf, and so cannot do like Sir Joshua Reynolds,

When they talked of their Raphaels, Correggios, and stuff,

He shifted his trumpet, and only took snuff."

But, however, we escape the hearing nonsense, we do not escape it in print.

The current now-a-days is all about "Early English," and "Pseudo-Byzantine," "Gargoyles," and "Lychenoscopes," "Easter Sepulchres," and "Parvases," and, though the churches produced under such auspices (as may be expected) are proudly below contempt, one thing is sure, if the school cannot produce any thing decent, they can advance every thing that has been done before.

Now it requires some ingenuity to attack what is acknowledged to be classic, in either painting, poetry, music, or architecture. An *habitué* of the era, who has not an idea beyond Donizetti or Mercadante, would not like Handel's "Israel in Egypt," or Beethoven's "Symphony in C Minor," but he would be puzzled how to criticise them. However, a bold assumption of taste will do very much. So, about sixty years ago there was a great rage for old ballads, and the "men of true taste" used to exalt "Lord Thomas and fair Elinor" above Virgil and Horace. So, in 1843, brick-and-a-half Gothic is vastly preferred to the Parthenon, or Pantheon, to St. Peter's or St. Paul's; and the *Ecclesiologist* is far better authority than Vitruvius, Plinio, Jones, Wren, or Stuart. Now, among my other vagaries, one of the most extraordinary is to make out that no architecture can be *Christian*, and no *Christian* church can be built in the present day, save and except the aforesaid stock-brick-titch; and we have in No. 33 an indignant letter from Mr. G. R. Lewis (dated at full length) 61, Upper Norton-street, Portland-place, London, in which every body who shall dare to design a church in the classic style. It is true you have seen Mr. G. R. Lewis a gentle rap over the knuckles with your editorial ruler, but perhaps you will oblige me by asking a few questions before you administer, as I hope you will, a little more direct correction to him and his friends.

In what style were the early Christian churches erected before Constantine (for there were many churches built, some of which were demolished, and merely shut up by Severus and Dioclesian)? Were not those churches probably built in the styles as the Temples of Jupiter, Vesta, or Sybil, and were they not nevertheless Christian churches?

Mr. G. R. Lewis tells us that "the words 'classic style' imply the Greek style (!) when the Greeks were Pagans!" Is not the Roman style as well as the Greek? Were not Virgil and Homer as much classic authors, as Homer and Herodotus and Vitruvius as much a classic architect as Callimachus? and was not the classic style used by the Christians many years after both Romans and Greeks ceased to be Pagans?

When Constantine became Christian, did he not immediately erect many Christian churches in (and between twenty and thirty in Constantinople), some of which, as Santa Croce, San Giovanni Laterano, San Paolo fuori le mura, San Lorenzo fuori le mura, &c. &c. are now in existence, and are they not all classic churches?

Is not the principle upon which the first Christian churches were erected not that of the temple, but of the classic Roman Basilica? and is any sort of record of any other style of architecture for many centuries?

Have you not as much right to call the of works

Cyprian and Minucius Felix, of Athanasius and Chrysostom, *Pagan* works, because they are written in Latin and Greek, as to call these Pagan churches upon the dictum, forsooth, that classic is not Christian?

Were not all Christian edifices constructed in the classic style for nearly six centuries?

Were not all Christian edifices constructed in the classic style, or in imitations of it, gradually debased to the Byzantine, Romanesque, and other similar styles, for at least five centuries more?

Was there any building in what Mr. G. R. Lewis is pleased to call the "Christian style" till at least eleven or twelve centuries of the Christian era had rolled away? and is not the former period usually considered that of the primitive or purer church, and the latter era that of corruptions?

Supposing an order given to an architect to build a church as like a primitive Christian church as possible, would it be right to build it in a classic or Gothic style?

And lastly, will you ask Mr. G. R. Lewis by what special inspiration it is, that to him alone it should be reserved to point out the "true principles of designing the house of prayer religiously," and is he not rather unkind to the profession, where so much information is needed, in sternly resolving "not to state the matter over again at this time?"

I am, Mr. Editor, your sincere admirer,
AN OLD-FASHIONED ARCHITECT.
September 26, 1843.

SIR,—There are several little matters upon which I have for some time been thinking of addressing you; should you, therefore, find this, my first communication, to be somewhat of a rambling nature, I must trust to the kindness afterwards hitherto exhibited in your writings to excuse me.

I will first, in all sincerity and candour, state the impression made on my mind by different numbers of THE BUILDER, not by way of criticism, but because I know that in able hands the slightest hints are sometimes worked out so as to produce the greatest benefits.

In your second number I find it stated that, "we have charged ourselves to enter upon the investigation and elucidation of the character and principles of Gothic Architecture." It is now thirty weeks since you thus published your intention, and I have so long waited patiently, in hopes of seeing the promise fulfilled, but now begin to despair (if the elucidation is continued at the same rate as hitherto) of ever living to see it fully carried out. I sincerely trust that you will, as early as you conveniently can, proceed with the work, for I conceive it to be one calculated to be of the greatest service to your readers generally. I find in No. 3 a circular window from the church of St. Owen, and also chimney-shafts from Hampton Court Palace. I should have been much pleased to have seen them accompanied by sections of the ribs, &c., of the window, and plans of the shafts. I think that sections of mouldings from foreign examples would be very useful in comparing the peculiar phases of the Gothic architecture of our continental neighbours, particularly if the date of the erection could be attached.

In No. 5, I find you advocate the establishment of trade guilds. This important subject I hope to see repeatedly pressed upon the notice of all persons in any way connected with building, for I feel confident that it is one which will require your best energies, assisted by those of your most talented contributors, to bring to a successful issue. Would it not be advisable, as early as possible, to lay before your readers a definite plan of procedure, and invite discussion on the different points? Unless something of this kind is done, I fear no beneficial result will be effected.

I now come to a subject (viz. seeking for employment) which I think every well-wisher to his race must thank you for having taken up in the spirit you have done; but I am, at the same time, much surprised that greater advantage has not been taken of your kindness in opening the columns of THE BUILDER to employment-seekers for a display of the peculiar talents they may possess. That there are no persons to whom your benevolent offer would be a benefit I cannot believe. That they are all of the diffident and humble class you allude to in page 83, who fear that their productions are unworthy a niche in the edifice you are erecting, I cannot believe, although I am aware that diffidence is a very general accompaniment of talent, and that the study of the fine arts is one not at all calculated to bring a man to that state in which it is said that "impudence and ignorance go together."—a state which often advances the worldly prosperity of its possessor far beyond that which is to be obtained by the greatest talents when clogged by diffidence. I would, therefore, beg those who are prevented by *mauvaise honte* from availing themselves of the opportunity now presented to them, to cast off at least a portion of it, if possible, and recollect that their talent must not

be laid up in a napkin; and though they be only possessed of one talent, an enlarged, comprehensive, and candid criticism, such as I hope shortly to see on the various designs contained in THE BUILDER, will be one of the best means of adding another to it. We do not expect to receive interest for gold locked up in a coffer. I trust you will not complain of my dwelling so long on this subject, as I can assure you that it is one upon which I write feelingly, having had particular friends of my own who, after in vain seeking for employment for several months, one upwards of eighteen, have at last been compelled to take to an entirely different mode of gaining a livelihood—for where had they an opportunity of exhibiting their talents?—who had they to advocate their cause? I hope and trust that this will no longer be the case, but that all such may long continue to receive the support and advice of THE BUILDER, and that they will strenuously support THE BUILDER in return, though it be merely from gratitude.

In connection with the above subject, I observe a letter from Mr. James Wyllson, Secretary to the B. A. A. D., stating that the society keep a register of those architectural draughtsmen who may be in want of an engagement. From the title British Association, I presume that it is intended to consist of members in all parts of the kingdom; if so, I beg to suggest whether it would not be advantageous to the society, and also to "all whom it may concern," if the association would insert an advertisement in THE BUILDER, comprising the whole of the rules of the association, as I feel confident that many societies of the kind fail from a want of a knowledge of the advantages to be derived from them being made sufficiently public, and few like to become members of a society without first being made acquainted with the laws by which they are to be governed. From the little knowledge to be derived from Mr. Wyllson's letter, it appears to me that the B. A. A. D. is one deserving the support of every member of the profession.

I have been much gratified with the various diagrams that have from time to time appeared, and hope many young members of the profession will perceive the great benefit to be derived from exercising their abilities in this way, recollecting Byron's maid, who

— "taught so well,
That she by teaching learned herself to spell."

I think you would be conferring a great favour upon competing architects if you could publish the approved designs in cases of competition, as I know that many disappointed competitors feel very much disposed to think (and perhaps not altogether without reason) that an undue advantage is sometimes taken of their designs without any acknowledgment. By publishing in THE BUILDER the approved design, the various competitors would have an opportunity of comparing it with their own, and should they find that they have been unfairly treated, I doubt not but your love of justice would allow them an opportunity of placing the two designs in juxtaposition, which mode of proceeding would, I imagine, prove a great check upon all parties engaged, as their conduct would be under the cognizance of the whole of the building world.

I shall now refer to what is perhaps the main cause of my troubling you with this long and hastily-written letter, viz. your Leader in No. 31; I find it there stated, that in Manchester, Liverpool, and doubtless it is the same in a degree in other places, that you found THE BUILDER comparatively unknown. One reason for this, I think, is that a very great majority of those who would be subscribers for the paper obtain their periodicals, &c. from newsmen who generally receive their parcels from London before THE BUILDER is published (at least I am so informed), so that any person who orders the unstamped edition does not get it until it is nearly a week old; I find it so myself; this occasionally takes off part of the interest, for though THE BUILDER is not a newspaper, there is something of the same feeling of expectation attending it, something akin to the feeling we experience on breaking the seal of a long-expected letter; "hope deferred maketh the heart sick;" this may prevent orders from those who would be subscribers, and I think certainly would prevent orders from newsmen for a chance sale. If you could get THE BUILDER ready for the country parcels, in the same manner as other papers, I think good would result therefrom. In the same article I see you propose having provincial editors; I do not exactly understand your plan, whether you would have one in each considerable town, one in each county, or whether you would apportion out districts for each; however it may be, I think that the idea, if well carried out, will be a great means of extending the circulation, usefulness, and interest of THE BUILDER. In this part of the country I should think Birmingham would be a good post for an editor. I am quite aware that you have correspondents in this place, it may therefore appear superfluous in me to

offer my services, but if I can be of the least use in any way, I shall be most happy to do all in my power for the benefit of a paper conducted on the very benevolent and truly philanthropic principles of *THE BUILDER*.

GRATIA DEI SUM QUOD SUM.
Leamington, 30th September, 1843.

STRENGTH, ACTIVITY, AND LOW WAGES!!!

SIR.—In *THE BUILDER* of last week, to my astonishment, I read an advertisement comprising the above-stated qualities, and wages one guinea per week, from a young man who professes to be a joiner seeking employment; but he does not possess the spirit of a joiner, or worthy to be recognized in the society of mechanics.

I have read with pleasure the remarks by you on this class of the building profession, but read with regret the step taken by this young man. I thought it scarcely possible a young man could possess so mean a spirit, a spirit of the worst description, and one that I hope no other will copy as an example, but will treat it with contempt, and not try to reduce the earnings of the industrious by such proceedings. There are masters ever ready to embrace such characters, but I trust they are in general more open to feelings of humanity than to support such principles. If this young man gave it a moment's reflection, his conscience would, I think, have prevented him from adopting this course, which cannot fail of securing him a master. He is possessed of all a master can require, *strength and activity*, (a good recommendation for a *white slave*); such being the case, he drives the mechanic that has served his apprenticeship with honour and credit to his master and himself from his employment, renders him destitute, while around him his family cries for bread. He must then work for the same wages, live on a starving pittance, or spend the remainder of his days in the workhouse or bastille of the present age. I hope to see the time speedily arrive when such characters will be excluded from all society, and both old and young men will support the present rate of wages, not render themselves the slaves of a tyrant, or one who advocates such principles, but stand firmly as men for their rights, and not submit one after another to such base robbery. If you think this deserving a space in *THE BUILDER*, you would oblige a subscriber by inserting it. Thinking it my duty to expose such unmanlike actions of reducing wages,

I remain yours, &c., truly,

TORUS.

[It will be seen by our remarks in another place what we think of the foregoing letter, and the reason for inserting it. We have made no alterations in it, or done any thing to disguise its spirit and character. We prefer the honest avowal of sentiments to any studied or skillful hypocrisies; but for all that, we do not run into the other extreme. We are not in love with avowed viciousness; still, if we see it, we know what we have to deal with, and may have a chance of correcting it.—ED.]

COUNTRY HOUSES OR COTTAGES.

SIR.—In your 32nd No. of *THE BUILDER*, I observe a communication, accompanied with drawings, from a correspondent who signs "Johannes," and as the whole cost of erection was not to exceed 300*l.*, it induced me to pay more than ordinary attention to it, the result of which is that if it could be built for the sum stated, I think no one would ever lay out his money in such a manner. In the first place, the staircase being in the centre of the house, and buildings on each side of the house, there can be no light or ventilation but from a skylight in the roof. The staircase being only six feet wide will not admit of a well-hole, consequently very little light will reach the ground story.

2nd. There are, I observe, two passages, one on each side the parlour; this compels him to carry the fuel from the parlour chimney on an arch over the passage into the side wall.

3rd. If this passage is not to be covered further than the stairs, there must of necessity be a door at that part, so that the kitchen will be detached, and the servant must bring the dinners, &c., through perhaps a heavy rain. If the passage be covered, there will be no light but from the doors, for a length of 36 feet.

4th. The sitting-room has no window (rather an unusual thing), but a door opening into the yard (not at all a pleasant thing). This brings me to the kitchen itself, which is drawn only 7 feet by 9 feet, also without a window.

5th. The closet on the first story for a shower-bath is not more than 2 ft. deep; surely something might have been taken from the W. C. to admit elbow room. (I observe you have marked the plans wrong, the words "First Story" and "Second Story" should change places.)

6th. The bedrooms on the second story also by his plan would be without fire-places.

"Johannes" states that "any suggestions of emendation will be acceptable;" had he offered a premium for a plan containing less comfort, I think there would have been a difficulty in supplying his want. I have been induced to offer these remarks without the slightest wish to offend, but from a sincere desire to see a work (like *THE BUILDER*) which promises to effect a great and lasting benefit carried to its greatest perfection; and I always regret the insertion of articles which cannot have received due consideration.

I now come to the cost. Two houses built in the environs of London, with about the same number of rooms, but not so large, and all under one roof (not detached, as the kitchen, &c. in this instance), executed in the most economical manner, cost above 350*l.* Taking the cube contents of "Johannes" house at the same rate, it will amount to near 520*l.* and it is my firm opinion that a house like the one shewn could not be erected as your correspondent wishes, with stoves, &c., for a much less sum than 520*l.*

Scales are not usually attached to the drawings; it would not be any great trouble to your correspondents, but a great benefit to your readers.

B. E. N.

Marylebone, September 26th, 1843.

DESIGN FOR A SWISS COTTAGE.

SIR.—Will you be kind enough to permit me to speak a few words through your paper to Mr. T. George, of Hendon, in answer to his application to you to request some of your talented subscribers to furnish him with a design for a Swiss cottage.

I must surely be in error if I imagine Mr. George expects such a favour without undertaking to present a compliment in some degree adequate to the advantage he wishes to receive from the professional gentleman whose plan he would be pleased to adopt.

Now, Sir, as nothing of the kind is stated, allow me to suggest to Mr. George, as a gentleman in easy circumstances, who, it appears, can afford such a luxury, whether it would not be consistent with the character of a gentleman to hold out some honorary temptation to the successful competitor, say a silver snuff-box, or something of the kind, and I will venture to say Mr. George will have ample opportunity of selecting from the productions of our young architects a Swiss cottage worthy of his consideration.

I am, Sir, your obedient servant,

CHARLES ALLARD.

Tewkesbury, October 4.

MODELLING WAX.

Your correspondent "L." desires a good modelling wax; I have experienced the following to be excellent:—

1 pound finest white wax, 2 ounces flake white (bladder colour), 2 ounces Venice turpentine if in summer, 4 ounces if in winter. The turpentine to be ground on a stone with a muller, to which add a little vermilion when well ground, to be melted with the wax very slowly, and the flake white added at intervals. Pour out on a marble slate.

Oct. 3, 1843.

NEMO.

IMPROVEMENT AND ENLARGEMENT OF LIVERPOOL.—In all probability, ever since Liverpool was a town, there never were more buildings going on than there are at present. During the last six months, the vacant land in the suburbs has been in great demand, and now, go where we will in the outskirts of the town, we find such numbers of new houses, that if they were all placed together, they would form a tolerably good-sized town. We believe we should be under the mark if we estimated the number at one thousand, which are now in course of erection, or have been built during the last six or eight months. Many of these houses are suitable for persons in the middle ranks, but the majority decidedly consist of cottages. Those of the latter description now in course of erection are all built according to the Act of Parliament, and when formed into courts, they are pretty ample space in front, with two good entrances, which will always secure a thorough ventilation, so long needed in houses of this description in the town. We understand that the present impulse in the building line has been principally caused by the recent Act of Parliament prohibiting cellars, which are too small, or otherwise unfit to live in, from being the dwelling places of the poor, and as vast numbers of the humbler classes have hitherto occupied such unhealthy places, great numbers of houses will be required when the act comes into operation, which will now be in a very brief space of time. In addition to the erection of houses, we have also to state that, during the same period, about a dozen fine warehouses have been erected in the north end of the town alone, exclusive of those erected on the site of the great fire in Formby-street.—*Liverpool Standard*.

LIST OF ENGLISH PATENTS.

(From the Repertory of Patent Inventions.)

[SIX MONTHS FOR ENROLMENT.]

Charles Louis Felix Franchot, of Arundel-street, Middlesex, civil engineer, and Cyprien Marie Tessie du Motay, of the same place, gentleman, for an improved method of connecting and laying pipes or vessels beneath the surface of water, for the purpose of forming therewith tunnels or viaducts for the conveyance of passengers and goods.—Sealed August 31.

George Catlin, of Queen-square, Bloomsbury, artist, for certain improvements in the constructing of vessels for navigation, designed to prevent the loss of life in cases of shipwreck or other accidents at sea.—Sealed September 4.

William Thomas, of Cheapside, merchant, for an improved fastening for wearing apparel, and which may also be applied as a fastening to portmanteaus, bags, boxes, books, and other things.—Sealed September 6. Communication.

Alexander Spears, of Glasgow, merchant, for improvements on or appertaining to glass bottles proper for wines and other liquids.—Sealed September 6. Communication.

Pierre Pelletan, of Fitzroy-square, Middlesex, Esq., for improvements in the production of light.—Sealed September 6.

William Denley, of Hans-place, Sloane-street, Middlesex, bricklayer, for certain improvements in the construction of fire-places, flues, and chimneys.—Sealed September 21.

John Baptist Wickes, of Leicester, framework-knitter, for improvements in machinery employed in the manufacture of framework, knitted, and looped fabrics.—Sealed September 21.

George Robert D'Harcourt, of Argyll-street, Middlesex, gentleman, for improvements in sorting, checking, and delivering letters, newspapers, and other articles.—Sealed September 28.

Miscellaneous.

THE NELSON MONUMENT.—It is now confidently stated that the figure of Nelson will be raised to the top of the column in Trafalgar-square on the 29th of October, the anniversary of the victory of Trafalgar. There will be a grand ceremony on the occasion, at which all the Greenwich pensioners are to be present. It has been suggested that the public should be permitted to inspect the statue some time previous to this day, to enable them to have a just idea of the beautiful workmanship of the artist, for the statue will otherwise be raised beyond the reach of minute criticism.

ANTIQUARIAN RESEARCHES.—Some interesting investigations are now in progress at Richborough Castle, the well-known Roman station, under the direction and at the expense of W. H. Rolfe, Esq., of Sandwich, a gentleman well known for his ardour and research in antiquarian pursuits. It appears that an excavation was commenced in 1822, to investigate the state of a subterranean wall and passage known to exist there, but which was relinquished after some abortive efforts. The work has now been renewed, and Mr. Rolfe states that he set six men to excavate the platform immediately opposite the extremity of the southern arm of the cross and its centre; the platform at this spot extends twenty-four feet beyond the end of the cross. Early in the afternoon the men came to another excavation previously made, in which they descended and explored to a considerable distance a passage along the south and north side of the platform. On the following day they were chiefly employed in clearing away the stones and clay mixed with sand at the south of the excavation upon entering which they found it similar to the one made in 1822, with a wall 12 feet from the under edge of the platform, extending in a northern direction fifty-four feet nine inches, and continuing round to the north side to the distance of thirty work. The extraordinary hardness of the Roman mortar, and the breaking of the tools in consequence, did not in the least dispirit the men, and at the close of the day's work, Mr. Rolfe says, they found they had made an aperture of three feet within the wall, five feet in height, and about the same width. On the following day, they found themselves five feet through the wall at half-past five. Nothing of interest was found in the passage except the under part of a Roman vessel, of which having three legs, probably used for cooking. Some bones also were found. Some marble has been turned up of exquisite whiteness, in large and small fragments, one piece measuring two feet one and a half feet, worked with mouldings, and eighteen inches below the surface, in sinking the shaft on Saturday. A correspondent says, that a subterranean wall in question is about one hundred and twenty feet long, and eighteen feet wide. There are various conjectures as to what may be found inside.—*Canterbury Journal*.

NEW ROYAL EXCHANGE.—The exterior is rapidly approaching completion, the scaffolding having been already removed from the north and south fronts. The portico, which is the distinguishing characteristic of the west front, is now nearly finished, with the exception of the sloping cornice and pediment, which is to be elaborately decorated with sculpture from the chisel of Mr. Westmacott, is expected that before the ensuing spring, the whole area between this front and the Mansion House, now occupied by a cluster of old houses, will have been thrown open, and distinguished by the erection of the Wellington statue, by the late Sir Francis Chantrey. The general masses of the north and south fronts are complete, with the exception of the ornamental carving, and the insertion of the shop fronts and mezzanine windows. The east front is in the same condition with the last, excepting that the cupola or tower has not yet attained its intended height. The old houses in Freeman's Court are now undergoing demolition, and the space will be converted into a wide thoroughfare. The church of St. Benet Fink, at the north end, is to be preserved and adorned with a new west front. The great quadrangle, consisting of two arcades, is completed with the exception of the decorative sculpture, and it is expected that the intentions of the Gresham Committee to open the structure early next summer will be fully realised.

DOVER TERMINUS OF THE SOUTH-EASTERN RAILWAY.—The railway operations at the Haycliff viaduct and Archeliff Fort Tunnel are fast approaching to a "terminus." The timber portion of the viaduct is within a few feet of its entire length, and the range of cliffs in its rear is about to be scraped down to a uniform incline, similar to the cliff at the entrance of Shakespeare Tunnel, the trains passing along the viaduct will be screened on the sprays of the sea by a timber fence or parapet along its side, and on the bottom by the timber platform. The beautifully-finished semicircular arches of the tunnel are completed, but at present blocked up, and concealed by exterior masonry operations. The approach walls at both ends have reached their half height. The brickwork of these works, like that throughout the whole line, is much to be admired, both for soundness and execution; and, in this instance, there are not only the walls of a tunnel, but also those of a fortress, and great security is rendered by their strong and massive masonry, some of them being, we perceive, in great thickness. The levelling of the area for the terminus is going on with spirit. The seaward end is defended by a fence formed of three-inch plank, supported by a row of cast-iron piles driven to the shingle to a depth of 11 or 12 feet. Many remarks have been expressed as to the capability of this fence to resist the action of the sea; but, as its object is to consist of a distribution of groins projecting seaward, and at an angle so as to retain the permanent thickness of shingle seaward of it, no apprehensions of danger from the inroads of the sea at this point are now to be entertained.—*Canterbury Journal*.

COLCHESTER TOWN HALL.—On the 13th ult. Roger Nunn, Esq., Mayor of Colchester, laid the foundation stone of the elegant new Town Hall, which the public spirit of the borough is about to erect on the site of the venerable, but inconvenient, dark and dark edifice which has so long disfigured the principal street of Colchester. At twelve o'clock the corporate authorities, the Masonic Lodges of Colchester, with visitors from all parts of the country, the subscribers, and all who were to take part in the proceedings of the day, assembled in the Castle, where the arrangements were made, and the procession moved towards the site of the building, which is situated near the centre of High-street. The parties having been arranged round the stone, one of the Masonic fraternity presented the Mayor the collection of coins of the present reign, in a glass, which he deposited in the cavity prepared for them; the mortar was then laid on, and another Mason advancing, presented the Chief Magistrate with a beautiful silver trowel, with which the Mayor spread the mortar, and the stone was then lowered to its bed; it is part of the eastern corner of the front of the building, six or eight feet from the ground, and bears this inscription: "This stone was laid by Roger Nunn, Esq., M.D., Mayor, September 13, 1843." An engraving of this building appeared in No. 13 of THE BUILDER.

The Berlin monument, to commemorate the duration of peace for a quarter of a century in Prussia, which the first stone was laid three years ago, and was uncovered on the 3rd of August last. The shaft is a monolith of granite, twenty-two feet high, standing on a pedestal, with a colossal bronze statue of Victory, by Rauch, on its summit. The capital is Corinthian, with eagles on the side, and the whole monument is fifty-eight feet high. The new museum, in the same city, is rapidly advancing towards completion. One large room will be especially devoted to Etrurian art, of which Mr. Maassen has formed a large collection.

NORWICH CATHEDRAL.—Our noble Cathedral has assumed a new appearance; and its spire is converting into an observatory, for the purposes of the trigonometrical survey, now making throughout the kingdom, by order of the Board of Ordnance. A party of surveyors and miners have arrived, and have commenced their works, by carrying a scaffolding up to the top of the spire, whence they will take their observations. The weather-cock is again taken down, and its place will, for the present, be supplied by the instruments, &c. used in the survey. Now that the scaffolding is again replaced, and the nave dismantled, we hope the opportunity of removing the heavy finial recently placed there will not be neglected.—*Norfolk Chronicle*.

COLOGNE CATHEDRAL.—The following remarks respecting the doings at Cologne are from a correspondent:—"Who could pass Cologne, and not look at its cathedral, though for the thousandth time? Now one looks hopefully, for the choir is rapidly approaching completion—the frescos and the gilding being three parts finished, and all the splendid windows cleaned; and the nave, and one of the transepts that are to be, shew emphatic signs of growth. Whatever the result may be, the church is now a hive of workmen. The Freemasons are said to have bound themselves to lay a yearly offering on the shrine of the Three Kings—a journal is published exclusively devoted to the proceedings of the committee; and those who mark from year to year the awakening in action of this noble and earnest people, as testified in their public works, may be excused for dreaming of a day, when the Gothic Cathedral of the world will stand forth in the fulness of all its glory."—*Athenaeum*.

THE ROUND CHURCH AT CAMBRIDGE.—The committee for conducting the restoration of the Church of the Holy Sepulchre have just reported progress. The church is celebrated as the oldest of the four round churches (built in imitation of the Holy Sepulchre at Jerusalem) now remaining in England, having been consecrated in the year 1101. Part of the building fell in 1841, and prompt measures were rendered necessary for its preservation. The walls have been carefully rebuilt with the original materials upon a solid foundation of concrete, the fine western doorway restored, and the windows reduced to their pristine condition, and filled with stained glass, some of which is old, and of the remainder part was executed by Mr. Willement, and part by Mr. Wailes, of Newcastle. Mr. Wailes's glass is superior in warmth and brilliancy of tincture to any specimens of modern art which have fallen under our notice. The circular nave is covered externally by a conical capping of Northamptonshire slate, and internally by a vaulted dome. Encaustic tiles will shortly fill the whole area, and throw back the rich and varied hues which pour down upon them through the tinted glass. The architect's estimate for the completion of the work is 1,206*l*. 10*s*. The amount paid for work already done is 2,311*l*. 2*s*. 7*d*. About 2,000*l*. have been received in subscriptions.

A NEW PAVEMENT.—A newly-invented wood pavement has been laid down opposite the residence of the mayor, in the Rue de l'Ecu. It is a combination of wood and asphalt, possessing seemingly the advantages of both, without the inconvenience of either, being impervious to water, free from danger to horses, and costing 25 per cent. less for carriage roads, and as much as 50 less for foot pavements. Should it answer, we hear it is talked of laying it down from hence to Amiens, and running locomotive carriages upon it. It is the invention of Colonel Sir J. Lilly. The cost is said to be about 5*s*. a yard.—*Boulogne Gazette*.

A CHEAP STUCCO.—One hundred parts of quick lime are to be slaked by degrees, until reduced to the consistence of cream; five parts of white clay, previously diluted with water to a similar consistence, are then to be intimately mixed with the lime, and allowed to stand in a tub or other vessel for twenty-four hours, occasionally stirring it up. Any kind of colour may now be communicated to it; but two parts of yellow ochre added to the mixture is found to give it an agreeable and durable tint. Buildings much exposed to wind and rain, which were covered with this cement, were not in the least injured at the expiration of two years.

It is remarkable that the preparation of iron, called steel, may either be soft, like pure iron, or by being heated and suddenly cooled, in the process called tempering, may become nearly as hard as the diamond. The discovery of this fact is perhaps second in importance to few discoveries which man has made; for it has given him all the edge-tools and cutting-instruments by which he now moulds every other substance to his wishes. A savage will work for twelve months, with fire and sharp stones, to fell a great tree and to give it the shape of a canoe, where a modern carpenter, with his tools, could accomplish the object in a day or two.

MANOR HOUSE, WORKSOP.—This noble building being under sentence of demolition, the work of destruction is now proceeding rapidly; for some time a number of workmen have been engaged in razing it to the ground, but so substantial is the masonry, and compact the building, it is with the greatest difficulty that the men are enabled to proceed in their work. A portion of the north side of the house, together with the entrance and flag-stone surrounding the base of the building, is entirely removed and taken away. On the south side adjoining the noble staircase, where the walls are of an immense thickness, attempts have been made during the past week to blow up that portion of the building with gunpowder, but owing to the immense weight and strength of the walls, it did not succeed, to the disappointment of numbers of spectators, including several noblemen and gentlemen from the neighbourhood, who had assembled to witness the operation. On a succeeding day another attempt was made with more success, when a considerable portion of the wall was levelled with the ground, but not near to so great an extent as was anticipated. With the exception of that portion of the house adjoining the quadrangle, the whole of this once magnificent building is doomed to utter destruction.—*Doncaster Gazette*.

The new church of St. Luke, in the vicinity of the Great Western Cotton Works, Bristol, was consecrated last week. The church of St. Luke is designed after and intended to resemble in style those of the 13th century, in which more detail and ornament can be dispensed with than in any other style. The tower rises about 100 feet from the ground. The interior is 100 feet long and 46 feet broad, and provides free sittings for 750 persons, and 40 in private pews; and in the west gallery there is accommodation for 250 children; making in the aggregate number, 1026. The floor of the church is supported on brick arches, turned upon strong cast-iron girders, and under the church are spacious schools for 700 children, with rooms for schoolmaster and mistress, and large committee-room, together with convenient offices, and a plentiful supply of water. The cost of erecting the church, including warm stove, iron railing and gates, boundary walls, &c., will amount to about 2,700*l*.

Hereford Cathedral is now fast proceeding under the hands of its restorers; a large number of masons are employed upon it.

EXTRAORDINARY BRIDGE.—We read, in a letter from Venice:—"The construction of the bridge, which is to connect this city with the main land, is urged on with great activity. Of 34 arches, which it is to have, 20 are already terminated, and, to all appearances, this gigantic monument will be entirely finished before the end of next year."

An experiment of a novel character is now in progress on the King's Bastion, Portsmouth, in which materials of very opposite natures will be tested, both as regards utility and economy, under circumstances precisely similar. By direction of the Ordnance Department, a gun platform, about 120 feet long, and about 20 feet wide, has been divided into four equal compartments, on the first of which is laid a thick and apparently firm sheet of Bastenne asphaltum; on the second a superstratum of well-seasoned Purbeck stone, newly faced and fitted; on the third, a specimen of wood paving, patented by Mr. John Perring; and on the fourth, a solid flag pavement of granite. Excepting their singular juxtaposition in such a place, there is nothing peculiar in the construction of three out of these four competitive platforms; but in the other, the specimen of wood paving, there is something new, and is assumed to be peculiarly applicable for the purpose intended. This wood paving has been laid down under the inspection of the superintendent to the London Wood Paving Company, and is formed of blocks six inches deep, with surfaces six inches by three, so cut that all of them incline towards the parapet and present the vertical grain of the wood to the recoil of the gun. The blocks are doweled together in an entire mass, upon the most perfect bonding principle, and are made of Scotch fir, which, after having been cut to the requisite form, has been saturated with chloride of zinc, as a preservative, according to the system patented by Sir W. Burnett, and now so extensively used in the Royal Dockyards. The figures and proportions of the blocks, as well as the mode of connecting them, differ very materially from the Count de Lisle's wood paving, and the surface is quite uniform. The comparison of cost is, of course, a question of some consideration; but this, we understand, is pretty well ascertained, the asphaltum and wood paving being about equal, the Purbeck stone some 40 per cent. dearer, and the granite more than twice the cost of the Purbeck. That consideration, however, should merge into the more important one of relative resistance to wear and tear, and violent percussion, and of safety in action. In the latter case, at least, the wooden platform must be preferable.—*Plymouth Times*.

WINDOWS.—In order to light a room cheerfully, the windows should be brought down as low as the nature of the occupation of the room will allow, and be carried up as high, nearly, as the cornice. None of the sashes should be fixed; and particularly all the upper sashes should be made to open, as the confined air is more speedily and effectually expelled by opening the upper than the lower sashes; and, therefore, in sleeping rooms the upper sashes should be opened every fine day throughout the year. The air, in a room where the windows are opened, and not the door, is changed by the external air entering by the window, and mixing with and expelling a portion of the air of the room. This admixture will be slow or rapid, according to the difference of temperature between the air of the room and the external air. If there were no difference whatever, no change would take place, but there is always a difference, more or less; and, as this difference is greatest near the ceiling of a room, in consequence of heated air always ascending, there is a more ready escape of the heated air, and a greater admission of the external air to supply its place, when the upper sashes are opened than when the lower ones are. Supposing the lower sashes only to be opened, and that there were some degrees of difference between the temperature of the internal and the external air, the latter would still enter, expel a portion of the former, and mix with the remainder; but the process would not go on with nearly so much rapidity as when the upper sashes were opened. Unfortunately, in houses occupied by the poor, the upper sashes are seldom hung; and the close, unwholesome air is therefore never effectually dispersed, even when the windows are opened.—*London.*

ROMAN POTTERY DISCOVERED AT NORWICH.—A number of Roman cinerary urns have lately been discovered in the foundation of an old wall, upon the estates of Mr. Browne, in Ber-street, and one of them has been presented to our museum. They are found embedded in mortar, flint, and sand, of which the wall is composed, and are placed in a sloping direction, the mouth being upwards; they are all circular or bowl-shaped at the bottom, and appear to have been exposed to the action of fire, which is to be traced on all of them at the bottom and side; they contained sand and earth. The remains of this wall are within a foot of the surface, and a large number of fragments of urns were found in uncovering the spot. The situation corresponds with the site of a building mentioned in Blomefield's History of Norwich, p. 586, called "Blacks Hall, so called from William Blackmore, its owner in Edward the Third's time." A silver coin of David Bruce, King of Scotland, about that period, was found near this spot.—*Cambridge Chronicle.*

NOTICES.

TO OUR READERS.

We beg to announce that having made arrangements for an interchange of good offices with a friend in Paris, we shall be happy to promote the inquiries and business of our readers in that city. We propose to establish the same description of agency with the other principal cities on the Continent for the benefit of our undertaking, and for that of our friends.

TO OUR CORRESPONDENTS.

"Mr. Brodum Jones" refers to our remarks on Stead's Wood-paving in No. 32. Surely he cannot have read them attentively. We then and there expressed our opinion as to the merit of Mr. Finlayson's plan. Had Mr. Finlayson gone a few steps farther—had he done that which Mr. Stead did in bringing wood-pavements into public use, and for the public benefit—had he spent his money, devoted his time, risked his all in proof of his confidence in the superiority of wood-pavements, he would have deserved, and no doubt obtained, the protection which the public gives in return for such devotion to its interests—a fourteen years' patent; but he did no such thing, and we dare say (if living) is very well content with his reward; the being pointed to as one who told a sagacious public what would be for its benefit years before it would adopt it—and only adopted after another's life and fortune had been as it were laid down with the wood-pavement, and which life and fortune, it would seem, there are many disposed to consign to the same uses as the wood-pavement itself, to be ridden over and trodden under foot.

"Mr. Hawley."—His proffered favour will be greatly esteemed, as is his present.

"S. M. A."—We have applied for the information, and if it arrive, shall give it in our next number.

"Mr. Bernhardt."—His letter in reply to "T. H. C." is too long for insertion, and is little better than personal. There must be a limit; he complains of the abusive manner of "T. H. C.,"

but does not mend the matter by indulging in the same strain. If "T. H. C." has done Mr. Bernhardt an injustice, we do not see how mere railing will alter the case. There is a better revenge, which the man on the right side can always safely take.

"A. W."—We will bring the subject of his note forward.

"Mr. Clark."—We are greatly pleased to have his approbation.

"Country Bills and Country Builders."—J. L. C., who supplied the article under this head, writes to us in the most handsome manner to disclaim every intention or feeling of disrespect towards Country Builders. He is in fact quite concerned that his writing should have been construed into any thing of the sort. He vindicates himself as to the authenticity of the Blacksmith's Bill, and says there was another item which he had intended to have inserted, namely, "To ironing a well bucket." He thanks a West Countryman for the correction in the matter of the word "boitel."

"A Subscriber" enquires as to the best mode of preparing for and laying colour on parchment.

"S. M. V., Bristol."—We thank him, and beg to refer him to No. 32 for the way in which we met the matter.

"G. S." enquires as to the name of the painter employed in St. James's Palace, which he says is undergoing a thorough repair.

"W. W."—His plans under consideration.

"The British Museum."—"Bloombsuriensis."—We really cannot be a party to his self-exposure. The sentiment at the end of his letter would be disgraceful if it were serious—but we are sure it is not so; good sense like his cannot accompany such an outburst of ill-nature. Sir Robert Smirke deserves far differently of his contemporaries.

"Baptismal Fonts."—The first number of this truly beautiful and interesting work (price 2s. 6d.) is to hand; there are 16 drawings of fonts, supplied by various hands and from various districts, varying each of them also very largely in character. This is a work that was very much wanted, and now that it is produced, it is all that we could wish.

We beg to inform our correspondents that all letters addressed to the Editor must be post-paid.

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification of which they may choose to avail themselves.

YORK AND NORTH MIDLAND RAILWAY.—Tenders for the supply of 5,000 tons iron rails; also 1,500 tons of iron chairs.—Company's Office, York. October 25.

Erecting a church in York-street, Lambeth.—Mr. Rogers, architect.—Palace Chambers, Lambeth. October 10, 1843.

Wood-Paving, parish of St. Mary-le-Strand, 1,000 yards.—Mr. Henry Cadogan, Surveyor, 5, New Church-court, Strand. Oct. 12.

Lighting with gas, naphtha, oil, or any other material.—Kentish Town. Oct. 13.

Granite Curbing, parish of St. John, Hackney, 1,250 yards.—C. H. Bulley, Clerk. October 12, 1843.

Repairing Turnpike Roads, Bridgewater.—T. Symes, Clerk. October 20.

Making a Sewer, Cambridge.—F. Randall, Clerk. October 10.

Tenders for building a sewer in Back Gravel-lane and Stoney-lane, in the city of London. Sewers Office, Guildhall. October 10.

Tenders for erecting a Workhouse for the Sevenoaks Union.—Mr. Carnell, Clerk to the Guardians, Sevenoaks. November 1.

COMPETITIONS.

Plan for a Pier at Hythe, near Southampton, 20l.—Mr. Moberly, 29, Portland-street, Southampton, Oct. 7.

Design for a testimonial to the late G. Clendinning, Esq., to be executed at Westport, at a price of 800 guineas.—Dr. Dillon, Infirmary, Castlebar, Mayo, 20 guineas, Jan. 1, 1844.

Premium of a gold medal or money for the best mode of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

Tenders.

SIR,—Being a constant reader of your excellent journal, I take the liberty of sending you the amounts of tenders for repairs and alterations at the Armoury House of the Honourable Artillery Company.—Mr. C. F. Malthy, architect. October 3, 1843.

Morland	£1,399	0	0
Haynes and Co.	1,426	0	0
Cubitt and Co.	1,456	0	0
Burton	1,495	15	0
Ashby	1,538	0	0
Pearse and Guerrier....	1,573	0	0
Bridger	1,573	0	0
Hicks	1,690	0	0

The above tenders were delivered on Monday evening, the 2nd instant, when the same disagreeable system of opening the tenders in a private room was had recourse to, and which was so justly repudiated by you in last week's journal.

Your insertion of the above amounts will greatly oblige,

Your very obedient servant,

T. M. O.

TENDERS delivered for the Bromley Union in Kent.—Messrs. Whichcord and Walker, architects.

Kempster	£5,826
Cooper and Davis	5,957
Gerry	6,076
Robson and Eslie	6,320
Gooche	6,320
Curtis and Son	6,384
Milstead	6,400
Constable	6,879
Smith and Son	7,000
Townsend	7,135

TENDERS for the new Custom-house, &c., Ipswich, as received after deducting sums allowed for old materials:—

Rivett and Backhouse	£6,201
W. N. Faires	5,850
George Ellis	5,550
Samuel Baldiston	4,885
G. Mason	4,679
Bennet and Wight	4,564
Ribbons	4,300
J. A. Pettitt	4,250
A. Lockwood	4,242

ADVERTISEMENTS.

ROYAL ADELAIDE GALLERY, LOWTHER ARCADE, STRAND.—Open Daily from Eleven to Five o'Clock, and from Seven to Half-past Ten every Evening. This splendid Exhibition contains upwards of Three Thousand Models of MACHINERY, STEAM-BOATS, RAILROADS, SCULPTURES, PAINTINGS, &c., COLOSSAL BURNING LENS, 3 feet in diameter, THE HERCULEAN PLATE MACHINE, the Largest in the World, constructed for his late Majesty George IV., when Prince of Wales, at a cost of One thousand Guineas. THE ELECTRO-MAGNETIC CARRIAGE running round its Railroad. THE OXY-HYDROGEN MICROSCOPE. Magnificent TRANSPARENT DISSOLVING VIEWS. Popular Lectures. Performances of the Infant THALIA. Grand CONCERT, Vocal and Instrumental, &c. &c. Admission, One Shilling. LAUGHING GAS every Tuesday, Thursday, and Saturday Evening at Half-past Nine o'Clock. STEAM GUN daily at half-past Three.

A. M. PERKINS'S PATENT HOT-WATER APPARATUS, FOR WARMING AND VENTILATING.

FOR the successful operation of the above Plan, references may be made to the British Museum, the Chapels Royal, Whitehall and St. James's, Marlborough House and Windsor Court, the residences of her Majesty the Queen Dowager, his Grace the Archbishop of Canterbury's Palaces at Lambeth and Addington; his Grace the Duke of Beaufort's at Badminton; his Grace the Duke of Wellington's at Stratfieldsaye; his Grace the Duke of Hamilton's Palace at Hamilton; the Lord Chancellor's and Vice-Chancellor's Courts at Westminster and Lincoln's Inn; the Insolvent Debtors' Court; the Old Bailey Sessions House; School of Design and Titles Commissioners' Office, Somerset House; Register of Designs and Record-office; Lincoln's Inn and Gray's Inn Chapels; Inner Temple Hall; County Fire-office; Register Office and Judiciary Courts, Edinburgh; Charles Babbage's, Esq., Dorset-street, Manchester-square and many other Private Residences, Public Buildings, Churches, Hospitals, Lunatic Asylums, Union Poor Houses, Prisons, Hothouses, Conservatories, &c. &c. Manufacture, No. 6, Francis-street, Gray's-inn-road.

THE BUILDER,

NO. XXXVI.

SATURDAY, OCTOBER 14, 1848.

ON THE PUBLIC HEALTH.

WHATEVER in the science and practice of construction bears upon the public health must be regarded as the most important parts of those subjects, and must deserve no small amount of attention in such a journal as *THE BUILDER*. Accordingly, under the above head, we intend to present our readers from time to time with remarks on the leading topics relating to the connection and influence of the constructive arts upon the health of the community.

In an article in our 29th Number, we pointed out the necessity for casinos in our public parks, in order to render them more attractive places of public resort, and consequently to diffuse more widely the benefits of pure air and exercise—the requisites, after wholesome food, the most indispensable to health. We propose, in the following remarks, to pursue the subject of fresh air, &c., by shewing the necessity for improvements in the ordinary method of building houses, &c., in order that the vital element may be enjoyed at home as well as in the open air of our parks and streets. Our task in this matter is rendered comparatively easy by the work which we repeatedly quoted in our article above referred to, viz. Mr. Harrison Curtis's "Simplicity of Living," from which we shall proceed to make a series of extracts, making out such observations of our own as may seem to be necessary:—

"In the construction of houses and public buildings, there is for the most part, but little care taken to provide for due ventilation, which is capable of being regulated on the strictest scientific principles.* Who has not experienced the ill effects of this neglect, in headaches, flushings, languor, and debility, incurred by attending meetings of large numbers of persons? These evils are caused by the inhalation of air from which much of the oxygen has been abstracted, and which has thus become unfit for the purposes of respiration.

"Many persons exhibit a great deal of anxiety to make their houses and rooms air-tight; stopping up every crevice with sand-bags, chimney-boards, and other devices of the same kind, with as much care as if they were endeavouring to exclude some fatal malaria. It is true that drafts are to be avoided; and I would not recommend any one to occupy a house constructed on the plan lauded in the old Irish maxim,—that a house cannot be healthy unless there is room for a bird to fly in at the windows, and for a dog to creep under the doors; yet it is scarcely less improper to prevent altogether the gradual but constant renewal of the air of our apartments.

"It is sincerely to be hoped that more attention will be paid to this subject, and that provision for perfect ventilation will not in future be overlooked by the architects either of private or public buildings. Meantime, persons of delicate health, especially those whose lungs are weak, ought to beware of frequenting numerous and crowded assemblies: the theatre, the ball-room, and other fashionable places of resort, have destroyed many a victim.

"A German writer has remarked, that persons who constantly frequent theatres never live long; and it has been noticed that members of the House of Commons who have been very attentive to their duties have seldom been long-lived: there can be no doubt that the bad air of the House contributed to shorten their lives. And what can be worse than many of the modern club-houses? which, what with the number of water-closets, the smells from the cooking and lamps (often unnecessarily numerous), the crowded state of the apartments, and the "aroma" of the members themselves,—are any thing but wholesome. Yet few attempts are made

to remedy this evil by a proper regard to ventilation. Since the publication of this work, considerable attention has been paid to the ventilation of the House of Commons, and a variety of experiments made, which, it is to be hoped, will result in the adoption of some plan that will effectually remedy the evils above alluded to.

"It is still a common practice to surround the bed with heavy close-drawn curtains, as if for the express purpose of confining the impure air around the sleeper; and as in many bed-rooms (frequently the smallest in the house) the usual channels of ventilation, such as chimneys, &c., are wanting, and the doors continue closed for several hours together, it is not surprising that the atmosphere of these rooms should become much vitiated; which is probably the chief cause of the languor and drowsiness experienced by many persons on first rising, instead of that buoyant cheerfulness which should be the result of rest and sleep.

"Care should be taken to provide for the constant admission of fresh air into sleeping apartments, which, instead of being the smallest, ought, in reason, to be the largest rooms of the house. At all events, during the day-time they ought to be perfectly ventilated. Perhaps nothing tends more to produce disease among the poorer classes of society than the practice of occupying the sleeping apartments throughout the day—a practice which must effectually prevent the complete renovation of the air, with them the more necessary on account of the confined situations of their dwellings. The custom of keeping dogs and large birds, such as parrots, in dwelling-houses, frequently causes the vitiation of the air to such an extent, as to render it exceedingly unwholesome and unpleasant.

"Oxygen is indispensable to combustion; so that the effect of fires (especially if coke or charcoal is used), candles or gas-lights, upon the air is precisely the same as that of respiration, but in a greater degree. Where they are used, therefore, attention to ventilation is still more important; express provision ought to be made to carry off directly the impure air which they so plentifully generate."

With these remarks we need hardly say that we perfectly agree, as we have more than once insisted upon the imperative necessity for improvements in the ventilation of houses, especially those inhabited by the poorer classes. Any one who has ever visited the abodes of the labouring classes in such districts as Westminster or Bethnal-green, will certainly admit that in them "the vitiation of the air exists to such an extent, as to render it exceedingly unwholesome and unpleasant," the great wonder being how it is possible to exist in such an atmosphere at all—and the sickly, pallid countenances of the unfortunate children born and bred in such localities prove painfully the noxious influence of living deprived of fresh air. To the suggestions of our author we would add one for the bestowal of greater care upon the construction of chimneys, many houses being made scarcely habitable through defects in this matter: the smoke is bad enough even when diluted to the extent it is in the open air, but when inhaled in the state of density in which it is often found in houses, it must be positively injurious.

Light and air are so intimately connected, that we may naturally pass from the latter subject to the former. The arrangements for the supply of light, especially to workshops, counting-houses, offices, &c., are sadly deficient, and allow only such a modicum to enter as is absolutely necessary to enable the various processes to be carried on, so that in the winter season artificial light has to be employed much longer than would otherwise be required, and this, as shewn in the above extract, of itself is an evil as tending to deteriorate the air. The following passage from Mr. Curtis will shew, however, that this is not the only evil arising from shutting out the light of heaven:—

"That light exercises a great and beneficial influence on the body, may be inferred from the ruddy, fresh-coloured complexions of those who live in the country, and engage in agricultural occupations, compared with the dull, sallow countenances of miners, criminals confined in dark dungeons, and other persons long secluded from the

solar beams; the effect is the same in kind on those who reside in narrow, lofty streets. The complexion depends upon the condition of the blood; and it is well known that light co-operates with the oxygen to communicate to the blood its scarlet hue."

It is of no use, however, to make plenty of windows if the light be prevented from entering them by trees planted close before them, or by thick blinds kept constantly drawn down. We have often wondered how any one could voluntarily deprive himself of the most cheerful of nature's gifts, the warm sun-shine, which alone is sufficient to inspire the mind with joy and confidence, and in that way cannot but contribute largely to the preservation of health.

Here for the present we must stop, but the paramount importance of the subject will induce us soon to return to it, and to treat of its other branches; and such has of late been the awakening of attention to whatever affects the public health, that we are sure of not tiring our readers while pointing out the sanatory measures which we conceive the interests of the community demand.

BEAMS TRUSSED BY TENSION.

It is with some gratification that we advert to a series of plans which have been submitted to us of the patent tensions now offered to the public; these are for bearings of 40 feet and upwards, 30 feet and 20 feet without any intermediate support between their respective ends. The principle is that of adapting continuous wrought-iron bars for the whole lengths of beams, with mortices at regular distances of about 5 feet each, to correspond nearly with similar mortices in the beams, so arranged as that by the operation of keys or wedges the lower sides of the beams may be acted upon so as to produce as much tension as the bars will reasonably admit of, the situation of the bars being as much below the centre of the beam or neutral axis as will suffice for holding the keys.

We are aware that iron and timber so keyed up are capable of sustaining great weights between the fulcrum or supports, and we believe that the adaptation of these materials, as above described, may lead the tension principle into general practice, because beams of timber are easily placed in their intended positions, either with or without the bars, which can be applied when the beams are up, and that the bars and keys can be placed and made to act upon sunken girders and other timbers in existing buildings. As to ships, the advantage of adding tension to transverse beams must be great, because a moderate depth of timber can be made available; besides, a beam so contrived will neither have the weight or be so fragile as cast-iron girders, and be nearly of double strength, especially against sudden impulses; we therefore consider that this invention will greatly benefit the marine.

The numerous employments, however, besides ship-building, in which long and strong bearings are required, induce us to allude more particularly to this invention or application of the tension principle. We observe that the points of force produced by the keys are at a moderate distance (about 5 feet) from each other, all acting in opposition from the middle of the beam, and straining the iron bar and the lower side of it, compressing it at the same time, and thus expanding the upper side into a cambering form. We conclude that all the keys should be driven serially gently from the centre each way to the ends of the beam, in order to give a due tension progressively throughout the lower side.

It appears to us that the stronger in the grain the timber is, the greater the tension which can be applied; and with respect to the iron, it is evidently of great importance that it shall be of the best quality, and of a proper and sufficient degree of ductility, because if it too readily yields to the strain, its operation will be less efficacious than if acted upon according to the power of resistance which the timber may possess.

* This observation is especially applicable in London, at least to the theatres, in which it frequently happens that in warm weather nearly all the windows are closed, and in cold weather open. It would be useful to have thermometers hung in various parts of the theatres for the purpose of regulating the temperature.

THE GLASS MANUFACTURE.

(Continued from our last.)

Our preceding remarks were intended to shew that glass-making is of a period anterior to that usually assigned; and, indeed, so remote, that we are left to draw our own inferences from the position and circumstances under which certain specimens of ancient manufacture have been found; it is, however, of *Window Glass*, the introduction of that material, and the various useful and decorative applications of it to buildings, that we are principally to treat.

The Greek and Roman histories make no mention of window glass; the *lapis specularis* of the latter people served a similar purpose, and, there is no question, was the *Talc* of modern mineralogists; they also probably made use of native crystal for glazing, but to a very limited extent, and only in the palaces of the inordinately rich.

The first allusion to glass windows is by St. Jerome, A.D. 422; and little more than a century later the church of St. Sophia, Constantinople, had them. The venerable *Bede* mentions the rebuilding of the abbey and church of Wearmouth, in the year 674, and states that the abbot, *Benedict*, brought over from France, among other artificers, some skilled in making glass, to be used in the new erections; other authorities ascribe the introduction to Bishop Wilfred, who died in 711, but it may be collected that between these periods lies the accurate date. These notices relate to common glass; the coloured material we purpose speaking of separately. Pursuing, then, our researches as to the progress made in the introduction of glass windows into the dwelling-houses of England, we gather much curious and authentic information from the old chronicles of *Hollinshed* and *Harrison*; it is, however, evident that for many centuries the use of glass was confined to churches, and a very few of the mansions of the nobility. The latter authority, who wrote in 1584, says, "Of old our country houses, instead of glass, did much use *lattice*, and that made either of wicker or fine rafts of oak, in chequerwise; I read, also, that of the better sort did make panels of horn instead of glass, and fixed them in wooden *casements* (casements); but as horn in windows is now quite laid down in every place, so our lattices are also grown into disuse, because glass is become to be so plentiful, and within very little so *good cheap*, if not better than the other. In the forementioned old time the houses of our princes and noblemen were often glazed with *Beryl*, or fine chrysal; an example whereof is yet to be seen in Sudley Castle, but this especially in the time of the Romans, whereof fragments have been taken up in old ruins; but now these are not in use, so that only the *dearest glass* is most esteemed, for we have divers sorts from abroad; but English, if made with diligence, would be so good as the best." As a set-off against the plentifulness of glass indicated by *Harrison*, the following extract from the *Northumberland Household Book* shews that although it may have been currently used in towns, glass was still considered a costly appendage to the country seats and residences, even of the great; the entry in this family record relates to a survey of Alnwick Castle, taken in 1573, and states "That because of extreme winds, the glass of the windows of this and other of my lord's castles and houses doth decay and waste, it was good the whole lights of every window were taken down and laid up in safety, at the departure of his lordship from lying at any of his said castles, and the same might then be set up of new at small charges (when required); whereas now the decay thereof shall be very costly." The above is certainly as curious a specimen of proposed economy as any we have met with, but considering the then expense of glazing, together with the difficulty of procuring the services of a glazier, we are inclined to think it may have been a practice to take out and treasure up the casements of a mansion in the absence of its owner; though, perhaps, suggested to the rich and puissant Earl of Northumberland for the first time in 1573.

The making of window glass had no doubt been long practised here, but imperfectly, and at intervals; the regular manufacture travelled from the staple mart in the Venetian States, through France, where a rivalry with the Italians was first attempted and highly enco-

raged, and became firmly established in Crutched Friars, London, in 1557, but not without exciting much popular discontent. *Harrison*, whom we have previously quoted, and who wrote within twenty years of the time, says in his chapter "Of the metals to be had in our own land," "the smelting of iron breedeth great expense and waste of wood, as doth the making of our pots and table vessels of glass, wherein is much loss, sith it is so quickly broken;" and this opinion spread to so great an extent, that the destruction of the glass houses was contemplated; and, indeed, on the 4th of September, 1575, the large glass house in Crutched Friars was destroyed by fire, not without strong suspicion of incendiarism. Of this event *Harrison* says, "this house of Crossed Friars had a small time before consumed a great quantity of wood, by making of fine drinking glasses, and yet had within it forty thousand billets of wood, which was all burned to the stone walls; which walls greatly defended the fire from spreading further." He laments also the growing predilection for glass ware in these words: "It is a world to see in these our days, wherein gold and silver aboundeth, how our gentility, as loathing these metals because of their plenty, do choose rather of the Venice glasses both for our wine and beer, than any of these metals, or stone, wherein before time we have drank. But such is the nature of man, that he coveteth things difficult to be attained, and so esteemeth this stuff, that many become rich with trade into *Murana* near Venice, from whence the very best is daily to be had; such as for beauty do match the chrysal, or the ancient *Marrhina Vasa*, whereof now no man hath knowledge. In the wealthy commonality the like desire for glass is not neglected, and the poorest will have glass if they may; but sith the Venetian is too dear for them, they content themselves with such as are made at home of *fern* and *burned stone*; but, in fine, all go one way, that is to shreds at last; and their pieces do turn unto no profit."

The premises at Crutched Friars were, however, speedily re-established, and the art of window-glass making gradually spread to other localities, but the parent site retained for a long time its character for producing the best qualities. Wood continued to be used as fuel for smelting until about the year 1619, when Sir R. Mansell discovered a method of making glass with coal, and obtained a proclamation to be issued by James I. prohibiting thenceforth the use of wood, which had the effect of establishing a monopoly in the inventor; and, in fact, Mansell subsequently procured a patent right for a very long term of years. In 1635 Charles I. confirmed the patent, and prohibited the importation of foreign glass, otherwise than through the agency of the patentee, for special purposes, such as the use of the court and nobility. The earliest *flint glass* made in England was at the Savoy House, Strand; and the first *plate* for looking-glasses, coach windows, and similar purposes, was made at Lambeth by Venetian workmen brought over in 1670 by the Duke of Buckingham.

The colouring of glass, that is imparting various tints throughout its substance, has been noticed as originating at a period beyond the reach of investigation, but the application of this branch of the art to decorative purposes is much more recent, most authorities agreeing to place it about the close of the eighth century; when the universality of the Church of Rome, and the religious feeling of mankind, stimulated the erection of numerous ecclesiastical edifices upon a vast and magnificent scale. The earliest specimens of stained glass are of the description called *pot-metal*, the entire pot, or make of glass, being coloured previous to its being blown, or cast into sheets for glazing, and differing, therefore, from the modern art of staining several colours upon the same breadth of glass. It is by no means certain at what date coloured glazing, with home manufacture, came into use, but it is supposed to have been in the reign of John, about 1208, previous to which the material was wholly imported from Venice and the Italian states. The next authentic mention of coloured glazing is in the reign of Henry III. (who succeeded John in 1216), in a command to his treasurer for the painting of three windows in the chapel of St. John, the first with a *little* Virgin Mary holding the child, a

second of the Trinity, and a third of St. John the Apostle. From this time, and throughout the fourteenth and fifteenth centuries, the art was in great requisition as an indispensable auxiliary to the splendour of the pointed style of Gothic architecture; native talent shone forth, and remains of it in the halls and chapels of our universities, and many of our cathedrals, attest the proficiency attained. The abbey and monasteries also, no doubt, exhibited this species of decoration to an extent and perfection of which we have but very inadequate ideas. There is a contract still extant entered into by the authorities of York Cathedral in 1388, which shews the trade of a glazier to have been then an established one; in this instance he undertakes to perform his work at the rate of sixpence per foot for white glass, and one shilling for coloured. A little later (in the reign of Henry IV.) there is a contract entered into by the same parties with John Thornton, glazier of Coventry, for putting up the eastern window of York Cathedral, which he undertakes to complete in three years, receiving four shillings per week as wages, a gratuity of 100 shillings at the end of each year, and ten pounds upon full completion of the work to the satisfaction of his employers. In this case it is likely the coloured glass was imported at the charge of the clergy.

We have seen another curious document dated in 1439, which goes to shew that English coloured glass was not then greatly esteemed; it is a contract between the Countess of Warwick and John Pruddi, glazier of Westminster, the stipulation between the parties being that in glazing a magnificent tomb to be erected for her late husband (probably one of the mortuary chapels of the period) the tradesman shall use no glass of England, but glass from beyond seas. There is, however, reason to believe, that the art progressed rapidly, until the Reformation put an end to what was termed ungodly ostentation, and idolatrous display, and at the close of the reign of Elizabeth it had nearly disappeared. A revival towards the middle of the seventeenth century produced Isaac Oliver and William Price, who were eminent in the very limited sphere allotted to their talent. After the death of the former, Price was for many years the only glass painter in the country. He is said towards the close of his life to have discovered a method of readily staining a clear, bright, and transparent red, the most difficult and expensive colour to strike, but this desirable secret died with him. Price was succeeded by a person at Birmingham, who, in 1577, fitted up a window for Lord Lyttleton, in the church of Hagley. Subsequently Peckitt, of York, attained to great repute in the art.

The ancient mode of combining coloured glass to form pictures for the adornment of church architecture, was very peculiar. The pieces were generally small, and held together by a vein of lead, run upon the back of the joinings; the conception of the subjects chosen is quaint, and stiffly executed; and in ornamental borders there is great absence of variety; yet the scanty remains of these pictorial representations never fail to awaken a kind of veneration, though artistic defects are strikingly apparent. It would seem that this congenial ornament, like the style that originated it, had peculiarities of application which invariably suffer when modern innovation is attempted to be engrafted upon it. Harmony of colour, which the ancients appear to have arrived at almost intuitively in this branch of art, has much to do with the effect we admire. The mosaic-like work to which they limited themselves, or were confined to by the dimensions of the glass, and the avoidance of broad masses of strong colour, contribute also materially to the same end. The style and manner of the period of which we have been speaking will perhaps never be successfully emulated; nor should this be matter of regret; the proficiency in glass-staining at the present day, though of a different class and character, is more extensively available, and susceptible of such variety of application as to invite the attention of builders of every rank. We scarcely need mention the beautiful effect to be produced in private dwellings by extending the demand to subjects other than those of a religious kind; landscape, flowers, diapered and lace-work patterns in subdued colours, are especially congenial for these purposes; and in the distribution of ornamental subjects, the

aspect of apartments, the degree of light to be admitted or excluded, the prevailing style and colour cultivated in the interior, &c., might be severally considered, and effects produced which would be vainly sought by any other means at our disposal.

Crown glass is generally preferred for staining; and the process is one which requires considerable skill and practice; neither animal nor vegetable substances are available, metallic and mineral oxides alone being of a nature to withstand the degrees of heat to which the material is necessarily subjected in fixing the colours. Some of the oxides penetrate the glass, rendering it throughout of an intended colour, while others are merely fused upon the

surface, but by expert handling are made to yield tints of any desired intensity. The fusible nature of the thin plates of glass employed, the different degrees of heat required by various oxides, together with the variety of colours to be struck, will always render this art one difficult of attainment. We have experience that men of genius, and who possess rare talent in this department, are not generally the best qualified to make known and introduce the elegant, and really cheap, productions of their laboratories. We trust, ere long, that they will be sought, and that stained glass, in its endless capabilities of conferring richness and splendour, will become an article of current requirement in our domestic architecture.

ENGLISH DOMESTIC ARCHITECTURE.*

EVERY country has an architecture more or less peculiarly its own, formed, like the character and language of its inhabitants, by the blending of various foreign ingredients which have at different periods introduced and naturalized themselves, but which have been also in turn modified by the original stock, as well as by the local peculiarities of climate, soil, social condition, and political history.

This national character attaches itself far more to domestic architecture than to that which is displayed in public buildings, ecclesiastical or civil. In the erection of these, the architect, often himself a stranger, or taught abroad, has sometimes wholly copied a foreign model, and merely transferred the entire cathedral or palace from the banks of the Rhine or the Po to those of the Thames or Isis.

But in designing the residences of the opulent classes of any country, it became necessary to consult the manners, habits, and wants of the future occupants, the character of the climate, and the nature of the ordinary materials within reach. And in whatever degree the architect has neglected to adapt his design to the type required by these local circumstances, to that extent has he sinned against taste and propriety, and failed in producing that harmony of ideas, that association of ornament and purpose, which, as an essential element in the quality of beauty, it is the object of his art to create.

It is not to be disputed that in the domestic architecture of our towns, the classical style in some of its modifications, Grecian, Roman, or Italian, has proved itself correctly applicable, and from its constant adoption has become appropriate to such situations, to the exclusion of other styles. Its horizontal lines and storied orders, pedimented windows and balustraded attics accommodate themselves with peculiar facility to the disposition and purposes of town houses, whether connected in rows or standing separate from each other. The same style, in some of its varieties, has become equally suited to suburban villas; and the apparition of a Gothic abbey or Baronial castle in Waterloo-place could be hardly more startling or offensive than at Chelsea or Richmond. Even Holland House, venerable though it is as a remnant of the olden time, and agreeably reminding us, as we pass it, of the days when St. Giles stood 'in the fields,' and Covent Garden was the *pleasure* of a rural convent—now that London has embraced it, looks quite out of place; and the toy-shop architecture of Strawberry Hill and other *soi-disant* Gothic villas, supposing even they were pure examples of the style they usually caricature, would be grating to the feelings from their refusing to harmonize with the character of the buildings that surround them.

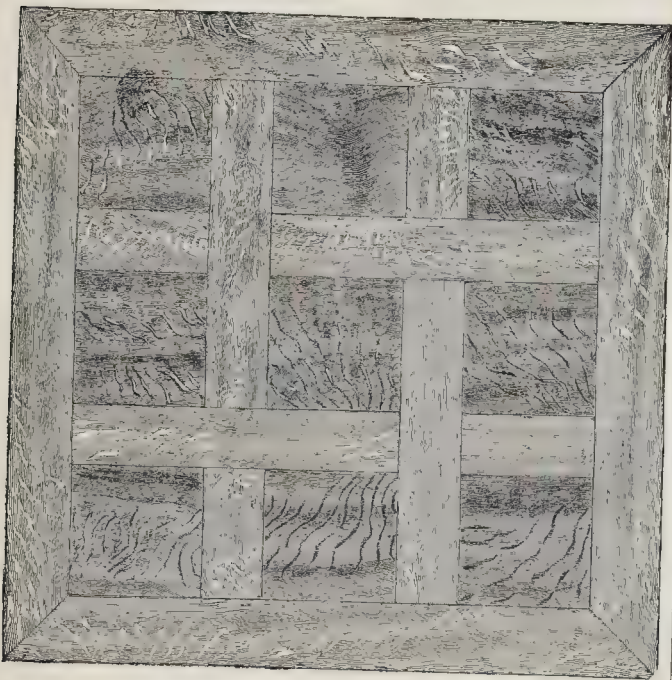
The same incongruity is, in our estimation, as strong, perhaps a conclusive argument against the adaptation of the old English, or what is usually called the Gothic, style, even to churches in similar situations, and compels us to regret the numerous examples of the kind which are daily perpetrated in the vicinity of the metropolis. Prepossessed as we are in favour of the pointed style for ecclesiastical edifices in general, yet we cannot overcome the sentiment of repugnance excited by their striking discrepancy in these cases, from the characteristic architecture of all the neighbouring buildings. However pleasing and appropriate they would have been in the days when Westminster Abbey was reared, and when Cheapside presented a double row of fantastic gables like the market-place of Rotterdam,

'Sed nunc non erat his locus.'

London has been completely Italianized in its general architecture, and the two modes contrast too strongly to please in juxtaposition.

In the greater number of the cathedral towns, the comparative magnitude and importance of the cathedral itself is sufficient to give the predominant character to the place, or at least to the close and its immediate environs; and hence in these situations the inferior buildings should be made to follow the tone impressed upon the scene by that edifice; and the residences in its vicinity are most

* The above article on English Domestic Architecture appeared in the *Quarterly Review* some twelve years since, and in the belief that it will be found interesting and perhaps amuse, we place it before our readers.



SQUARE OF OAK MARQUETTRY.

Our readers may recollect that in an early number we adverted to the subject of Marquetry, or inlaid wood flooring. We expressed a wish at that time, that the attention of carpenters and joiners should be directed to a revival of this once prominent feature in their art, and we are now enabled to speak with pleasure of the steps being taken for its introduction. Before, however, we proceed to that part of the subject, we will occupy a short space by some introductory observations on the practice in times past. The practice in the time of our ancestors was to make floors of common wood or tiles, and only persons of opulence had floors of inlaid wood. It is singular that its origin in this country should be marked as it is by the present French designation of such flooring, *Parquet à l'Anglaise*.

In later times carpets came to be substituted for inlaid flooring, and that which was at first deemed a luxury has now become almost a necessity. Carpets are an importation from the East, and the practice of their use is more common with us than on the Continent; at any rate it is so as regards their summer use; our European neighbours are much in the way of removing their carpets at this season, at least from all principal rooms. It is held among them to be a great objection, taking into account the inferior character of the wood mostly used under carpets (common fir), which retains dust in a higher degree than the harder and closer grained. The carpet holds over this, and at every stepping may be supposed to dis-

seminate particles of dust, which in respiration must be injurious, especially with persons of delicate health, or under affections of the respiratory organs. In low situations carpets also retain damp and moisture, and, however great their luxury in a general sense, it is contended by many that the better formed foot and ankle of ladies on the Continent is attributable to the coolness of their boarded floors and their other influences upon action and motion in walking.

In most of the new buildings in Belgium, France, and in Germany, flooring of hard wood is beginning to be adopted, and an indulgence in ornamental work is fast spreading. Great care is in many instances bestowed in the selection of the rarest woods, and working them into the richest patterns, so that the best carpets are being outvied in elegance, while for the ball-room, and for dancing, it answers the purpose admirably. We have not time to dwell farther upon the matter at present, and since we intend giving a series of papers on the subject, illustrated by drawings of the specimens we have seen in progress of manufacture here in London, we have the better plea for postponing our remarks.

The change in the tariff upon timber is one reason also favouring the re-introduction of this species of work, as we understand it can be furnished in plain patterns, somewhat resembling the square we have used for illustration, at a price little exceeding that of an ordinary battin floor.

pleasing when they have a monastic character. But when a church is to be erected in the midst of rows of modern Italianized houses, it is for the ecclesiastical building to follow, not to give, the prevailing character of the scene. In such a position, however rich and elegant the design, however pure the style, however perfect the execution of a Gothic edifice, its general effect is, to our feelings, completely destroyed by a want of harmony with the *genius loci*. Styles so distinct will no more combine in an architectural scene than in a single building; and there seems to us as much incongruity, and even barbarism, in the introduction of a Gothic church among the horizontal cornices and Grecian peristyles of a modern street, as in the justly-ridiculed Palladian windows which pierce the west front of the rich Gothic cathedral of Milan,—as much as there would be in placing a Grecian temple in the quadrangle of Trinity or of Christ Church.

In such cases not only is the advantage of assimilation, one of the principal elements of beauty, lost, but the dissimilarity of the objects brought into contact, and the discordant ideas they suggest, are destructive of the pleasurable effect either class of objects would produce by themselves, and a source of positive pain to the beholder.

In the erection, however, of a *country* residence, where the choice of a style is less fettered by the proximity of other buildings, associations of a more general and imaginative nature come into play, and dictate the adoption of the national or indigenous architecture. In this country, which is still rich in the possession of numerous specimens of buildings, both ecclesiastical and domestic, belonging to the earlier ages of its history, the *old English style*, in some of its varieties, is that which we consider specially appropriate to an English country residence. The village church always—often the parsonage—and usually the neighbouring farm-houses and cottages, partake in their several degrees of this character, and assist in determining its choice. The natural scenery around presents congenial images in the venerable grove, with its patriarchal rookery, and the ancient oaks spreading their broad arms over the lawns and glades of the feudal park. The local annals of the estate, of the site itself, or of the proprietor's family, combine to call for the employment of a style which is connected with so many pleasing recollections of our national history. The irregularity of outline which it admits, and indeed almost requires, allows of any arrangement of the apartments which fancy or comfort may suggest, and accommodates it to all the varied wants of modern life. Moreover, it is equally appropriate to every rank of habitation, from the princely palace, of which so valuable an illustration has been afforded in the recent magnificence of Windsor, down to the snug parsonage or humbler cottage. And its intrinsic beauty and picturesqueness are thus increased and set off by the valuable qualities of harmony with the neighbouring buildings, fitness for all its possible purposes and historical and local association. In all these points it infinitely excels the classical styles. The symmetry and regularity of these interfere with the convenient disposition of modern apartments; their porticos and colonnades shut out the light, unless made so shallow as to destroy the intended effect; nor, in our opinion, does their outline harmonize with the general character of the rural scenery of this country any more than their plans with its climate, or the ideas they recall with its history. To us, the Grecian temple appears as completely out of place in an English landscape, as would a clustered abbey or feudal castle in the prairies of Kentucky or the Illinois.

(To be continued.)

RAILWAY TRAFFIC.—The following calculation of the last weekly returns of 44 railways, 1,576 miles in length, will, we believe, be of interest:—Number of passengers on 31 railways, 433,692; consequently the total for the week must be above 600,000. The receipts for passengers on 44 railways, 83,633l. 15s. 11d.; ditto for goods on 40 railways, 25,782l. 14s. 11d.; total, 109,416l. 10s. 10d. This is an average of 69½ mil per mile per week. The traffic, therefore, is certainly at the rate of about four millions and a half a year, and carrying twenty millions of passengers.—*Herapath's Journal*.

METROPOLITAN ARCHITECTURE.

A STROLL ROUND THE BANK.

THE Bank is now nearly surrounded on every side by a *cordon* of lesser banks and public offices. Were Sir Robert Taylor, therefore, to return to life, and revisit this scene of his architectural exploits, he would find no trace whatever of his bank—at least not externally, and scarcely any of its locality, so completely has the latter been metamorphosed since his time. Nay, even Sir John Soane, though he would recognise his own building, still *in statu quo*, would fancy that it must have been transported to some very different and newer region of the town, for on looking around, he would perceive hardly one of his whilom architectural familiars and acquaintances now remaining. With the exception of the Mansion House—and that has been decapitated and deprived of its towering crest, the others have disappeared. The old Royal Exchange is gone, and its successor has marched forward midway of the principal front of the Bank, whose central portion is not likely to look more dignified by being seen in immediate proximity with Mr. Tite's loftier and more richly culminated portico.

St. Bartholomew's Church is no longer standing, but on its site has arisen the Sun Assurance-office. The church of St. Bennett Fink, close by, with its rather picturesque little dome, has shared a similar fate; and the French Protestant Church, which stood a little further eastward, has now migrated westward to St. Martin's-le-Grand, and has thereby made way for another building of widely different character and purpose—viz. the Commercial Hall, Threadneedle-street, which we will make the easternmost point of our present architectural perambulation, and set out from it accordingly.

Although of no very great extent—little more than 90 feet in width—this structure has a façade very far more monumental than usual in aspect; while it is simple almost to severity as a composition, it is more highly decorated in some respects than buildings far showier in design. It proclaims itself at the first glance to be exclusively for some public institution, exhibiting externally merely a ground floor, and is therefore very differently constructed from the majority of our public edifices of every other class than churches, from which last again it differs decidedly in its physiognomy. It is, in fact, so perfectly *sui generis* in this respect that we cannot point out any parallel instance in the metropolis; and what serves to enhance the peculiarity of its character is the circumstance of its being astylar, or without columns or pilasters of any kind. Notwithstanding that there is a very unusual degree of decoration bestowed upon the frieze and cornice, which, however, we must confess, are not altogether so carefully studied as they deserve to have been, the frieze more especially, for the arabesque foliage is of rather stiff and poor design, and withal tends to destroy the keeping of the *ensemble*. Either embellishment should have been moderated there, or more of it should have been bestowed on the door and windows; and some base mouldings above the plinth or socle would have given to the lower extremity of the façade that degree of architectural marking and finish in which it is at present deficient. Matters of this kind may be thought very trifling, and scarcely worth notice, yet are they in reality very important, because attention to or disregard of them will occasion beauties or blemishes accordingly. Where the general idea is poor, minor defects more or less become of little moment; but the case is far otherwise when little faults appear in that which, but for them, might afford unmixt satisfaction. The most striking and characteristic feature, however, of this façade is the bas-relief, which claims notice not only for its own merit as a classical production of the chisel, but as being a very unusual piece of decoration in this country.

In Greece architecture and sculpture went almost uniformly hand in hand, but in our modern Grecian style, sculpture is so far from being considered a component element of architectural design, that it very rarely enters into it at all, and then to no great extent. It is indeed rather strange that those who are so rigidly exact as to copying with hair-breadth precision all the details of such parts as columns and mouldings, should nevertheless

make no scruple of omitting sculptural decoration altogether, without even attempting to supply its place by such as would be equivalent, or nearly so, in effect. When sculpture is introduced at all, it is generally upon too petty a scale, and distributed in such little patches as not to tell decidedly of itself, or make other impression than that attending the same quantity of mere enrichment. In this instance, however, the sculpture displays itself both markedly and distinctly, and has also claims to attention as a piece of art well worthy of examination. As to the interior of the edifice, all we can here find room to say is that it answers, and in some respects even exceeds, the promise made by the façade. It must indeed be owned that the entrance vestibule is little more than a mere lobby; but the great room, or hall, is a very spacious and noble apartment, lighted almost entirely from above, through three lanterns in the ceiling and semidome over a semicircular recess at the further end, which has Corinthian columns, of which order there are also some pilasters on the sides of the room. The chief objection to be made is, that owing to the whole being of a nearly uniform white hue, there is a certain coldness and vacancy, and there seems to be a want of some positive colour on the walls, if only as much as would relieve and bring out the architectural forms.

In the Sun Assurance-office Mr. Cockerell has shewn himself far more ambitious of novelty than is at all usual; and it accordingly runs so counter to ordinary examples and rules, that those who speak only by book can quietly set it down at once as being capricious and extravagant. We are disposed to treat it somewhat differently; not that we can, by any means, commend it in unqualified terms. While we give him full credit for the laudable attempt to break through the hackneyed routine of design, we think that, having determined to do so, he might have done it more decidedly; wherefore, we are of opinion that, since the order is on so small a scale in proportion to the rest as to be in some measure secondary in the composition, the lower, which is also the principal mass, might with great propriety have been treated less in the style of a mere basement—at least as regards the first-floor windows. Though rather plain than otherwise in the style of its details, this lower portion of the edifice is somewhat deficient in simplicity, it consisting, if we may so express ourselves, of too many bits and patterns, so that it looks altogether too much like a series of experiments.

The adjoining building of the Alliance-office contrasts strongly with the preceding, for, so far from falling into Mr. Cockerell's errors, its architect does not appear to be in any danger at all of being seduced into conceits and fancies by his own imagination. Would it not sound too much like a bull, we should call this a singularly common-place design, belonging to what may not inaptly be termed the Della Crusca school of architecture. Invention of any kind has not been greatly tasked here; and as to its general physiognomy, this front looks, at first sight, almost like a repetition of one that was erected not very long before in the same neighbourhood—viz. that of the Wesleyan Centenary Hall, Bishopsgate-street; for the general disposition of both is precisely the same—an order with fluted Corinthian columns on a basement, and comprising two tiers of windows (five on each floor). In both instances, too, the centre compartment consists of four attached columns and a pediment above them. Differences in other respects there certainly are, and they are all in favour of the Bishopsgate-street building, because in that the basement is a degree better in character, the openings being arched; while in the Alliance Office they are no more than so many gaps, the spaces between them forming only upright piers, without other finish to them than a few coarse streakings by way of expressing rustication; whence, notwithstanding the solidity of the piers themselves, a most unfortunate expression of weakness takes place, owing to there being not sufficient apparent support for the architrave or platband of the basement, laid immediately on the piers. The bad effect of this is particularly observable in the centre opening, which is merely a wide square-headed gap, left as a passage through the basement to a sort of court and other buildings in the rear,

which are so far from being in a corresponding style, or at all ornamental, that the more they had been shut out of view the better. At all events there was no necessity for the immediate opening towards the street being left so wide; that might have been contracted and rendered less of yawning vacuity, by the insertion of two columns or pillars of some sort, between which there would still have been ample space for an open thoroughfare. In like manner, the centre intercolumn of the order itself is offensively wide, and is filled in with a triple window on both floors, the effect of which is decidedly bad, nor is it hardly possible to place two windows of that kind in sequence one over the other, so as not to offend the eye; these windows are besides of very ignoble and jejune design—certainly not at all in conformity with the character of the order—which is also the case with all the rest of the detail. In fact, the architect would have done better to omit columns altogether, and bestow greater attention on features that cannot be so conveniently got rid of, but which, if not made beauties, must be retained as blemishes.—*Morning Herald.*

RESTORATION OF TRENTHAM CHURCH, STAFFORDSHIRE.

TRENTHAM Church, like many of our most ancient churches, forms an appurtenance to the mansion connected with the domain on which it is situated. Trentham Hall has been the family seat of the Levesons, and through them of the Gowers, upwards of three centuries. The present duke, soon after succeeding to the estates and titles of his forefathers, determined to repair and improve the family mansion, and calling in the aid of Mr. Barry (the architect who has so much distinguished himself at the new Houses of Parliament), his grace has, at an immense expense, converted a very modest and ordinary-looking mansion into a splendid Italian palace, and surrounded it with terraces, walks, and gardens, ornamented with pavilions, fountains, and statues.

The improvements connected with the Hall being nearly completed, his grace, with that munificence which has always distinguished his family, resolved that the parish church, which, like too many others, had been as much disfigured by the hands of ignorant conservators, as dilapidated by the lapse of time, should be thoroughly restored and repaired at his own cost. Mr. Barry being intrusted with the work, evinced that true taste which ever distinguishes genius. He did not attempt to invent any thing new, but merely to restore that which was worthy, discarding the excrescences which had from time to time crept in. The consequence is, that Trentham Church is now a complete chronicle of the various styles of church architecture which have prevailed in England for the last 800 years; indeed, it is upon record that a church has existed at Trentham more than 1200 years. In the nave we have the original Norman columns, with their quaint caps and lofty pointed arches, the porch being a specimen of the early English style, while the windows evidently belong to the later and more decorated or perpendicular style. And again, within the church, the oak screens, around the chapels and across the choir, belong to the later years of the Elizabethan compositions, immediately preceding the total downfall of all notions of fitness or propriety in architecture, when even the glorious examples of Sir Christopher Wren and Inigo Jones served only as landmarks to the sinking art.

To make even a tolerable design out of such incongruous mixtures must have been a task of no small difficulty. How well the architect has succeeded, let the many approving opinions which have been passed upon it testify; while the introduction of several judicious alterations has tended to the improvement of the whole, and has contributed to render the general effect pleasing and harmonious. Among these improvements may be mentioned the extension of the nave, both at the east and west ends, and the introduction of ornamental glazing, slightly combined with stained glass. We must not omit to notice that a beautiful window of stained glass has been placed in the north aisle, in memory of the late highly respected pastor of Trentham, the Rev. Thomas Butt, who was minister nearly 40 years. The

expense of this interesting memorial has been defrayed by his widow. It was executed by Mr. Willement, of London, the architect who has been similarly employed at the Temple Church. The floors of the aisles, choir, and communion, are paved with the new encaustic tiles, from Messrs. Minton's manufactory, at Stoke-upon-Trent, laid in various devices, and relieved with plain black borders, the whole having a very excellent effect. And to add to the comfort of the congregation, an excellent warming apparatus has been erected by Mr. Bostock, of Hanley. The fitting up of the church is not yet completed, but we understand that it will be done with old oak panelling, seats, &c., of very substantial and suitable design. The parishioners, in order to testify their gratitude and respect to the noble duke, have subscribed for the expense of a new font, and his grace has kindly accepted the offer. All the work has been executed by the duke's own workmen, under the direction of Mr. Jenkins, the clerk of the works, in a very superior manner, alike creditable to all connected with it, and appropriate to the sacred purposes to which the edifice is devoted.—*North Staffordshire Mercury.*

NEW MOTIVE POWER.

THE new motive power of Dr. Drake, now exhibiting at No. 414, Broadway, is indeed a curiosity, and cannot be viewed without forcing upon the mind the importance of scientific knowledge to the advancement of practical mechanics. The machine in motion does not appeal more directly to the senses than it forces upon the mind the conviction that the invisible mechanical agent called into existence, is the result of practical philosophical research and experiment, scientifically directed to the accomplishment of a particular end, and which never could have been attained by the simple exercise of any mechanical ingenuity, however great.

The engine in operation is not merely a philosophical toy, as may be imagined by those who have not seen it. It is of not less than three-horse power, and consists of an ordinary high pressure steam cylinder of six inches diameter, traversed by a piston having eight inches length of stroke, connected with a crank axle on which there is a heavy fly wheel. It is without furnace, boiler, or chimney, and has simply an atmospheric air, and a gas and exhaust pipe connected with the cylinder. The motion is created by the combustion, within the cylinder, of atmospheric air combined with a certain proportion of gas, which is ignited by a process known only to the inventor. By this combustion, which is instantaneous, the air within the cylinder is expanded with great power, and the piston is forced to recede, and motion is communicated to the machinery. After the machine is put in motion the successive ignitions are self-caused, and are produced, as far as the mechanical operation is concerned, by the same arrangement and with the same exactness as the steam is made to act in an ordinary steam-engine; the atmospheric air and gas being supplied by their appropriate pipes, and an exhaust pipe being connected with the cylinder in the usual way. By means of a small cock in the supply pipe, the operator with his thumb and finger controls the machine.

In the experiment now being made, gas is used simply because it is more conveniently obtained than any other combustible, but the inventor states that the engine will, with equal facility and certainty, burn camphine and other preparations, such as lard, oil combined with whisky, &c. Its ability to use these last products as fuel, makes this invention of immense importance to the Great West, as should the transportation on the Mississippi and its measureless tributaries be effected by this power, it will furnish a home market to the grower of these articles entirely new, and to an extent far greater than all others now in existence. Without pursuing this subject further, we will state what appear to be the obvious advantages of this invention over the steam-engine. The first and most important is security—there is no danger from explosion nor from fire, either accidentally communicated, or from the spontaneous combustion of the fuel. 2nd. The weight of an engine of given power must be greatly less, as there is no furnace, no boiler

with its water, no chimney, and no condensing apparatus, and comparatively but a trifling amount of fuel either in weight or bulk. 3rd. The space occupied by the machine and its fuel is so much less as to give great additional room for freight and passengers. 4th. The ability of making long continuous voyages, as ships supplied with this invention can carry fuel enough to propel them to China, without its materially interfering with their available capacity for freight. 5th. Economy in working—as there is no expenditure of power except to produce motion, as is the case with the steam-engine in irregular work, where the steam has to be generated and preserved at its proper temperature, while the engine may be temporarily stopped. This is of great consideration on the Western waters, where the trade demands frequent stoppages either to receive or deliver passengers or freight, or to wood, which last cause of detention will be altogether obviated, as well as the expense and annoyance of firemen.

We do not mean to say that the experiment has been sufficiently tested to make these things perfectly certain on a large scale, but that they are proved to be so in an engine of at least three-horse power; and that no well-grounded objection has been urged, and none appears to exist of sufficient force to create a reasonable doubt of the successful adaption of this invention to engines of the largest class. In a few days a committee of scientific and practical gentlemen will accurately ascertain the power of the present machine, and the quantity and cost of the fuel it consumes.—*New York Paper.*

PLANK ROADS.

A FRIEND from Liverpool favours us with the following from the American paper to which his attention was drawn by an article in *THE BUILDER* on Plank Roads in Canada:—

"A PLANK ROAD FROM BUFFALO TO THE FALLS.—Yesterday we ventured a few remarks in favour of constructing a McAdam road from this city to the Falls. It has led to the suggestion that a plank road would probably be much cheaper, and far more agreeable to travel on. Of the truth of the latter statement there can be no doubt; and from the remarkable cheapness of plank—especially hemlock, if they will answer—must render the expense of such a road quite small compared with what it would be under other circumstances. Allowing the track to be twenty feet wide, as many miles in length, and the plank three inches in thickness, and to cost 4 dollars per 1000 feet, board measure, then this item of expense will be 25,344 dollars. Allowing seven stringers or sleepers running lengthwise with the road for the plank to rest on, to cost one cent a foot each, this item would amount to 7,392 dollars. It is a forest country much of the way, and the facility of floating timber and plank by the canal and river will render the cost of transport of material very light; while the general level of the surface will also reduce the cost of grading to a mere nominal sum. The whole road need not cost to exceed 40,000 dollars, and with a low toll could not fail of being productive stock.

"Plank roads are comparatively unknown among us; but those constructed in Canada West have been found to answer a good purpose. They enable a horse to draw great weight, and are admirably adapted to favour speed without injury either to horse flesh or carriages by incessant concussions against an iron pave. We throw out these suggestions, which will pass for what they are worth.

"It gives us pleasure to find that there is no difference in opinion in regard to the propriety of making a good public road of some kind; and those whose money is to pay for it will consult the public convenience as well as their own in constructing it in that way which, under all circumstances appertaining thereto, is most feasible."—*Buffalo Com. Adv.*

A PORTABLE LIGHTHOUSE.—An invention has recently been made for shewing the position of a ship in danger, and thus directing the movements of persons attempting to give assistance from the shore. It consists of a composition, which, when ignited, gives a very distinct and brilliant light, and has been tried, it is said with success, at the Goldstone, where the Pegasus was wrecked.



BLACKWALL RAILWAY TERMINUS.

REPORT OF THE DIRECTORS OF THE
BLACKWALL RAILWAY.

Nothing so much surprises the foreigner as the large sums expended upon railway stations. The Parisian is contented with a terminus which costs as little as possible, whilst we look to substantial edifices which are to last to future generations. We give an example of one in the immediate neighbourhood of Paris, which exhibits the manner in which the diligences are placed upon the rails. The spacious Blackwall terminus, and its pier, are objects of great interest and admiration to the stranger on his arrival; but when he learns from the following documents, which have just been presented to the shareholders of the Blackwall Railway Company, the enormous sum of money spent upon the railway, he is not surprised at the outlay upon other points. We have certainly little to say in favour of a system so lavish of money.

Statement of the Capital Account to 30th April, 1843.

Dr.	£.	s.	d.
Act of Incorporation, &c.	53,548	11	7
Property purchased and compensation 535,091 8 5			
Deduct property sold, 71,457 <i>l</i> . 8 <i>s.</i> 9 <i>d.</i> ; old materials and rent, 19,459 <i>l</i> . 0 <i>s.</i> 8 <i>d.</i>	90,916	9	5
	444,674	19	0
Works	434,498	17	8
Surveying and valuing	9,004	9	0
Engineering, plans, &c.	9,621	11	2
Carriages and trucks	22,000	0	0
Solicitors, viz.:—			
Conveyancing	20,373	16	2
Jury cases, disputed claims, and 50 feet cases	12,691	10	7
Suits, actions, and appeals	3,225	3	10
Miscellaneous	1,053	13	11
Interest, stamps, commission on mortgages	10,534	16	4
Interest on temporary loans	17,360	11	8
Deduct interest received	4,929	5	1
	12,431	6	7
Vendors' cost on conveyances	26,791	15	1
Rates and taxes	4,083	6	10
Direction	5,900	0	0
Advertisements	1,446	14	1
Office expenses	8,938	17	3
	£1,080,818	9	1

Supposing all contingencies settled, the real cost of the railway will stand as follows:—

Statement of the probable ultimate Charges.

Dr.	£.
Act of incorporation, inclusive of all preliminary expenses,—subsequent Acts of Parliament, and attendant charges	53,540
Property purchased and compensation, 535,591 <i>l</i> .; due, 4,116 <i>l</i> . 539,707	
Deduct property sold and paid for, 71,457 <i>l</i> .; Rents and old materials ditto, 19,459 <i>l</i> .; Property sold and not paid for, 9,245 <i>l</i> .; Ditto to be sold, estimated at 31,000 <i>l</i>	131,161
	408,546
Works paid for	434,498
Due	1,210
Carriages and trucks	22,000
Due	1,470
Engineering, drawings, &c.	9,622
Surveying and valuing, paid	9,004
Due	332
Solicitors, paid	37,343
Due	5,643
Interest on temporary loans	17,360
Less received	4,929
	12,431
Interest, stamps, &c., on mortgages	10,534
Vendors' costs on conveyances	26,791
Rates and taxes	4,083
Advertisements	1,447
Direction	5,900
Office expenses	8,939
Outstanding claims under litigation	2,000
Balance	11,030
	£1,066,572

ST. SEPULCHRE CHURCH, CAMBRIDGE.

Our readers will probably be anxious to learn what progress has been made, since our last account, in the restoration of this church. We are happy to be able to announce that the works are at length rapidly approaching their completion. The interior of the church has been plastered (with a view to the reception at some future time of its original decorations in fresco); the west door, with its beautiful recessed mouldings and jamb-shafts, entirely rebuilt. Of the twelve Norman windows eleven are now filled with stained glass; the oaken roofs of the chancel and north aisle have been cleaned and varnished, and all the stonework inside and outside finally cleaned and dressed. It is needless to add that the round nave already assumes a most sombre and beautiful aspect, the deep and varied tints of the narrow windows excluding the glare of day, and imparting a rich dimness of effect, which

will hardly be surpassed by any building in the kingdom, when the encaustic pavement of interlacing circles and a stained east window shall have been superadded to the present works. The whole church will very shortly be paved with the former, intersected and relieved by lines of plain red, by which the too monotonous and floor-cloth like appearance observable in the Temple Church will be avoided. The fittings of the choir and aisles will be low open oak sittings with carved poppy-heads, exactly in the ancient style, and not a single pew will be reserved in any part of the church. The wood work is now in a forward state; and as every portion absolutely necessary for the completion of the church for Divine service is now rapidly advancing, it is confidently hoped that the building will be re-opened in October next. The committee are most desirous, if possible, to add an oak roof to the new aisle, similar to those already existing of Tudor date, and have procured a stained east window, to be

put in hand by Mr. Willement. For the former purpose they have received the munificent promise of the timber required, carriage included; and for the latter a special subscription is opened, and about 100*l*. already guaranteed. —*Ecclesiologist*.

WHITE BALL TUNNEL.—So many hands were wanted in the operations at the White Ball Tunnel, on the line of the Bristol and Exeter Railway, that 7*s.* per day was offered to first bricklayers, 5*s.* 6*d.* a day for good workmen, and 3*s.* 6*d.* a day for bricklayers' labourers; and if any were disposed to go down from the neighbourhood of Bath or Bristol, the contractors gave notice that they would pay their fare from the latter city in the second-class trains to Beam Bridge. This was in consequence of the laziness of the navigators employed, who, during the fine weather, refused to work, except a day or two a week, to pay for their beer, but lay out in the fields, robbing the hen roosts and orchards.



CURIOUS WINDOW.

(Supplied from an old Church by a Correspondent.)

ALBURY CHURCH, SURREY.

We hasten to announce to our readers the discovery of an Anglo-Saxon tower, and shall take the liberty of making some remarks on the state of the church to which it belongs.

Albury Church has chancel, nave, two transepts, south aisle, central tower, and north porch. The parts of Anglo-Saxon date are the tower and north transept. The rest of the church seems to have been rebuilt about 1260; the tower has received the perpendicular finish of a battlement, and the barbarous addition of a dome. In its general contour it much resembles, although not quite so high as, St. Benedict's, in this town; the belfry windows are *couleur splayed* (therein differing from Norman work), excessively small, and very near the eaves. The second stage displays, on the east and south, the baluster window; the west side has an insertion, and the north is covered by ivy. There is no internal staircase; the east and west belfry arches, which are original (for the south was rebuilt with the rest of the church, and the north has been modernized for a gallery), resemble those of St. Peter's, St. Alban's, except that the chancel-arch has on its western side a rude moulding, something resembling a chevron. The north transept is plainly original; it is much shorter than the other, but the inserted windows are modern. However, the height of the eaves, and the moderate though unaltered pitch of the roof, closely resemble those Anglo-Saxon buildings which have as yet been discovered. — *Ecclesiologist*.

FUNERAL RITES OF THE GREEKS.

The most ancient custom among the Greeks was inhumation. The custom of burning the dead was introduced among them at a subsequent period. (1) The urns, containing the ashes of the dead, were kept in private houses, the interior of cities, and sometimes even in temples. These examples were, at first, of no occurrence; and this distinction was only granted to the heads of the government, and to generals who had saved their country. Inhumation was always more general in Greece than elsewhere, and the very salutary custom of conveying the dead to a distance from cities was invariably preserved. The Thebans, the people of Sicily, of Delos, and of Megara, the Macedonians, the inhabitants of the Chersonese, and of almost all Greece, adopted the custom in this respect. (2) The most celebrated legislators made it an interesting part in their code. Cærops, at Athens, ordered the dead to be carried beyond the walls. An adopted and re-established this wise institution in all its vigour; and it was only in the last days of the republic, at Athens, that a small number of persons were inhumed in the interior of the city. This honourable function was only permitted in favour of the heroes. It was thus that they left in the vicinity the tombs of those brave citizens sacrificed themselves for the defence of their country. (3) Plato, in his republic, did even permit the inhumation in fields fit for

tillage; he reserved for that purpose dry and sandy grounds, and those which could be employed for no other use.

The same laws were in force in Grecia Magna. The Carthaginians found the tombs of the inhabitants of Syracuse outside the city. The same thing occurred at Agrigentum. (4) Religion gave its sanction to this custom. (5) The holiness of tombs, many of which became the temples of certain divinities, and were regarded as asylums for the unfortunate and the accused—the respect paid to the ashes and the memory of their ancestors—the punishments with which their holy laws threatened the violators of these customs—the maledictions denounced upon them by the priests:—in one word, the whole religious doctrine and mythology of the Greeks, tended only to support the laws, which directed the bodies of the dead to be removed far from the habitations of the living.

(1) Some carry back the origin of this custom to the time of Hercules, who wished to carry to King Licinius the sad remains of his son Argivus, killed in battle. — (*Hom. acoliast. Iliad 7.*) Most think that this custom takes its date from the Trojan war, where the atrocious carnage, and the example of the Phrygians, determined the Greeks to adopt this plan as the most simple. — (*Vide Potter Archaeology, l. 4, c. 6.*)

(2) Lycurgus was the only one who permitted tombs to be placed in cities, in temples, and in public places where the people met. He wished to accustom the Spartan youth to bravery and courage, by familiarizing them with the idea of death. It seems that he might have accomplished the same end by following, in respect to funeral rites, the

custom adopted by the rest of Greece. — (*Vide Instit. Polit. book 1, c. 1, § 13.*)

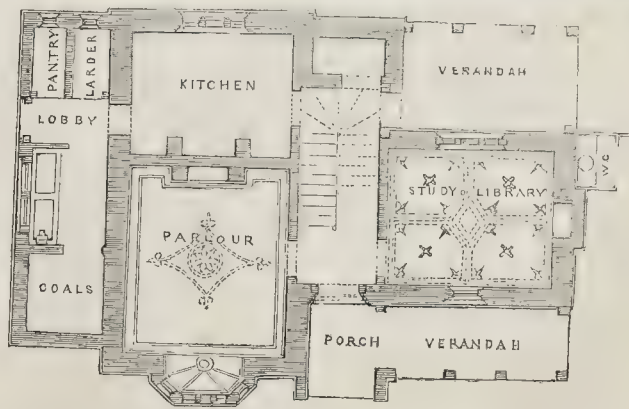
(3) Towards the latter period of the government of Athens, Sophocles found no tombs in that city, although it was besieged by the Spartans; and Salpitiis, at a less remote period, could not obtain there a sepulchre for Marcellus.

(4) The Tarentines followed the same customs. On one occasion they consulted the Oracle, and received from it the answer, that they would be much happier, *si cum pluribus habitarent*. — (*Polyb. l. 8.*) The true sense of the Oracle was, that they should employ means to increase the population. What was their conduct? They allowed the dead to be buried within their walls; and thought they had thus fulfilled the intention of the Oracle. It must be confessed that this was a strange mode of increasing their population.

(5) No nation was ever more jealous than the Greeks of paying funeral honours to the dead. The Athenians frequently neglected the advantages of the most illustrious victories, to perform this duty. They often, indeed, notwithstanding these victories, sacrificed excellent generals, because they had not shewn themselves sufficiently zealous in burying the soldiers slain in battle. Those who violated tombs were considered as victims, irrevocably destined to the anger of the gods. The augurs they derived, the prayers and the vows which they made over tombs, demonstrate with what earnestness the depositaries of the precepts of religion had recommended the duty of sepulture. The Greek writers, and especially the poets, have left some interesting details upon this subject. — (*Vide Anthol. and Brodus Epigr. gr.*) It may be added, that the most solemn oaths pronounced over tombs were as sacred as if they had been made over altars. Every one knows that Alexander, before undertaking the Asiatic war, sacrificed upon the tomb of Achilles. — *Gatherings from Graveyards.*



PERSPECTIVE ELEVATION OF A PARSONAGE HOUSE.*



Ground Plan.

* We have not room this week for the Description and Estimate.

Collectanea.

BUILDING MATERIALS.*

IN the erection of the great abbeys and collegiate churches, where no expense was spared, the materials were frequently fetched from great distances. Thus, the soft freestone of Caen, in Normandy, was used in the construction of many of the principal churches and conventual buildings of the south and east of England. But in building private houses, the cost of carriage was too great to admit of the use of such distant materials. Hence, stone houses are only or chiefly to be met with in those parts of the country which possess beds of workable stone; as, for instance, upon that generally broad band of oolitic freestone, which, beginning in Dorsetshire, stretches in a north-east direction across Somerset, the north-west of Wilt, Gloucester, Oxford, Northampton, Lincoln, and the northern extremity of Yorkshire. It is upon, or within a short distance of this tract, that we meet with nearly all the most noble and decorated specimens of early domestic architecture, as well as a rich assemblage of churches—all highly ornamented, in consequence of the easy working character of the freestone. It is, however, greatly to be regretted, that in some parts of the range, this stone is liable to weather, as it is called, or scale off; a circumstance from which the splendid buildings of Oxford, in particular, have suffered such cruel mutilation. Eastward of this line runs the range of chalk hills, through the counties of Dorset, South Wilt, Hants, Berks, Bucks, Hertford, and Cambridge, branching off likewise into Surrey and Kent. In these, flint and hard chalk are the ordinary building materials, very unfavourable to architectural purposes, and occasioning a paucity of handsome ancient residences throughout that district. In the exceptions which occur, as at Cambridge itself, the stone has been laboriously brought from the neighbouring oolite range. In the remaining eastern counties, the soil chiefly consists of alluvial clays and gravel, and compelled the adoption of bricks as a substitute for stone in the construction of houses of every class; by which the prevailing character of their architecture was materially affected. In London, however, the buildings are said by Stow to have been chiefly of wood, up to the time of James I., who, by divers proclamations, enforced the use of brick and stone, as well, it is said, for the sake of preventing the too rapid consumption of our native forests, as for security against fire. In the western, and many of the midland counties, Devon, Worcester, Shropshire, Cheshire, Stafford, Leicester, Warwick, Nottinghamshire, &c., where the deep marly soil, which the geologists call the *new red*, prevails, and which were anciently covered with extensive oak forests, timber has been always the principal material employed in the construction of houses. It is in this district that we still see so many of those picturesque buildings in which the wooden framework, painted black, contrasts so strikingly with the intervals of white plaster. Where the hard beds of stone which are interstratified with the marl, have been employed, as in so many of the churches in these counties, the destruction occasioned by its weathering has been usually greater even than what we have remarked of the Oxford oolite. Lamentable indeed is the condition of many of their exteriors. Their sculptured ornaments of every kind, pinnacle and crocket, cusp and foliated capital, are all corroded into shapeless knobs, while each separate stone of the angles or flat wall is worn down by repeated exfoliations of the edges to a round lumpy form. The natural dingy red colour of the stone, by itself unfavourable, completes the disfigurement of the building. The architect or antiquary may study with interest these faded beauties, and glean some information even from their unsightly remains; but as architectural objects, their power of exciting general admiration is gone for ever. The same remark is unfortunately applicable to many of the otherwise most beautiful buildings of Scotland, where this red sandstone is still in use, and the little attention paid to its want of durability, so lamentably attested.

But not only did the materials composing the walls of our forefathers' houses mainly

depend on the geological features of the country, but those also of the roof, and consequently, as we have already remarked, its form and structure. In woody districts, splinters of timber (shingles) were formerly much used in this country, as they still are in Germany and the Alps. Near the slate districts of Wales and Westmorland, that material was of course employed for the purpose; and a coarser, but highly picturesque slab, called there stone-tile, in the midland oolite range. In the eastern counties, burnt tile was the substitute; and in the chalky soils, straw thatch, which is still the almost universal roofing material for their farm-buildings and cottages in the present day.

Antiquarian writers have usually overlooked these obvious causes for the local preference of particular building materials, and have erroneously ascribed the general substitution of stone or brick for timber, and of slate or tile for thatch, for one particular epoch. Thus, it has been asserted that up to the reign of Elizabeth, the houses of the gentry throughout England were entirely built of timber; whereas it is certainly not too much to say that of the mansions of earlier date than that reign, which remain entire or in part at this day, three-fourths at least are built of stone or brick. The latter material is stated by Bagford and other writers to have been first introduced in the reign of Henry VII. Yet Ewelme Palace, in Oxfordshire, erected by William Delapole, and Hurstmoreaux Castle, in Sussex, both of brick, are attributed to the reign of Henry VI. Oxburgh Hall, in Norfolk, was erected in the reign of Edward IV. Leland mentions the walls of Hungerford, as early as Richard II., being of that material; and Stow says that Ralph Stratford, Bishop of London, enclosed the burial-ground in the Charter House for those that died of the plague in 1348, with a wall of brick. That roofing-tiles were in use before the time of Richard I., is proved by the order made in the first year of that reign, that the houses of the city of London should be covered with "brent tile" instead of straw or reeds. Indeed, it is highly improbable that the art of making bricks and tiles, which had been practised in such perfection by the Romans during their occupation of the island, as is evident in the numerous remains of their buildings, should have been wholly lost, however much it may have deteriorated, in those parts of the country where brick earth is plentiful, and stone and slate impossible to be procured.

Many of the characteristics of our early domestic architecture seem to have been determined by the nature of the materials employed. The stories jutting forth one over the other, so as almost to arch over the narrow streets, and allow the occupiers of the upper floors not only to converse, but occasionally even to shake hands across the way, could only be executed in houses of which the framework was timber, and were suggested by the necessity of keeping the wooden foundations dry, at a time when no other mode was employed for conveying away the rain-water from roofs than the dropping eaves or dragon-mouthed spout. In like manner the deep ornamental verges and richly figured barge-pendants, which so highly adorn some ancient manor-houses, are necessarily peculiar to wooden structures, and only to be met with in those districts where timber was the most accessible material. Our modern imitators constantly misapply this picturesque ornament by attaching it, with the far-projecting eaves which it accompanies, to buildings entirely of solid stone, needing no such protection for their ground-course, where the stone coping and parapet would be far more appropriate. On the other hand, in the erection of residences in districts well supplied with stone, and particularly near the oolite quarries which we have traced across the heart of England, the beauty of this material, and the ease with which it is carved, suggested a variety of characteristic adornments—the pierced and battlemented parapet—the crocketed pinnacle—the grotesque sculptures attached to the dripstone—the feathered window-arch—the heraldic figures that terminate the gable—the paralleled angle turrets, and the armorial shields scattered over the walls.

Even in the countries where brick was necessarily substituted for stone, the facility for moulding and colouring that material gave rise to some peculiarity of design in the richly

embossed chimney-shafts and finials, and the devices let into the walls, for the sake of giving variety to a flat surface, which we see in the beautiful mansions of Helmingham, Basham, Hampton Court, Chipping, Hengrave, and Sutton, in Suffolk.

CHARACTERISTICS OF POINTED ARCHITECTURE.—WINDOWS.

OF all the component features of pointed architecture, none can be considered more striking than the *window*,—a feature to which that style has imparted a beauty unimagined in the finest achievements of classic times. The windows principally recognised in the perpendicular style are the simple pointed, the obtuse pointed, the curtailed segment-headed, the square-headed, and the oriel. In all these the consideration which most directly affects their excellence (propriety of moulding being presupposed) is that any ornamental detail occurring in their heads should be compounded of continuous lines and ramifications, happily blending with and issuing from each other; and that any geometrical figures introduced should be such as fill up with most completeness the spaces assigned to them.

Another circumstance observable in the composition of the most satisfactory specimens of ancient arch-headed windows, and one second only to the former, is, that where a window contains a greater number than three or four "days," its composition is divided into two or three principal masses by means of mullions, strengthened above the rest by the use of an additional moulding on the face, and terminating only in the great arch which bounds the whole; a practice essential to perspicuity and force of design. The east window of York Cathedral has by some been adduced as the finest existing specimen of the perpendicular style of window; but if there be any ground for the observation just made, and any distinction of import between the terms *fine* and *showy*, we venture to think that compositions may be found in this country of a more obviously meritorious character. The stronger mullions which divide the lower part of the window into three general portions (each of three again) are not continued in such a manner as to carry their full substance up into the mouldings of the great arch; and the head, therefore, which most needs the distinction, becomes, though crowded with ornamental compartments, somewhat deficient in character. The east window in the choir of Gloucester Cathedral, though composed with no such dazzling intricacy as the former, exhibits a design in which the relation of parts is marked with much greater judgment and effect. The larger mullions running to the top divide the whole into three great and lofty portions; these again are subdivided in width and height, and terminate above in compartments at once highly elegant, characteristic and chaste. Another fine example of composition in the perpendicular style may be instanced in the great front window of Westminster Hall.

In windows of the *obtusely-arched* outline we have numberless illustrations of design. The great west window of King's College Chapel, those of the little chapels which flank the same magnificent building, those of the clerestory of Henry the Seventh's Chapel, and many others, might be adduced to exemplify dignity and richness of effect, and freedom and elegance of outline.

The curtailed *segment-headed* is another pleasing variety of window; by which term we would designate those lights whose heads are formed of two simple curves, not flowing off of the upright lines of the sides, but meeting them at an angle, so as to produce in the head three angles instead of one. Of this kind the window (filled up in a similar style to the former, and surmounted by a hood moulding) Winchester Cathedral, Boston Church, and many other edifices of the same period, will afford us tasteful examples. The *square-headed* window will need no elucidation to the person who has visited either of our universities, or any of the existing mansions of the Tudor times. Few specimens of this feature, however (if elaborate finish be required), can be seen in elegance a rich form of window executed in the cloisters of Christ Church, Oxford.

The remaining description of window, the

* Continued from page 421.

* From a series of papers on the Modern Use of the Architectural Styles of the Middle Ages, by Mr. E. Trollope.

NEW CHURCHES.

oriel, or bay, may be considered as of two kinds, which we may perhaps be allowed to distinguish as the *chamber-oriel* and the *hall-oriel*. By the former of these we would understand that smaller oriel which, at a considerable height from the ground, gains its projection by the support of a cluster of advancing corbel-mouldings, and of which some fine examples may be seen at Magdalen and Christ Church Colleges, Oxford, at Windsor Castle, and (though not with equal purity of detail) at Hampton Court. By the other appellation, *hall-oriel*, we would signify that larger description of window so common in our colleges and other halls, which rises at once from the ground, and frequently comprises within itself the forms of three, or even five entire windows. Of this kind of oriel we may adduce elegant specimens from Crosby Hall, London, and Eltham Palace, in Kent.

In the composition of domestic edifices it is impossible to find a more useful feature than the oriel window, under either of these forms, as imparting to an exterior a pleasing variety of outline and of shade, and cheering an interior with an air of lightness and gaiety, and an amplitude of prospect.

Doorways.

The character and decorations of doorways in this style are not less varied or elegant than those of the windows. We may select, on the one hand, the *high-pointed* arch, finished with a label or hood moulding; either following the curvature of such arch, or rising into the graceful undulation of the double ogee figure, or even assuming the old pyramidal outline, and perforated in either of the two latter cases at discretion. On the other hand, we may adopt the *flattened* doorway; with or without its label, arched or ogee,—or surmounted by a square label, and finished out thereto by spandrels of tracery or foliage—a form of decoration sometimes applied to doorways with the *simple-pointed* arch, but not with the same frequency as in the *obtuse*. In the *detail*, also these doorways have their characteristic decorations of moulding, commonly differing from the ordinary casement and mullion mouldings of windows, by the adoption of a greater complexity of outline, redundancy of columns, occasional introduction of tracery in the jambs, and various other decorations.

The Porch.

A valuable adjunct to the door under any circumstances is the porch, whose sweeping arch displays a depth of shadow well calculated to prepare the mind for the contemplation of an impressive interior. The niches which frequently decorate its front, afford a place for the effigies of the patron or founder; it is otherwise distinguished by heraldic armorial and badges; the whole mass having a tendency to increase by contrast the apparent height of the main building to which it is attached, to add variety of distribution, and by broken lines of summit, to blend with the lofty masses of the principal structure. Where a porch cannot be introduced, its effect may to no extent be answered by the use of a recess, interval, between the entrance opening and door itself, the shadow derived by which persons will mark the point with an appropriate effect and importance.

(To be continued.)

SWITCH.—Thursday, the 19th inst., is the day upon which the municipal authorities for laying the first stone of the new Custom House. The first alterations of the church of St. Matthew in a satisfactory state of progression. The old church, which was in a very dilapidated state, is to be replaced by a new one, whilst the walls being intended, will afford a freer circulation of air, with additional light.

ANOTHER TOAD STORY.—A few days ago, a man was employed to cut down an ash tree, in neighbourhood of Rusland. Having observed a toad on the trunk, he proceeded to cut it with an axe, and was surprised to find a quantity of eggs in the centre, which had every appearance of being the nest of a wren. Several other toads were present at the time; and on taking out the toad from the hollow of the tree, a large toad came from the midst of it. The reptile seemed lively at first, but in a few minutes became motionless and powerless, though our informant believes it not dead. The excrescence was twelve feet from the ground when the tree was growing, and, examining the timber, there appeared to be twenty years' growth round the hollow part.

Stoke, near Plymouth.—The foundation-stone of St. Michael's Chapel was laid by the Lord Bishop of Exeter, on the 29th of last month. The church will be cruciform, and in the Gothic style. It will have six turrets, and a bell turret at the west end, but there will be no tower. Its dimensions will be: length, 124 feet, breadth, 50 feet, and it will contain 1,200 sittings. The stone used in the erection of the church will be obtained from the Government quarries at Richmond-walk, the Board of Ordnance having made a gratuitous grant of the quantity required. Mr. Ferrey, of London, is the architect, and Mr. Clift, of Plymouth, the builder; and it is probable that the church will be completed by Christmas, 1844.

Dorchester.—The rebuilding of All Saints' Church, Dorchester, was commenced on Wednesday, the 4th inst., when the foundation-stone was laid by the Lord Bishop of Salisbury.

Clifton, near Bristol.—One of the twelve churches recently mentioned by the Lord Bishop of Gloucester and Bristol as in course of erection in his diocese, is situated near Clifton Down. It is of freestone, and so far advanced, that it will be roofed before winter. The chancel is separated from the nave and transept by a noble arch; the windows (in the pointed style) at the transept and west end are peculiarly elegant. The church erected at Montpellier, in the parish of St. Paul, has also made considerable progress, and is being roofed. It is cruciform, and the elevation is very handsome.

Burton-upon-Trent.—The first stone of a new church, to be called Christ Church, was laid at Burton, on Tuesday, 26th September, by the Marquis of Anglesey. The church will be built in the Gothic style of architecture, and is intended to accommodate about 1,000 persons.

Yorkshire.—The Lord Bishop of Ripon consecrated the new church in Wakefield on Saturday, September 30; on the following Monday, the same rite was performed by him at the new church at Thurgoland, and at Denby on Tuesday last. The first stone of a new church at Dodworth, near Barnsley, was laid on Monday.

Gloucester.—There are now eleven new churches in course of erection in the diocese of Gloucester and Bristol.

Warwick.—The Earl of Warwick has given the munificent donation of 400*l.* in aid of the fund for erecting a chapel of ease in the parish of St. Mary, Warwick. The noble earl has also liberally offered gratuitously to supply all the stone required for the erection of the intended church.

York.—The building of the new church is rapidly proceeding, and promises to be a chaste and beautiful elevation, and will add to the high character for which the architect is already eminently known. The work is being executed in a very substantial and workmanlike manner, that reflects great credit on those who have undertaken it.

CLEANLINESS OF THE CANADIAN PEASANTRY.

—In every instance in which we had yet an opportunity of seeing the Canadian peasantry, we had been struck with their peculiar neatness and cleanliness, both in their persons and dwellings, and all we witnessed in our journey to-day strengthened our first impressions. Though the glass windows of the cottages were cleaner than any we remember to have seen in the country dwellings of the settlers in the United States, yet they were all undergoing the usual renovation to which they were subjected every Saturday afternoon, the sashes being taken out, and the glass washed with water, while the frames were scrubbed with brushes and soap, and the whole wiped perfectly dry before the sashes are replaced. These flowers are usually placed in the windows after this, and every part of the interior thoroughly cleaned. It is the universal custom of the *habitants* to whitewash their dwellings every spring; and as the roofs as well as the sides are of wood, the former being covered with wooden shingles overlapping each other, exactly in the shape of slate tiles of roofs in England, every part of the edifice is equally subjected to the white-washing process, which gives the distant view of the landscape over which they are scattered a lively and even brilliant appearance, and inspires all who see them nearer at hand with great respect for the cleanliness and order of their occupants.—*Buckingham's America.*

RECENT PUBLIC BUILDINGS OF LONDON.

No. I.—THE WESLEYAN CENTENARY HALL.

BEFORE entering upon our task it may be as well to say one or two words upon the principles which will guide us in its prosecution, inasmuch as it will prevent any misconception or disappointment which some of our readers might otherwise feel.

Looking upon THE BUILDER as the organ of its class, it should be not less a record of the progress of the present than a repository of the inventions and designs of the past in the art to which it now particularly belongs; and viewing it as the instructor of that class, it should lose no opportunity of adding to the stock of knowledge by analyzing the causes of that pleasure or disgust which either of those productions may excite. As regards the past, the contributors to this journal are already too numerous and too well informed to leave much room for the discussions of others to be of service, but the present has as yet found few to record its achievements, to point out their merits, or to lift up the warning voice against their defects. To carry out another of the principal objects for which this journal was instituted, to supply the deficiency we have alluded to, and to excite a spirit of discussion and inquiry respecting our more recent edifices, are the purposes for which these articles are written, and as they can be and are the productions of only one among many, so that individual will always be most ready to meet and cordially to welcome the criticisms of that many upon the remarks to which each building may give rise as it successively passes under review. There is no one too insignificant to effect some good, little though it may be, and none too wise not to err even on subjects on which they may be supposed to be best informed.

It is almost impossible to convey to the mind an accurate idea of any object of complex outline by mere verbal description, and more especially buildings of any architectural pretension. In all cases, therefore, where it is practicable, we shall present our readers with drawings of the elevations and plans of the arrangements which it may be our duty to criticize. There are many buildings which may be made exceedingly attractive in a perspective view, and are at the same time as poor in design and wanting in originality as it is possible for the production of any thinking being to be. For this reason, and also for the sake of shewing correctly the proportions which deserve either praise or censure, and which we conceive to be a most important consideration, we shall prefer giving outline elevations, accompanied by small plans of the portions thus delineated, and leave the student to combine them in perspective, viewing them at different points and distances in any way which may seem most likely to tend to his instruction in the art. When the edifice is of sufficient importance to justify us in devoting the space, we may admit of perspective drawings, but generally they will be excluded.

Having thus laid down the principles on which we intend to proceed, we may observe that we shall be exceedingly obliged by any drawings which the architects of any of the buildings in question may favour us with. Nor do we anticipate much reluctance in them to comply with our wishes. Their reputation will not suffer by the extensive publicity which will be thus afforded to their designs if they are good; if bad they are the more likely to improve from the criticism which their productions will receive. Harshness for harshness' sake we shall always most carefully avoid.

Thus much for ourselves—now for the building which we have chosen for this week's article.

The Wesleyan Centenary Hall is from its size and decoration of sufficient importance to warrant a lengthened notice. The lower part of the design consists of a basement of five arches, the three central ones with their piers being considerably advanced beyond the main line of the building, to form a pedestal for the columns by which they are surmounted. The archivolts are moulded and enriched, and the piers are rusticated horizontally, a strong course with an enriched moulding crowns the whole. The upper portion of the building is composed of a centre formed by four fluted

Corinthian columns supporting a highly enriched entablature, crowned by a pediment, and of two wings, or rather compartments at each end recessed from the front, and having a pilaster at each extremity over which the entablature is carried. Two tiers of windows are carried up between the columns and pilasters with highly enriched dressings, those of the upper story having their cornice crowned with a species of acanthus flower, which produces a rich although not very pleasing effect. The cornice of the principal entablature is very effective in every respect, being good in proportion, and judiciously decorated. Indeed, the whole of the details evince careful study, and are satisfactory in proportion.

The general effect of the building is not so pleasing. The character of the details is exclusively Greco-Roman, the plan of the structure that of a large three-storied house, with which such a style by no means assorts. The multiplicity of the windows, and their requisite width imparts to them an appearance of being squeezed up by the columnar portions, which is not lessened by the line of the cornice of those in the upper story cutting the Corinthian capitals in half. Again, the projection of the centre and its great relative height, entirely destroy that breadth and repose which a building of such dimensions and for such a purpose should exhibit. The pediment over it increases this disagreeable effect by carrying the eye upwards continuously, when vertical lines should have been as much as possible avoided. Had the extreme pilasters been advanced so as to range with the central columns and the pediment carried over all, the principal defect of the building would not have existed.

We are far from thinking that the style

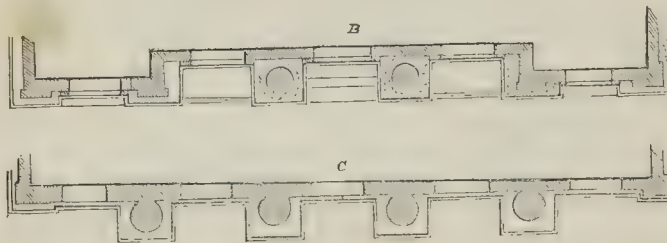
chosen by the architect is that which suits most effectively with a building of the nature of this edifice. That which is generally termed the Italian would with some little modification have been far more suitable for such a structure. Three tiers of windows do not agree well with Greek mouldings and ornaments, copied from examples wherein windows were never intruded, and which were composed accordingly, while the variety and amplification, so to speak, of the later style render it peculiarly applicable to the greater number of modern buildings in which convenience of arrangement calls for an architectural pliability, of which the Greek and Roman examples present us no specimens, and their principles will not admit.

But that we may not be accused of blaming without suggesting a remedy, we subjoin an elevation of what the building might have been with a plan of the front as at present existing, and as in correspondence with the elevation which we give. Whether our design will be thought an improvement upon the one executed, and which we have just criticised, we do not pretend to predict. It is an evidence of our willingness to submit our own ideas to the test of public examination, and the sentence which it will receive will, we hope, be as generous as just. Having pointed out the defects of the Wesleyan Centenary Hall, we ought, in justice, to shew how, in our opinion, they might have been avoided. We have done this, and we leave it to others to perform a similar duty with regard to ourselves.

W. C.

September 25, 1843.

Owing to our preparation of engravings for a future number, the elevation could not be completed in time for the present.—Ed.



B. Plan.

C. Plan as the Hall now stands. The pro-

portions we cannot vouch for, but the general idea is the same.

Correspondence.

CLASSIC NOT CHRISTIAN.

SIR,—In No. 35 we have "An Old-fashioned Architect" making many old-fashioned, worn-out statements, as though he wished them to be considered by all reasonable beings as settled truths. But I verily believe he intends nothing of the kind, and only makes them for the sake of mystifying the subject because he is unable to throw that light upon it which, if he had it to shed, he ought to have done, and not waste readers' time and the paper with so many words to so little purpose. I will for the present pass over those parts of his letter which are unworthy of any comment, and only answer his erroneous statements that bear upon design.

I do not say that Vitruvius was not a classic architect, but churches designed in his style of architecture would be buildings in Vitruvius's style, and not churches. A building is a church when it is designed for it, and is in accordance with the Word of God, and made by its forms, divisions, and arrangements, to speak (as it were) to the community on his Word, for which it was erected; and this, I beg to acquaint "An Old-fashioned Architect" is the essence of design, and on which principle the sister arts can only be carried out; and when the classic style has been resorted to by Christians for temples to the living God, it is much to be deplored that those Christians had not the power to perceive that the Holy Scriptures contained the true principles of ecclesiastical design, and on which they ought to have acted. But they were in the dark on Christian art, and at which we need not wonder, when their troublesome times we take into the account. But this important point is lost upon our "Old-fashioned Architect," and so on for the rest of the wordy work of our "Old-fashioned Architect," and which of necessity must fall to the ground. But I will make one quotation from his letter, to shew what unfortunate statements can be made. He thus states:—"Have you not as much right to call the works of Cyprian and Minucius

Felix, of Athanasius and Chrysostom, Pagan works, because they are written in Latin and Greek, as to call these Pagan churches, upon the dictation forsooth, that classic is not Christian?" Now, our "Old-fashioned Architect" cannot perceive the difference between sculptured forms and architectural divisions and arrangements, designed and made for Pagan worship, and writing on Christianity in Greek and Latin. After this unfortunate specimen, we may easily pass over the two following paragraphs, too weak to be entertained for one moment, and we come to "was there any building? &c.," and suppose there were not, would those glorious Christian works, our cathedrals, abbeys, and churches, be considered corruptions, because they were erected eleven or twelve centuries after "the Christian era had rolled away?" And is this a specimen of "Old-fashioned Architect's" reasoning to enlighten the readers of THE BUILDER? I, for one, hope the readers of this excellent work will not suffer themselves to be thus confounded.

The next paragraph is empty enough, and the last is too impertinent to notice. I think now "Old-fashioned Architect" can do no less than sign his name and write his address, that we may be on equal ground, when I am sure he will make clearer statements for it, and THE BUILDER readers be the gainers.

As regards the "gentle rap, &c.," if the editor intended it, I must beg to say that it fell far short of "Old-fashioned Architect's" assertion; and as to his notions of administering correction, I would advise him to search after consistency of design, and when he has attained that, he may venture to correct others.

I am, Mr. Editor, truly yours,
GEORGE R. LEWIS.

61, Upper Norton-street, Oct. 10, 1843.

NEW BUILDING ACT AND SMALL HOUSES.

SIR,—In the several suggestions or plans for small houses which from time to time have appeared in THE BUILDER, the complaint is general that the restriction to three squares and a half in the super-

fices or plan for that very numerous class of buildings termed fourth rate, operates against the effecting much improvement in the plans for dwellings of this description. I have much pleasure in stating to your numerous readers and the public generally that in the intended New Building Act the superficial area in all second, third, and fourth rates will be extended to TWELVE squares, beyond which it is proposed that the building be a first rate. The rate or class under twelve squares is to be determined by the HEIGHT or number of stories. This I am sure will be admitted to be a very great improvement upon the old or present Building Act, and for future buildings of the fourth class prevent the necessity of those closets now dignified with the name of BACK ROOMS. Perhaps you will insert this information in your next paper, and if you will grant me the favour, I will on some future occasions trouble you with some further remarks, both upon the old and the intended new Bill.

M. L. B.

[Our readers will be delighted to have the above information—and we can rely upon it. We have been indebted before to the same source for authentic matter pertaining to this subject.—Ed.]

THE BRITISH MUSEUM.

SIR,—A tolerably strong hint has been given in an article in the *Athenaeum* of last Saturday, headed "Our Own National Museum," that something very far more splendid than anything Smithke will, or can give us, should be made of the façade of the British Museum. Similar notions are, I believe, pretty generally entertained among architects—in private at least, if not in public. I, at least, who have a pretty extensive acquaintance with the case. Yet I fear among them, find such to be the case. I believe, that the *Athenaeum's* ideas are likely to be considered ultra-extravagant, not that I myself think so by any means. If the nation be too poor to incur the necessary expense, let it be done by subscription, and since, though patriotism may be very lukewarm, vanity is generally at fever heat with most of us, let it be announced that a statue will be erected in the colonnades of the façade to every donor of ten thousand pounds, and you may raise a million to-morrow. What is a poor ten thousand pounds for an eternity of fame? Verily a mere bagatelle; much more than is sometimes expended in one evening for lollipops and fireworks.

No matter to the public who the generous worthies may be, aristocratic or plebeian, nobles or snobs, lord dukes or lord mayors.

Yours, &c. &c.

BLOOMSBURYSIDE.

Temple, October 9, 1843.

WORKMEN'S COTTAGES.

SIR,—As a constant reader of your scientific publication, I shall from time to time send you a few remarks upon the topics you embrace, which, perhaps, may be interesting to some of your readers.

As it is now the mania for working men to build their own cottages (by means of certain societies, many of which are formed, I fear, by crafty designing men, for their own, and not for the poor shareholders' benefit), I conceive one or two hints may not be unserviceable to them.

Where the working man is able to erect his own dwelling, having sufficient capital for that purpose, his object, as a matter of course, should be not only to build an ornamental, but a truly substantial, convenient edifice—one that shall exist for several generations, and be fire-proof. To effect the latter desideratum (which he should do), although it will cost him a trifle more money, yet he will ultimately find it the cheapest. Many plans have been proposed by ingenious artisans and philosophers to produce it capable of resisting fire, but none, in my opinion, equals one plan for simplicity and success, viz. each of the rooms forming the cottage should be constructed with stout brick walls, ceiling (on the arch system), and flooring similar to the apartments in the Queen's Bench Prison; by this plan, if a fire broke out in one room, it could not extend further; and where a communication was required to be made between two or more rooms, light iron doors might be employed, which would cut off the progress of fire (should it occur in one apartment), and prevent it extending further, and thus the devastating element may be arrested. Of course, the brick flooring may be covered with wood in the usual way, the walls and ceilings may not only be plastered, but ornamented as the taste or fancy, and the pecuniary means of the architect or builder may desire. Having stated thus much, I shall conclude by noticing some of the benefits which the above method confers by its adoption on the proprietor or builder.

First.—No fire can extend beyond the room in which it broke out, and thus the entire building is preserved.

Secondly.—The expenses attendant on confining

tions, and rebuilding the premises wherein they occur, are avoided.

Thirdly.—No insurance of the building itself will be required.

Fourthly.—As by this mode of erection the house will last much longer than the present lath and plaster system, where showy fronts hide crumbling bricks and rotten timber, consequently the expense of rebuilding and incidental substantial repairs to a great extent are avoided.

The insertion of the above observations will gratify our obedient servant,

H. W. DEWHURST, M.A., Ph. D.
2, Surrey Cottages, Oct. 9, 1843.

ARMORY HOUSE, HON. ARTILLERY COMPANY.

SIR,—From the observation of your correspondent T. M. O. relative to the tenders for repairs and alterations at the Armory House (which appeared in your journal of last week), I presume he must be an unsuccessful competitor, and should have been glad had his name appeared; however, as I believe no reasonable builder could possibly feel in any way dissatisfied, I do not consider "T. M. O.'s" observations worthy of further notice, otherwise than in my opinion it will not tend to alter the system of work he unjustly complained. The insertion of the above will oblige, Sir, yours obediently,

C. F. MALBY,
Surveyor to the Hon. Artillery Company.
Took's-court, Chancery-lane, Oct. 11, 1843.

STAKING OUT A BUILDING.

SIR,—In No. 24 of our excellent BUILDER, I had a correspondent from Manchester asks for the best method of staking out the angles of a building. The following is the method I adopt in staking out the excavators to work from. The front line of building being determined, and its length marked out, the stakes are driven, say, about two feet beyond the length of the front in the same line. The length of the front being correctly marked, a large square is applied to the mark, which denotes the front length, and held parallel to the outside of the line already drawn, which will define the position of the next stake, which will be about two feet from the angle. The line is then run along the outside of both these stakes, and then along the gable or front, as the case may be, about two feet beyond the extent of the wall; a square is now applied inside the lines of the angle, to determine the true position of the third angle, and thus I proceed with every angle about the building, no matter how complicated; and for partition or inside wall that join the external line, I generally run the lines across the outside, and there drive the stakes. When the building is not celled, and has thick walls, four stakes are driven, the outside of the stakes for the exterior, and the inside for the bricklayers or masons. The line when wrapt round the stakes at the corners will be like the figure 4. I have adopted the above method, and have found little or no inconvenience after a slight explanation to the excavators.

Any of your numerous experienced correspondents can supply a better method, they would, no doubt, confer a benefit on your Manchester correspondent, and, Yours, &c.,
J. FLITCROFT.

PLAN FOR A FARMSTEAD.

SIR,—In the last number of your journal there is a plan for a Farmstead, which the correspondent furnishes it states to be suitable for a farm of 300 acres. Now, from this opinion I must beg to differ. Your correspondent appears to me to have slender knowledge of farming matters; the arrangement is on too large a scale: if it had been intended for a farm of 35 or 40 acres, it would have been ample. But I will not indulge in general observations, but proceed to particulars. First, there is a farm-yard 60'x60', and a 3600 feet for a five acre farm, and half that for a third. Why, the idea is ridiculous: 600 or 700 would be quite sufficient. I know a farm of 100 yards about 60 feet square, divided into three for cows, horses, and colts. There are generally cows, and two or three calves, and from twelve to twelve horses and colts, and this accommodation is found to be ample.

Secondly, we have a dung-pit provided; this is an odd mode of accommodation, the farm-yard answering the purpose much better, and the smaller it is (in proportion to the manure).

Thirdly, a cowshed might very well be dispensed with, or portion of one of the open sheds walled off, could then be quite sufficient accommodation for the cows. Three stalls are shown in the cowshed, implying that three cows would be kept; but on a two and a half acre meadow I am very sorry to cross the path of those three

stalls in a cow-stable are unnecessary, as the cows are to be fattened for the butcher;

but I cannot suppose any thing of the kind is contemplated in this case, as the means would be lacking.

There is no place provided to keep the food for the pigs; I would suggest that a portion of the small shed E be taken for the privy, and the ground that now takes up be appropriated for the purpose I have named, leaving a way to the privy.

We will now proceed to the front of the house; here we have a stove* (oven, I suppose) and the pantry close together; well, this would perhaps be very well to prevent the food being frozen in the winter, but how it would answer in summer "it is easier to imagine than to describe." I had another remark or two to make, but I have not time for more; I will only say that my only object in writing is to suggest what I think would be improvements; I am, at the same time, free to confess that there are several good points in the plan, but the whole appears to me ludicrously out of proportion to "the farm" it is intended for.

I am, Sir, your obedient servant,

W. H. J.

SIR,—Can any of your correspondents inform the public through your columns of a remedy or preventive against an accumulation of black beetles? Red wafers and beetle-traps have already been tried with but little effect.

M. L. B.

Miscellaneous.

ABBOTT'S CLIFF, DOVER.—We are indebted to Mr. Hodges, engineer of the South-Eastern Railway, for the details of the following account of another blast at Abbott's Cliff, the correctness of which may therefore be relied on.—Another of those blasts by which the progress of the works has been so greatly facilitated, and having for its object the clearing out the angle of the slope to form the face of the Abbott's Cliff tunnel, was intended to have been effected on Thursday; but, from some unaccountable cause, the circuit of one of the voltaic batteries was prematurely completed, discharging a portion of the mines, and leaving the rest unexploded. In this blast (although minor in point of power, yet as a piece of engineering, much more difficult than any of the preceding) 3,600lb. of gunpowder were to have been exploded. This was divided into 28 charges, varying from 28lb. to 900lb. each, and placed upon two platforms, 100 feet apart; the upper having 12, and the lower 16 charges, the whole of which were intended to have been simultaneously ignited. The arrangements had all been most carefully made by Mr. Hodges, assisted by Mr. Graves, and it is impossible to account for the partial and premature ignition which took place. So, however, it was; some of the mines first exploded, and Mr. Hodges finding that to be the case, completed the circuit of the whole of the batteries, by which the 12 mines on the upper platform were discharged. Upon examination, it was found that the spoil, caused by the prematurely exploded mines, had disarranged the whole of the wires connected with the lower mines, and, of course, prevented their being discharged until this spoil could be removed. The dislodgement effected by the upper mines is precisely what was required; and there is little doubt but that the lower mines, when discharged, will produce the desired result, although not fired with the upper. This partial check, for it can scarcely be called a failure, is the first with which Mr. Hodges has met in the course of the numerous explosions which have been planned and executed by him during the progress of the works, and by which so many thousands of pounds and so much time have been saved the company and contractors. Since the above was written, the lower mines were discharged, and the result is precisely what was desired by the projectors. The works are progressing here with great rapidity, the outward piles of the viaduct are now being driven, and its completion will take place during the month. These piles go completely into a rocky substratum, and give great security and firmness to the work. The sea-wall is in a state of rapid completion, and, when erected, will prove a most perfect barrier to the inroads of "Davy Jones" from whose attacks, such is the natural formation of the beach, we think there is nothing to be feared. The Archibuff Fort Tunnel will be finished next week; and the preparations are now being made for laying the permanent rails in the Shakspeare Tunnel. According to the appearances at present, we have little doubt that Mr. Cubitt's expectation of opening the line to Dover before the end of next month will be realized; at all events, we feel quite satisfied that the year 1843 will witness the carriages of the South-Eastern Railway running to Dover.—Dover Telegraph.

* [We are afraid there is a mistake attributable to us, and that the word stove ought to have been used instead of stove.—Ed.]

RESTORATION OF THE ROYAL CHAPEL OF THE SAVOY.—It may not be generally known that the beautiful chapel belonging to the ancient palace of the Savoy—a name suggestive of a long train of historical reminiscences—has been for some time past in a course of complete restoration and repair, by express command and at the expense of her most gracious Majesty Queen Victoria. Although the Savoy is a private chapel belonging to the Crown, and maintained out of the revenues of the Duchy of Lancaster, yet the present improvements and proposed decorations cannot be considered as designed for the personal comfort of the Sovereign, and the outlay now made manifests a most praiseworthy zeal for the honour of God's house, as well as a beneficent anxiety for the comfort of the parishioners, most of whom are tenants of the Crown. In these days of theological inquiry the Savoy has a peculiar interest, as having been the scene of the last attempt made by the state and the authorities of the church to reconcile the church and the Dissenters. It cannot be forgotten that the Savoy conference finally settled the Book of Common Prayer, and that there the admirable preface to the Liturgy was written—indeed, there is, we believe, an old authority to show that in this chapel the Liturgy was first publicly read. Here, also, in days of yore, many of the bishops were from time to time consecrated, and among them Wilson, Bishop of Sodor and Man, by Archbishop Sharpe, in 1698. The chapel, according to Pennant, was restored and royally endowed by Henry VII., under his will, dated 1508. This endowment is still kept up, the incumbent receiving an annual fee by Royal warrant. In the present work of restoration the architectural department has been intrusted to Mr. Sydney Smirke, who has already restored a very beautiful altar screen, originally designed by Sir Reginald Bray, tempore Henry VII. The old carved roof, which consists partly of emblems of the Plantagenets in succession down to the last of the Tudors, and partly of devices emblematic of our Saviour's Passion, has been renovated and splendidly emblazoned under the superintendence of Mr. Willement. In addition to these and other costly improvements, her Majesty has determined to add a new organ, and Mr. Bishop has been selected by Lord Granville Somerset, the Chancellor of the Duchy of Lancaster, to build the instrument. The works are all completed with the exception of a new stained-glass window over the altar, which Mr. Willement has designed to harmonize with the architecture of the venerable fabric. The chapel will be re-opened on the 29th inst., before which it is expected her Majesty will make an inspection of the alterations and improvements.

SHUTTERS.—All windows should be provided with inside shutters, where comfort is an object. They afford the only effectual means of completely excluding the light, which is sometimes desirable in cases of illness; and they keep the rooms warmer in winter and cooler in summer, by say nothing of affording security from thieves. In the best rooms, they should fold back into boxings; that is, cases formed in the jambs or sides of the windows, to receive them during the day; but where the rooms are small, the shutters may be made to slide up and down, in order that they may occupy less space, and not prevent their being curtains to the windows.

THE CITY OF DUBLIN.—The appearance of Dublin is very much improved of late years. Streets have been widened, new squares skilfully laid out, and many public monuments freed from buildings which concealed their beauties; the police is also better attended to, and commercial activity seems to have taken a new energy. But the most beautiful spectacle that can be presented to the eye of a stranger, is the vast panorama which suddenly opens itself on Carlisle-bridge. In front lies the magnificent Sackville-street, with its monuments, its splendid hotels, and the superb column erected in honour of Nelson; on the left, the fine quays of granite, with their handsome balustrade, which bound for several miles the dark waters of the Liffey; on the right, and almost within reach of the observer, thousands of masts rise between the banks of the river, between two ranges of lofty houses, and at the foot of that admirable building which, with its majestic portico, its elegant colonnade, its pavement of marble, and its dome of bronze, more resembles a noble Venetian palace than a prosaic custom-house. From the heights of the Phoenix-park one also enjoys a splendid prospect. In the midst of a vast lawn rises the palace of the Viceroy, surrounded by a treble fringe of shrubs and exotic plants, and defended by a large fosse. In turning the view towards the Liffey, the prospect embraces the heavy masses of the old city, with its steeples and towers, the ancient gate of Richmond, the Hospital for Invalids, a noble palace built to shelter the remains of the army, and, in the distance, the high mountains which enclose, as with a girdle, the county of Dublin.—Letter of a French Tourist in the Constitutionnel.

CURRENCY OF NORTH AMERICA.—A tradesman, about eighteen months ago, left Paisley to visit some relatives that had emigrated to Brookville, near Montreal. These, with their connections, he found in possession of the greater number of farms in that neighbourhood. They had abundance of every thing that constitutes the good things of this life, but no money, not even to the amount of five pounds, among the whole. His sister, who had accompanied him, began business as a straw-bonnet maker, and having finished one for the wife of a druggist, received payment in sticking-plaster. She had previously ordered from a block-maker a block for a new shape of bonnet, and, on asking the price, was told it was sixpence, but cheapened it down to fivepence. She then presented in payment fivepenny worth of the sticking-plaster, which was accepted, after much grumbling, and an intimation that he had given her the penny down, expecting to be paid in cash. The person previously alluded to taught drawing, and he was obliged, in the absence of money-fees, to board alternately with the parents of each scholar, or take cords of firewood from one; bacon, hams, from another; maple-sugar from a third; ashes from a fourth, &c. &c. This did not exactly suit, however, and he was glad to return home again to his native place.—*Glasgow Argus.*

NEW LINES OF RAILWAY.—A prospectus has been issued for a proposed railway from Norwich to Brandon, by Attleborough and Croxton, with a branch to Thetford. The capital to be raised is 300,000l., in 20l. shares. The execution of the work will be under the control of Mr. G. Stephenson and Mr. G. P. Bidder, and Messrs. Grissell and Peto have offered to undertake the work at the rate of 10,000l. a mile. The Northern and Eastern Railway Company have called a meeting of the 25th of October, to consider the expediency of applying to Parliament for power to extend their railway from Newport to Cambridge, and thence to Brandon, when the engineer, Mr. Stephenson, will make a report of his survey of the line from Cambridge, by Ely, to Brandon, which, it is stated, will be extremely favourable both as regards levels and purchase of land. The Eastern Counties Company also meditate the prolongation of their line to Brandon.

FITTING OF DOORS, &c.—Whenever it is observed that the soffit of a window or doorway is sunk, so as to impede the door or shutter from closing easily, it should be examined; and it will generally be found that the defect arises from the weakness of the lintel, and that the arch in brickwork, which should be turned over every opening where it is possible, has been omitted. This must be remedied without delay, or it will get worse.

BEECH LEAVES.—The leaves of this tree are often used as a substitute for feathers in a bed. Evelyn says, that being gathered about the fall, and somewhat before they are much frost-bitten, they form the best and easiest mattresses in the world, instead of straw; because, besides their tenderness and loose lying together, they continue sweet for seven or eight years, long before which time straw becomes musty and hard.

WARWICK.—The Earl of Warwick has given the munificent donation of 400l. in aid of the fund for erecting a chapel of ease in the parish of St. Mary, Warwick. The noble earl has also liberally offered gratuitously to supply all the stone required for the erection of the intended church.

READING GAOL.—The whole of the roofs of this gaol, which are very extensive, are being covered with asphalt by the Seyssel Company.

We have the highest gratification in announcing that Sir Robert Peel has, within these few days, forwarded a cheque for 4,000l. to the Ecclesiastical Commissioners, with the view of raising a fund to meet the demand for the building of churches, which will ensue from the Act that was passed in the last session. This truly reasonable gift was accompanied, we understand, by a letter scarcely less gratifying, in which he spoke of it as a debt due from him, in consideration of the large fortune he had derived from trade.—*English Churchman.*

CHEAP HYDROMETER.—A simple way to detect the presence of moisture on the surface of the earth, is to wear boots with holes in the soles, or sit upon the ground out of doors for two hours, and then calculate according to the degree of rheumatism to which you will rise.—*Punch.*

TITLES OF HONOUR.—The keeper of a Scotch ale-house having on his sign after his name, "M.D. F.R.S." a physician of the Royal Society asked him how he presumed to affix these letters to his name. "Why, Sir," said Boniface, "I have as good a right to it as you have." "What do you mean, Sir, returned the other," replied the Doctor. "I mean, Sir," said Boniface, "that I was Drum-Major of the Royal Scotch Fusiliers."—*Edinburgh Register.*

ST. JAMES'S PALACE.—The embellishments, according to estimates submitted to the Woods and Forests, of the state rooms have commenced, and the works are in a forward state. Her Majesty's private apartments will be also re-decorated, and the staircase, corridors, &c. will be also restored.

The two principal side avenues of the Champs Elysées are being laid down with bitumen, so that they may form dry promenades in winter. Men are also actively employed in widening the pavement of the Rue Royale St. Honoré, which is to be planted with trees like the Rue Tronchet. The sides of the Place de la Madeleine, in front of the church, are also being laid down with bitumen.

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification of which they may choose to avail themselves.

Paving Foot-paths, St. Paul's, Deptford.—T. Marchant, Vestry Clerk.—C.F. Maltby, 19, Took's-court, Chancery-lane, surveyor. Oct. 17.

YORK AND NORTH MIDLAND RAILWAY.—Tenders for the supply of 5,000 tons iron rails; also 1,500 tons of iron chairs.—Company's Office, York. October 25.

Repairing Turnpike Roads, Bridgwater.—T. Symes, Clerk. October 20.

TENDERS for erecting a Workhouse for the Sevenoaks Union.—Mr. Carnell, Clerk to the Guardians, Sevenoaks. November 1.

COMPETITIONS.

Design for a testimonial to the late G. Clendinning, Esq., to be executed at Westport, at a price of 800 guineas.—Dr. Dillon, Infirmary, Castlebar, Mayo, 20 guineas, Jan. 1, 1844.

Premium of a gold medal or money for the best model of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

NOTICES.

TO OUR READERS.

We beg to announce that having made arrangements for an interchange of good offices with a friend in Paris, we shall be happy to promote the inquiries and business of our readers in that city. We propose to establish the same description of agency with the other principal cities on the Continent, for the benefit of our undertaking, and for that of our friends.

TO OUR CORRESPONDENTS.

"Church of St. John's, Notting Hill."—Mr. Stevens, of Clement's-Inn, Strand, is the architect of this building.

"Torus" knows well enough that there are good and bad advocates. We do not object to the cause he undertakes, but to the mode of advocating it.

"Bloombsburiensis" has our thanks for his dispassionate reply to our observations, which we insert; perhaps he will excuse our curtailing his first communication.

"Mr. Estall."—We shall always be glad to be set right.

"W. C."—Both his communications are to appear; the first is in the engraver's hands.

"A Carpenter" is desirous of making a model of a skew arch, and wishes for a reference to the drawing furnished in *THE BUILDER* of September 30th. He will find other papers on the same subject following, which our insertion of that drawing has elicited.

"Mr. Bryant" has our thanks.

"J. M. S. Peckham."—Something of the kind has been in our thoughts, but it would take much time and trouble.

"Mr. Benson, North Shields."—We have heard of his talent before. We shall be happy to promote his views if he will confide to us what he proposes. His exertions in our behalf contrast strangely with the inertness of many.

"Mr. Glegg" will oblige us by his proffered good service. We thank him also for what he forwarded.

The Building Committee of the Hospital for Consumption and Diseases of the Chest have awarded the premium of 30 guineas for the best design to Mr. Frederick John Francis, of 251, Oxford-street.

The terms of subscription to *THE BUILDER* are as follows:

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R. E. CLARKE and SON, PAPER-STATIONERS, 3, Chancery-street, Bedford-square, respectfully beg leave to state that they have now on hand a large quantity of PAPER-HANGINGS, which they can offer at a very great reduction of price.

Several Hundred Remnant Lots of from three pieces to five pieces will be sold at one-half the usual price.

ORNAMENTAL WINDOW GLASS.—The per foot super.—CHARLES LONG having greatly improved his machinery for ornamenting glass, is enabled to offer handsome patterns at 2s. per foot super, glass included. 100 feet can be executed and delivered in two days. Address to Charles Long, House Decorator, &c., 1, King-street, Portman-square.

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PECULIAR ADVANTAGES ARE OFFERED BY THIS COMPANY. THIS PARTIAL ASSUMING THE LIVES OF OTHERS IN THEIR POLICIES SECURE, notwithstanding the life assured may go out in the hands of Europe, without the necessary permission of the Directors having been previously obtained.

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Attention is particularly requested to the detailed prospectuses of the Company, which may be obtained at the office, 18, King William-street, City, or by letter, addressed to the Secretary, WILLIAM RATRAY, Actuary and Secretary.

The Proprietors beg to announce, that a
LARGE AND BEAUTIFUL ENGRAVING
OF THE
INFANT ORPHAN ASYLUM,
FROM THE DESIGNS OF
MESSRS. SCOTT AND MOFFATT,
Will be given in the next week's Number.

THE BUILDER,

NO. XXXVII.

SATURDAY, OCTOBER 21, 1843.

MODERN FRESCO PAINTING.

The great interest this subject has excited, which will necessarily increase as the approaches for executing the proposed decorations of the new Houses of Parliament, has induced us to refer to the report of the Commissioners on the Fine Arts (1842) with a view to a generally diffused knowledge of the practical information needed at so much labour and cost. Fresco painting has for some years past been cultivated in Germany, particularly at Munich, the capital of Bavaria, where many public and some private buildings are decorated in this manner; the commissioners have derived themselves of the experience of the professors of the art to abridge the arduous labours of our own painters in dealing upon a material new to them, and of the preparation, after tried methods, to be one of the essentials of success. It has been resorted to by the Germans, solely for conception of the grandeur of which fresco is so well adapted, but the best method of coating walls to receive the paintings. The facts elicited, though obtained for this especial purpose, interesting to the building craft at large, such as the treatment of lime, and the requisites for producing the finest, the same time most durable surfaces, is of great importance. The principal point with lime seems to be the advantage resulting from its being kept in a slaked state, excluded from the external air, for a very long period. The preparation at Genoa is described by Mr. C. Wilson, Professor of ornamental design in the Royal Edinburgh Institution, from personal observation. The lime having been slaked, is received in a vessel six feet in length and twenty inches in diameter, narrowing to the bottom; the lime is in this vessel, and water thrown in until the consistency of cream. At the end of the trough there is a little sluice opening an inch or two of the bottom, which the dilute lime to pass, but retains the other impurities; the lime is retained in a pit dug in the mere earth to the depth of several feet; the process is repeated until the pit is full, and the lime thus prepared might take twelve months, according to the desired strength, before it is fit for use. The lime, while it effectively slakes every particle and frees the lime from all extraneous matter, serves also to deprive it of its more caustic property, and in proportion destroys also that of cohesion. Consequently, however, and upon the basis of this putty-like substance as the walls plastered therewith assume, by the absorption of carbonic acid from the atmosphere, a surface of very great hardness and durability. This, says the report, is what takes

place during and after the process of fresco painting; moisture being always the medium—the conductor, so to speak, of carbonic acid, which effects the induration. The Germans seem to have varied, if they have not improved the method just described. At Munich a pit is filled with clean burned limestone, which on being slaked is stirred continually till the substance is of an impalpable consistence. The surface having settled to a level, clean river sand is spread over it to the depth of a foot or more, and the whole is covered with earth, so that the air is perfectly excluded. In this state the lime remains for at least three years before it is considered fit for use as a ground for fresco; but whatever may be the difference in the mode of storing lime for the finer descriptions of plaster-work, it is sufficiently ascertained that rich limes can be kept in a moist state for any length of time. The general result is supposed to be, first, to render the lime mild, and next to improve its consistence; assuming, then, that the effect of keeping pure lime in pits is to promote a more perfect comminution of the particles, the result is as completely attained by the practice of the Genoese masons, as by that of the Germans. It must be observed that the process is objected to by modern writers on cements for building purposes, because it reduces the strength of the lime, or, in other words, renders it less caustic; this, however, is its principal recommendation to the fresco painter, whose brushes and more tender colours would suffer by contact with a highly caustic surface. The first, or rough coat of plaster applied to walls intended to receive frescos, is composed of the usual proportions of one part of the prepared lime and two of sand. No hair is used by the Italian plasterers. The rough coat being thoroughly dry and seasoned, the *intonaco* or coat of fine plaster is applied; in Italy much care is taken in preparing it; the lime is taken out of the pit with a spade, but not from too near the bottom or sides. It is thrown again into the troughs, mixed with water until not thicker than milk, and is allowed to escape as before through the open sluice, passing through a fine hair sieve into earthenware jars. The lime being allowed to settle, the clear water is poured off, and the lime remains about the consistency of white paint, and quite as smooth.

The *intonaco* is composed of two parts sand and one of lime. In Italy great pains are taken to procure a suitable sand; it must be perfectly clean and sharp, the grains of equal size, and its colour favourable, or the *intonaco* would be too dark. The presence of any earthy particles in the plaster would inevitably ruin the fresco. The plaster should be laid on lightly and freely with a wooden hand float; in connecting the successive patches, some portions require, however, to be finished with an iron trowel; in this case care must be taken not to press too strongly, otherwise rust spots might appear in the lime; a glass float seems preferable where a wooden instrument is unfit. The plaster should be about a quarter of an inch in thickness; the surface of the last coat is then slightly roughened to render it fitter for painting on.

Mr. A. Wilson, writing in March, 1842, gives the following very interesting description of modern fresco painting, from actual observation: "I lately went to the royal palace (Genoa) to see Signor Pasciano paint a ceiling in fresco. His tints had all been prepared before my arrival; he had only two in pots, viz. pure lime, and a very pale flesh tint. He had no palette, but a table with a large slate for

the top; on it he set in a circle: 1. Terra vert 2. Smalt; 3. Vermilion; 4. Yellow ochre; 5. Roman ochre; 6. Darker ochre; 7. Venetian red; 8. Umber; 9. Burnt umber; 10. Black. These colours were all pure, mixed only with water, and rather stiff; put down with a palette knife, perhaps about an ounce or two at most of each. He mixed each tint as he wanted it, adding to each from the pot of flesh tint or that of white. Near him lay a lump of umber, and on taking up a brushful of colour he touched this with it; the earth instantly absorbed the water, and he was thus enabled to judge of the appearance which the tint would present when dry. The painter used a resting stick with cotton on the top to prevent injury to the *intonaco*. The *intonaco* being prepared in the manner previously described, the moment it would bear touching, he set to work. The head was that of the Virgin; he began with a pale tint of yellow round the head for the glory (the colour of the ground, owing to the mixture of sand with the lime, it is to be remembered, is a cool middle tint); he then laid in the head and neck with a pale flesh colour, and the masses of drapery round the head and shoulders with a middle tint, and with brown and black in the shadows. He next, with terra vert and white, threw in the cool tints of the face; then, with a pale tint of umber and white, modelled in the features, covered with the same tint where the hair was to be seen, and with it also indicated the folds of the white veil. All this time he used the colours as *thin* as we do in water colours; he touched the *intonaco* with great tenderness, and allowed ten minutes to elapse before touching the same spot a second time. He now brought his coloured study, which stood on an easel near him, and began to model the features, and to throw in the shades with greater accuracy. He put colour in the cheeks and put in the mouth slightly, then shaded the hair and drapery, deepening always with the same colours, which become darker and darker every time they are applied, as would be the case on paper, for instance. Having worked for half an hour, he made a halt for ten minutes, during which time he occupied himself in mixing darker tints, and then began finishing, loading the lights and using the colours much stiffer, and putting down his touches with precision and firmness; he softened with a brush with a little water in it. Another rest of ten minutes; but by this time he had nearly finished the head and shoulders of his figure, which being uniformly wet, looked exactly like a picture in oil, and the colours seemed blended with equal facility. Referring again to his oil study, he put in some few light touches for the hair, again heightened generally in the lights, touched too into the darks, threw a little white into the yellow round the head, and this portion of his composition was finished all in about an hour and a half. This was rapid work; but it must be observed that the artist rested *four times*, so as to allow the wet to be sufficiently absorbed, to enable him to re-pass over his work.

"The artist now required an addition of *intonaco*, the tracing was lifted up to the ceiling, and the space to be covered being marked by the painter, the process was repeated, and the body and arms of the Madonna were finished before I left him, at one o'clock."

Pews.—In Westminster Abbey the choir is to be altered, the present miserable screen-work is to be removed, and pews abolished. In the cathedral at Canterbury the choir is about to be furnished with new stalls and a throne, and the pews are to be removed. The new church in the Broadway, Westminster, has been built without pews.

ENGLISH DOMESTIC ARCHITECTURE.*

THE history of domestic architecture in England is still for the most part unwritten, and would form the substance of a highly interesting work. From the remains, so often ploughed up in our fields, of villas with tessellated pavements, and baths of very artificial construction, there can be no doubt that the Romans, during their occupation of the island, introduced very generally their own style of house building; and the Britons themselves probably copied from them to a certain extent, as their descendants evidently did in the plan and decoration of their religious edifices. But from the complete absence of any remnants of the British habitations of that day, it is useless to speculate on their form or materials. The same remark applies to the Saxon era; for the few circular or square towers of three or four stories, which are the most ancient buildings we can trace in the island after the departure of the Romans, were apparently erected rather as military posts for the protection of the country, or as places of temporary refuge during an invasion, than as permanent residences. Coningsburgh in Yorkshire, and Castleton in Derbyshire, are some of the largest and best preserved examples of these early Saxon fortresses; if they, in truth, belong to that era.

But our Saxon ancestors reared few such places of strength. Their habits were peaceful and agricultural rather than warlike; and they lived, as William of Malmesbury informs us, in low and mean houses, having no pretensions either to splendour or strength. It was, indeed, this defenceless condition of the island which rendered it so easy a prey to the Norman conqueror; and it was to remedy this defect, and secure his newly acquired dominions, as well against invasions from without as rebellions within, that William lost no time in erecting strong castles in all the principal towns of his kingdom, as at Lincoln, Rochester, Norwich, &c., for the double purpose of strengthening the towns and keeping the citizens in awe. His followers, among whom he had parcelled out the lands of the English, had likewise to protect themselves against the resentment of those they had despoiled, and imitated their master's example by building castles on their estates. The turbulent and unsettled state of the kingdom during the succeeding reigns caused the rapid multiplication of these strong-holds, until, in the latter end of the reign of Stephen, there are said to have been no fewer than 1,115 castles completed in England alone. "The whole kingdom," says the author of the *Saxon Chronicle*, "was covered with them, and the poor people worn out with the forced labour of their erection." It was soon found, also, that they were likely to be no less inconvenient to the sovereign, enabling a cabal of barons to beard the power of their liege lord; and one of the first acts of Henry II. was to prohibit the erection of any castle without a licence.

Many of the castles of this age were of great size, and possessed a certain rude grandeur of design. To the simple keep-tower of earlier date several other towers, both round and square, were added, united by flanking walls, so as to enclose a polygonal court-yard, the entrance to which was usually between two strong contiguous towers. An outwork, called the barbacan, often still further defended the approach, as well as a moat and drawbridge. Plates of iron covered the massive doors, in front of which the grated portcullis was let down through deep grooves in the stone-work; and overhead projected a parapet resting on corbels, between which were the openings called machicolations, from which melted lead, hot water, and stones could be thrown on the heads of the assailants who should attempt an entrance by forcing, or, as was the usual mode of attack, firing the doors. The gateways of Caerlaverock, Tunbridge, Conway, Carisbrook, and Caernarvon are good specimens of this kind. The keep-tower, or strong-hold, rose pre-eminently above the rest, and generally from an artificial mound. It contained the well, without which the garrison would not have been enabled to hold out in their last place of refuge; the donjon or subterranean prison, the name of which was often extended to the whole keep; and several stories of apartments, which were probably not occupied by

any but retainers, except during a time of siege. The staircase which communicated with these stories was either pierced in the thickness of the walls, or built on the outside of the tower.

After the age of Edward III., we find a considerable improvement in the character of the habitations which remain to us. By degrees it was found possible to associate much convenience and magnificence with the strength requisite for defence; and the former confined plan of the close fortress expanded into a mixture of the castle and the mansion. The courts were multiplied. The tilt-yard surrounded by the stables and domestic offices occupied one. A second gate-way led from thence into the inner court, which was often double, and environed by the principal living range, consisting of spacious and magnificent apartments, the hall, the banquetting-room, the chapel, with galleries of communication and numerous sleeping chambers. The windows were often large and beautifully ornamented, but always high above the ground, and looking inwards to the court. The keep was always entirely detached and independent of these buildings. Such was the royal palace of Windsor erected by Edward III., and such the splendid baronial castles of Warwick, Ludlow, Spofford, Harewood, Alnwick, Kenilworth, Ragland, and many others. The last mentioned is one of the most perfect examples we are acquainted with of the union of vast strength and security with convenient accommodation and great ornamental splendour. The keep is a perfect fortress in itself, and encircled by a range of minor towers and moat. Its masonry is unrivalled.

At a later period, a still further change took place. The powers of the barons had long since yielded to the growing dominance of the crown, backed by the wealthy and commercial classes inhabiting the towns, who were admitted to a considerable share of political power, and strongly supported the royal authority, as a necessary protection for their peaceful and industrious pursuits, and for the wealth which they accumulated through these means. The reign of law, in short, had gradually succeeded to that of the strong hand. The peaceable were able to trust to the executive for the defence of their persons and property, rather than to the strength of their own walls, or the falchions and iron mail of their friends and retainers. The residences of the nobility and rich landed proprietors again assumed, though by degrees, and with the exception of some districts, like the borders of England and Scotland, a civil in place of a military appearance. Beauty and ornament were consulted by the builders instead of strength, and the convenient accommodation of the ordinary indwellers, in lieu of the means for disposing of a crowded garrison, and its necessary provision in time of siege. The mansions erected under these circumstances partook but slightly of the castellated character. They usually retained the moat and battlemented gateway, and one or two strong turrets, to build which a royal license was necessary; but their defensive strength could only have availed against a sudden and momentary attack. They were generally quadrangular in form, the larger class enclosing two open courts—of which one contained the stables, offices, and lodging of the household; the second, the principal or state chambers, with the hall and chapel. Large and lofty bay-windows, reaching almost to the gardens on several of them opening to the gardens on the outside of the building, though these were enclosed by high battlemented walls, and generally by a moat likewise, evidenced a sense of comparative security from external violence. Wingfield manor-house, in Derbyshire; Cowdray, in Sussex; Kelmingham Hall, in Suffolk; Penshurst, in Kent; Deene Park, in Northamptonshire; and Thornbury Castle, in Gloucestershire, are some of the richest specimens extant of the highly ornamented embattled mansions of the time of Henry VII. and VIII., the period of transition from the castle to the palace, and undoubtedly the best era of English architecture.

Such buildings differed but little from the monastic residences of the same, or of an earlier date. The lordly abbot emulated the proud baron in all the outward demonstrations of wealth, and perhaps more than rivalled him in the interior luxury and convenience of his

establishment. It seems probable, indeed, that the latter merely imitated the improved accommodations and still increasing magnificence which these cloistered *virtuosi* were the first to invent or copy from their continental brethren.

Of the minor country residences of that and the earlier reigns, many interesting examples remain scattered through the island, some fulfilling their original destination, but more frequently employed only as farm-houses and going fast to decay. Except in an occasional moat, the embattled gateway, and strong wall generally embattled also, enclosing the court-yard on those sides where the buildings were wanting, they exhibit but few means of defence.

The leading causes of the decay of those grand halls which were formerly so thickly strewn on the face of this country, that scarcely a parish or a manor was without one or more examples, have been the concentration of landed property into larger estates and fewer hands, which has been gradually in progress through the century or more, and the increasing predilection of our wealthy classes for the gaudy metropolitan or the crowded watering-place, rather than the quiet and simple enjoyment of the rural residence.

In a few of the houses built during the reign of the last of the Henrys, we may observe some slight traces of the Italian architecture which in the next reign was more liberally introduced and mixed up with the original Tudor or early English, into an irregular certainty, but in most instances, an exceedingly rich and effective composition.

At this late period the intercourse between the different states of Europe had become considerable, and the fame of deep interest in the arts was a subject of deep interest in the country, where the rage for building was less strong and general than in Italy. The brilliant reign of Elizabeth, the English nobles and princely proprietors vied more than with each other in the magnificence of their mansions. It might have been supposed that the noble Tudor houses, such as we have described them, with their panelled walls, tresses, and battlements, traceried windows, sculptural dripstones, florid pinnacles, and bossed chimney-shafts, were sufficiently and gorgeous to satisfy the prevailing taste for splendour; but in their anxiety to strike surprise the admiration of their countrymen, many deserted the native styles, and some designs, and even artists from abroad. The architecture became, by degrees, the Italian, and even where the indigenous style was adhered to in the general design, many of the richments and ornamental features were borrowed from the Italian. First of all the gateway, as the most conspicuous point, which to exhibit these exotic novelties, decorated on either side the entrance, perhaps a second and third story above the pilasters belonging to the different orders; the doorway itself exchanged the pointed, or Tudor, for the circular arch, deep, elegant, and sweeping Gothic moulding for the Vitruvian projecting impost. The porch at Milton Abbey, built in the reign of Henry VIII., is one of the earliest examples of this innovation. Lower Marney Hall, in Essex, built in the same reign, is another. It is a regular embattled quadrangular tower, built entirely of brick. The gateway is flanked by large and lofty octagonal towers with narrow pointed windows, but topped with lotus-leaved ornaments and scrolls of battlements, while the mullions of the windows terminate above in debased capitals; all these enrichments are in brick.

Next was introduced the cupola, whose use in Italy had made so much noise, and appears our country squires were not slow to have miniature specimens of it at home. It was applied as a covering to the high round, square, or polygonal, which terminated the angles of the entrance, and surmounted with gilded vases, certainly produced a rich and imposing appearance. We experience in Barleigh and Cobham a parapet over the porch and the projected dormers, was, at the same time exchanged for a pediment; and busts of the twelve apostles and similar devices took the place of the heraldic animals and shields. Then

the removal of the panelled battlements, and the substitution of a parapet carved into fantastic notches or scrolls, or perforated with oval openings, and ornamented with obelisks, balls, busts, statues, and other singular decorations. These ran up the gables, which were then twisted into strange shapes, and some-

times wholly replaced by the level balustrade. Thus the most characteristic features of the old style, its numerous steep gables and spiry pinnacles, were succeeded by the uniform horizontal lines of the new. At length the whole building was surrounded by columns or pilasters, rising tier above tier, to the exhaus-

tion, sometimes, of the four orders,—open arcades took the place of the entrance-porch,—and nothing remained of the Tudor style but the mullioned window, which, however, was of itself sufficient to give a peculiarly picturesque and old-fashioned aspect to the whole building.

(To be continued.)

THE THAMES TUNNEL.

THIS great work, recently brought to completion, after having been carried on for a series of years amid adverse circumstances and professional difficulties of a new and embarrassing kind, is one of the most successful feats of hydraulic engineering existing. The mode of subaqueous communication was not, having been very long ago proposed in the case of the towns of North and South Shields; and actually commenced between Wessend and Tilbury, by Mr. Dodd, about the year 1800. It was early in 1823 that Mr. Brunel first proposed, and found powerful and influential friends, to advocate his plans for the present Tunnel; in 1824 a company was formed, and the preliminaries of subscriptions for the procurement of an Act of Parliament were successfully prosecuted, and the work commenced in March 1825. The detail of an undertaking, presenting at every stage extraordinary features, and calling forth corresponding resources from the fertile and unending mind of the engineer, it is impossible at this moment to enter upon. From the sinking of the shaft on the Rother-side, in itself a great and novel work, to the corresponding opening at Wapping, the history of the Thames Tunnel is one of alternation of difficulty and triumph.

With the assistance of "the shield," an invention which has been frequently described, the middle of the river had been reached in the year 1828, when the danger of a second or third rupture of the superincumbent flood became more and more imminent, and this catastrophe happened on the 12th of August of the same year, at a time too when the funds of the company were exhausted. We well remember the event, and the almost universal opinion that work could never be resumed: in fact, not until the lapse of nearly seven years, when the Government, after repeated petitions, consented to make the requisite advances. The work now proceeded, but not without increased doubts and danger, and every now and then impeding the progress. It may be sufficient at present to mention that in the whole, five great floodings took place sufficient under any other superintendence to have put a period to the undertaking. "London" has the following

appropriate paragraph upon the first passage of Sir Isambard Brunel through the Tunnel, which we offer to our readers, with a cordial reference to the volumes from which we extract it. "The reward for every difficulty, anxiety, or suffering, was at last obtained. It is pleasant even to have to record that on the 13th of August, 1841 Sir I. Brunel passed down the shaft recently erected at Wapping, and thence by a small driftway through the shield into the Tunnel. Under what a new aspect that beautiful double archway must have thence appeared, even to him whose eyes had not for a single day forgotten to look upon it for many years! And, as he turned, what power must

have been felt in that little beam of light struggling through the driftway! The world must have appeared brighter from that moment. Nor should the labourers be forgotten, who, whilst expressing their admiration of him who had given method, firmness, and propriety to their labours, in the cheering with which they greeted his appearance in the Tunnel from the opposite shore, deserve their meed of respect and applause."

The Tunnel is twelve hundred feet in length. The arches twenty-two and a half feet high, and the double road-way thirty-eight feet broad. The total expense of construction approaches £650,000.



THAMES TUNNEL DESCENDING SHAFT AND STAIRS.



THAMES TUNNEL ENTRANCES.

HEALTH OF TOWNS.

PROPOSALS FOR CONSTRUCTING SUB-SEWERS AS A NECESSARY AUXILIARY TO THE PRESENT SEWERS.

THESE sewers may be constructed of cast-iron ribs, fixing into a cast-iron keelson, having on a cast-iron crown plate, the whole so formed as to key into one another without screws or bolts.

The sub-sewers are to run along and beneath the north and south sides of the shores of the river Thames, a little above low water mark, and proceed down the river to the lower parts of Essex and Kent into receptacles or reservoirs formed of cast-iron plates (something similar to gasometers), and with partitions having gratings or meshes of sizes proper for the purpose of separating the filth from the liquid, which will run into the last chamber, and be allowed to stand to settle. Now, if a column of pulverized quick-lime is run into the sewer at any given point previous to its exit from thence into the reservoirs, every thing that is held in solution in the liquid will be chemically thrown down (the theory of the process of which is, the contents of the sewerage being highly charged with carbonic acid, immediately the pulverized lime comes in contact therewith, the liquid is chemically acted upon, and what was held in solution immediately falls down), thereby separating the water, which may be turned off, and leaving the residue, which may be passed through a powerful mill in order to pulverize and thoroughly incorporate it, after which it can be put into an hydraulic press and formed into blocks of any shape or size best fitted for conveying to any parts of the empire. A column of sea water might be advantageously run into the sewers, the saline portions of which would prove highly beneficial to the manure.

The Chinese are particularly ingenious in their manures, but I question whether the proposed admixture would not be superior to any. Messrs. Rennie and Telford stated, in their evidence delivered before the London Bridge Committee, "that there were several thousand tons of the most valuable manure running into the Thames from the metropolitan sewers every hour, thereby polluting the water to that excessive degree, that it was fast approaching an immense ditch, and so excessively filthy that no tea-kettle laboratory could properly filter the water so as to be fit for domestic purposes." As to the capability of the soil,—"It is" (says Sir George Stephenson, the eminent engineer) "my decided conviction, founded upon close and extensive personal observation, that the soil of England, if properly treated, will produce four times the amount of human food that it yields under the present system. Upon the most moderate supposition by adopting these sub-sewers, there would be an actual saving to the country annually of upwards of two millions of tons of the most valuable manure, containing all the urates (animal salts), &c., which, if sold to the land-holders and farmers at 10s. per ton, would materially aid them to meet any pressure of the times. Besides, the iron trade of this great nation is in a depressed state, at all times fluctuating; the government, by constructing these sub-sewers, would permanently raise the price of iron, because Bristol, Hull, Liverpool, and other towns would at once adopt similar sewers for husbanding the manure. From a rough calculation, I presume these metropolitan sub-sewers would cost about seven millions sterling, and the revenue derivable therefrom would amount annually to upwards of one million. And if the whole of the Commissioners of Sewers were merged or consolidated into one board, as they ought to be, and not to remain the irresponsible bodies without any head, in the receipt of enormous sums of money, not accountable for the same, and continually fighting at cross purposes with each other, the present rates that are collected would amply suffice to liquidate the construction thereof. It is not within the scope of calculation the immense benefits that would result from the government or country adopting these sub-sewers.

In Edinburgh, the watchmen, at 6 o'clock in the morning, turn on the fire, or rather water, cocks in the streets, and sweep all before them down the gratings; why cannot the same be done by the able-bodied poor of this great dirty metropolis, which might be made the

healthiest and cleanest city in the world, and its vast expansive river rolling through it kept free from all impurities polluting it, by the legislature compelling the water companies to erect (free) against every gas lamp-post a water or fire-plug, the same to be kept always charged (the water companies would have got an equivalent in the shape of pure water); an enactment to compel every house, manufactory, or premises, to have a good and sufficient shoot from their privies and drains into the common sewers, all the streets to be thoroughly washed every twenty-four hours, the grave-yards of the metropolis to be for ever closed, and seven feet of clay laid thereon, and planted with trees? Bishop Latimer, in his days, said "That it was an eternal disgrace to the clergy to allow the burials to go on in a large crowded town," as they were then increasing to an alarming extent; what would he have said at this time of day, mixing up 45,000 dead annually amidst the living? By washing the streets once every twenty-four hours, there would be no necessity for scavengers' carts, or nightmen, or watering carts. These sub-sewers ought to precede the Thames embankment. They might be constructed nearly the whole extent without erecting any coffer-dam, which will appear clear on a casual survey; if they are commenced at the terminus and brought up the river, all the water accumulating on excavating will pass through the reservoirs. Lastly, it would form a legitimate source of revenue of upwards of one million sterling annually; and if the government neglect doing it, it might be established through the means of a public company.

RICHARD ROWED.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

Windows—Warehouse—Dairy—Brewhouse—Post-office receiving-room.

A warehouse used solely for storing grain and other things, having an internal communication with the dwelling-house, of which also it is part and parcel; a dairy and cheese-room on an extensive farm, held by a farmer who was an innkeeper and postmaster, held liable to duty, the former as being part of the dwelling-house, and the latter because appellant's house was not appropriated to farming purposes only: And semble, that brewhouse windows, made without glass, with wooden shutters only, and placed there as much for the purposes of letting the steam escape as for admitting light; and windows of a room on the ground floor of a dwelling-house, set apart wholly for receiving and sorting letters, appellant being post-master, are chargeable with duty.

At a meeting of the commissioners of land and assessed taxes, acting in and for the division of Mowddwy, county of Merioneth, held at the Goat Inn, Dinas, the 4th September, 1840, for the purpose of hearing appeals against the first assessments (48 Geo. 3, c. 55, sc. A.)—Charles James Lloyd, of Mallwyd, innkeeper, post-master, and farmer, appealed and claimed exemptions for six windows.

The appellant stated that he claimed exemption for two windows in a room over part of his dwelling-house, having an internal communication therewith, wherein grain and other things are stored and kept, and is used as a warehouse only; that such, therefore, are exempt from duty by virtue of the board's letter, dated July 28, 1840—3363; that being the tenant and occupier of an extensive farm, and the owner of a large dairy, he claimed exemption under the 4th section of 6 Geo. 4, c. 7, sch. (A, R, 3) for two other windows, one of which is in a dairy, and one in a cheese-room, both of which are only partially glazed; that the said rooms are wholly set apart for the purposes of the farm, and are used in no other way than as a dairy and cheese-room, the words are duly and properly painted on the doors of the said rooms; that by virtue of the said Act, he is entitled to exemption for the windows thereon. That he claimed exemption also for one brewhouse window made without glass, with wooden shutter only, and placed there as much for the purpose of allowing the steam to escape as for the purpose of admitting light therein; that it never could be intended that windows of such description should be brought into an assessment. That he claimed exemption also for one window in a small room on the ground floor of his dwelling-house, in the north front thereof, appropriated and wholly set apart for the receipt and sorting of letters; that his house is placed in the said house, and that a letter-box is placed in the said window, and country letters are exposed therein; that it being the window of a public office, and the room used in no other way, it must be considered to be exempt from duty. The commissioners present concurred with the view taken by the appellant

in every instance, and relieved him from the charge for the whole of the said windows; with which decision the surveyor was dissatisfied, and commenced, with respect to the two warehouse windows, that such being a room of his dwelling-house, and having an internal communication therewith, it was not the manufactory or warehouse contemplated in the said letter; its windows, therefore, were to be exempt from duty; and with regard to the dairy and cheese-room windows, the appellant was entitled to the relief granted in respect thereof, inasmuch as his house is not a farm-house bond fide used for the purposes of husbandry only, and mandated that the case be stated for the opinion of her Majesty's judges.

Rowland Rees, of Dinas, innkeeper, also appealed at the same time and place, and was allowed two brewhouse windows, under precisely the same circumstances as the one allowed in the foregoing case, subject to the decision of the judges thereon. Given under our hands this 22nd day of February 1841.

WILLIAM PUGH, } Commissioners.
JOHN THOMAS, }

We are of opinion, that the determination of commissioners is wrong.

J. PATTESON. T. COLTMAN. W. WIGHTMAN.

Windows—Warehouse—What is not, within Act.

Appellant claimed exemption for one window back shop or warehouse in addition to one already allowed in the front shop; such back shop or warehouse being part of the shop and on ground floor, separated from the shop by a partition, and communicating therewith by a door, and used solely as a shop or warehouse, and not the same roof with the rest of the house. Exempt, being part of the dwelling-house.

At a meeting of the commissioners of land and assessed taxes, acting in and for the division of Arddwylys, county of Merioneth, held at 11, Arddwylys, the 21st and 22nd days of August, 1840, for the purpose of hearing appeals against the assessments (48 Geo. 3, c. 55, sch. A.)—Messrs. Griffiths, of Llanddwywe, grocer and draper, limited scale, appealed against a charge of two windows. The appellant stated that she claimed exemption for one window in a back shop or house included in the said number, in addition one already allowed in the front shop; that in the question is part of the shop and on the ground floor, separated therefrom by a partition, and communicates therewith by a door; that it is used as a shop and warehouse; that the dwelling extends over the whole of the front and back and hath an internal communication therewith, forms no part whatever thereof; that the said window looks into a field at the back, through which there is no foot or road way, therefore, which there is no foot or road way, therefore, goods are therein exposed for sale; that the emptiness provided for shops and warehouses, 1st section of the 4 Geo. 4, c. 11, and the 6th letter of the 28th July, 1840—3363, apply with every respect to this case, and exempt her from duty on the said windows. The commissioners present being also of that opinion, allowed the appeal, and reduced the assessment accordingly. The surveyor, on the contrary, contended that such decision was not within the meaning of the said Act, and letter, inasmuch that it was not a front window of the house, and had no goods exposed for sale, and that he considered the front and back windows, in every respect a part and parcel of the dwelling-house, demanded that a case be stated for the opinion of her Majesty's judges.

Given under our hands this 4th day of February 1841.

DAVID EVANS, } Commissioners.
RICHARD DAVIES, }

We are of opinion, that the determination of commissioners is wrong.

J. PATTESON. T. COLTMAN. W. WIGHTMAN.

The population of the parish of Llanfair, 223,054; of whom 160,000 belong to the classes, of whom a large proportion inhabit in cellars, the remainder living in houses to the front of the street. The courts consist of two rows of houses placed opposite to each other with an intervening space of from nine to ten feet, and having two to six or eight houses in a row. Of these courts there are 1,982, and 10,692 houses and 55,534 inhabitants. There are ten or twelve feet square, frequently having the bare earth for a floor, and sometimes six feet in height. There is frequently no back cellar used as a closet, but as an apartment, having no direct communication with the external atmosphere, and deriving its supply of light and air solely from the front window.

Literature.

Weale's Quarterly Papers on Architecture.
Part I.

MR. WEALE is making a considerable effort to sustain his position as caterer in chief for the architectural public of this country. We may regard the work now before us, in fact, as the quarterly magazine of the class for whom we have ourselves the humble task of labouring weekly, while the intermediate grade is held by our respected monthly contemporaries; so that the *vacuum*, as *abhorrent* to us, as such is said to be to *nature*, is now no longer to be spoken of; the measure of periodicity is being, indeed we may say it is, filled up.

Mr. Weale commences well, with a goodly and a seemingly quarto of sixteen superior lithographic plates, and hard upon fifty pages of letterpress; the paper, the typography, and the illustrations all good, and in the main we may say so of the matter, so that the 7s. 6d. will not be begrudged. The four coloured plates of stained glass examples from churches in York, and the six or seven referring to decorative carpentry from the primitive churches of Norway, being positively charming. We wish a little could have been, or rather had been, said about the stained glass; there are tales and legends hanging by these things upon which poems and precious narratives might be written, but we suppose something of this may follow hereafter; as we perceive from the notice of matters in hand for the following quarter, that Messrs. Bell and Gould, who have furnished these, are to continue their labours in the same sphere of illustration, and from the same quarter, the city of York. There is not too much said in connection with the Norwegian churches, but that which is said is suggestive of profitable reflection; enough is shown to cause many things that have been heretofore said to be unsaid, and if we proceed much farther in this track of illustration, the sayings and speculations of many dogmatists will go for what they were worth—waste and vapour. They (we mean the dogmatists) tell us of the genius of tone and marble, and predicate so much of metals and fictitious materials, that we wonder how there could have been room or scope for the soul of art to have been so expressed in wood as we here see it. No, we do not wonder at this, we only wonder that such things could have been said as have been said. However, there is an end of it, or the end is coming, and the little raisings of the head and eyelids may reveal glimpses of it to those even whom the accidents of hard crawling have confined somewhat too closely to the range of vision embraced by the ground area between, or just out their hands and knees.

Look at the classic aims of Scandinavian artists, the Convulsions of Greece and of marble done, and done most deftly here in wood. Here, again, a world of enlightenment suspended, and upon it turns, who shall say what measure, and for what range of intuition? Who shall mark its confines?

Mr. Moore has speculated somewhat too truly to our taste in the leading Essay of this work, though we can see the drift of it, as far as he himself is concerned. It is a labour of double investigation with him; he is not content to work on, building up structures of bone and carcase without being inquisitive as to their connection, and hence he delivers himself of speculations which are here worked into an "ESSAY ON THOSE POWERS OF THE MIND WHICH HAVE REFERENCE TO ARCHITECTURAL STUDY AND DESIGN." Each of half metaphysical and half mechanical character has been expended in this way, but only it appears to us that there is too much talking about the bush, and we are too long in getting to the point wherein is centred all we are in search of. It was well said by the poet, "THE NOBLEST STUDY OF MANKIND IS MAN," that word noblest comprehended wisest, briefest. Let man understand man, he will soon know how stone and timber, form tongues, books, mirrors—speaking, reflecting, as from soul to soul, how man wit reciprocates, and how that secret of life is inborn in man, he will know it all. Architects, like most others, begin their studies at a wrong end, or rather commence outside the circle instead of at the centre—they take the rick for the sample of the house; there is much of materialism amongst them. We

wonder at the mythology of the Heathen, and are perplexed with a fancied mysticism in Christianity. Think you that the spirit of TRUTH ever slept, ever died? Oh, what profanity to name it! but it were none to say our eyes had need of *couching*, more than of Heathen or of Pagan times; truth shines and is unseen by us, or, which is the same, is unlooked upon. There is no mystery in taste, or principles of taste; the mystery is in man, and he has it of his own solving, "an he will."

"Workhouses."—We have in these papers a sort of chapter on workhouses, illustrated by plans of that at Greenwich, which, for some reason unseen by us, has been, it is said, denominated "The Model Workhouse." Workhouses—we beg our author's pardon (Mr. R. P. Browne)—we see he terms them "*poor-houses*." We dare not trust our more than animal eye to look upon this paper and these plans, and, like the lower animal, we have on this subject no tongue for speech. Model workhouses!—When shall model homes and hearthsteads drive these hated from the land. Oh, that we should have to design, and builders build such things, such great receivers wherein to experiment on poor weak suffering humanity! When the cat or the bird works the air-pump, under whose glass is placed its fellow cat or bird, then let man put his hand wilfully and willingly to the working of these workhouses—but not till then. Dread constraint! alike controlling the builder and the tenant. There is a wide gulf between cure and punishment, but we dare not speak upon't.

The remaining paper is a *business-like* memoir of the late William Vitruvius Morrison, Architect, and son of Sir Richard Morrison, the well-known Architect of Dublin. It is written by a brother, and might be expected to betray some of the partialities of a brother; but it confines itself very much to a narrative of the works of the lamented deceased, and these are extraordinary in amount and number. We should be greatly pleased to be furnished with a selection from one of the most approved of young Morrison's works. We could not offer a more acceptable or grateful tribute to his friends and memory, or one more to the purpose as regards our art.

Collectanea.

CHARACTERISTICS OF POINTED ARCHITECTURE.—THE BUTTRESS.

HAVING paid some attention to the varieties which the perpendicular style affords of those primary features, the window and the door, we pass on to other constituent parts of exterior composition, which are intimately connected with the distinctive character of the style under review; of these we may select the buttress as one of the most striking. This feature is in ancient art as essential as it was characteristic, having frequently to resist the pressure of a ponderous groined ceiling of stone, and always of a weighty roof. The perpendicular style recognises two kinds of buttresses, the *solid* and the *flying*. Of these, the former, as it rises, diminishes its projection by successive graduations, which, in their simplest aspect, are formed by one slope of weathering or water-table, and, in their more ornamental, by a little gable, and, in their more varied design, various fronts at Oxford with open parapets in which the continued serpentine or the zigzag line prevails, and King's College Chapel, with specimens of pierced pointed battlements, and of the elegant perforated parapet composed of quatre-foil lozenges. In addition to these, the architectural traveller will have occasion to notice many examples too irregular for classification; and he will not fail to observe also, that, where a front has any pretensions to an ornamental character, the parapet generally exhibits a climax of airy elegance,—one of the many circumstances to which the Pointed style is indebted for the aptitude with which its masses harmonize with the scenery of nature, a result the more striking as contrasted with the effect of the hard-lined blockings, attics, and balustrades of classic architecture. The same may be said of the *gable*, a feature so valuable in our style, and which, together with the roof terminated by it, is generally found, by its greater or less inclination, to adapt itself both to the high and to the flattened character of its accompanying members of composition, and more especially to that of the large window which it so frequently surmounts.

(To be continued.)

A COMMODIOUS INN.—An inn in Gravesend has in front a large board, upon which is painted the following announcement:—"Good accommodation for steam-packets."

other hand, with examples of the same feature under its most elaborately ornamented aspect, as pierced with rich tracery, crocketed with animal figures, and abutting against a pier surmounted by a purged pinnacle. The flying buttress has also occasionally another application than that which these buildings exhibit, wherein, by assuming the ogee, or double form of curvature, and being arranged with a circular or polygonal distribution, it produces in effect the outline of the cupola; of this we may draw illustration from the market-cross of Malmesbury, and other buildings. While the introduction of the buttresses in ecclesiastical structures is highly characteristic and almost essential, it is by no means equally so in domestic edifices, where there is not ordinarily the same cause for majesty of exterior, nor for apparent counteraction to the thrust of massive roofs or stone ceilings.

The Pinnacle.

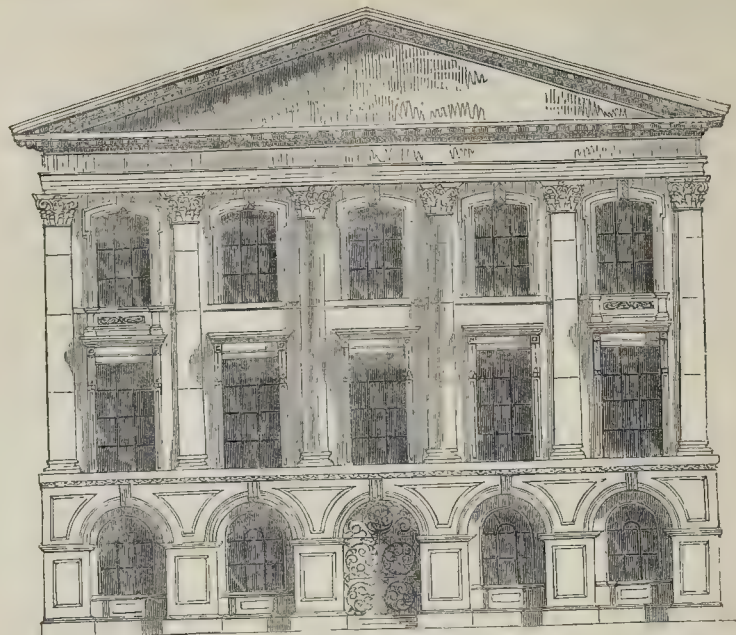
This feature naturally connects itself with the buttress. The perpendicular style includes every variety; and the simple pyramidal of four or eight sides, purged up the angles in most cases, and issuing, either from as many little gables as it has sides, or from a straight cornice-moulding, sometimes plain, but ordinarily cut into small battlements and perhaps heightened with grotesques. In this, taper outline and bold but distinct purging are matters of the most obvious importance. Another variety (but one on a larger scale than the former) is that of the square purged pinnacle, whose sides, instead of being solid, are perforated in compartments of light tracery, and sometimes also, in lieu of the straight outline, assume a slight curve inwards. Of this kind of pinnacle, we may adduce examples from the tower and south porch of Gloucester Cathedral. The other description of regular pinnacle is that, so frequent in Tudor architecture, which differs from the first-mentioned kind by taking the outline of the ogee instead of that of the straight line, issuing out of a level and usually embattled cornice, and frequently enriched with a leaf ornament disposed like fish-scales, &c. Instances of this variety are to be found at Hampton Court Palace and in other works of a proximate age.

Parapets.

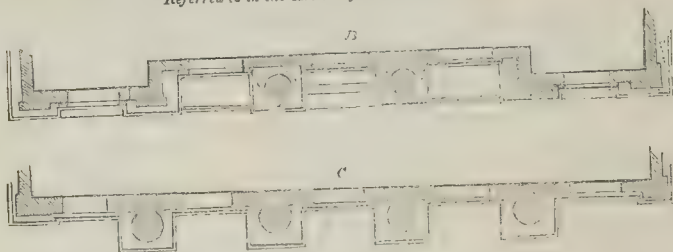
The treatment of parapets was another subject upon which our ancient mason-architects bestowed much attention. Their labours do, indeed, sometimes exhibit a plain, continued coping-moulding, but they wisely preferred in most cases to meet the sky with a broken line of battlement, whose simplest form is that in which the upper edge only of each battlement and embrasure is moulded; and its more ornamental aspect that in which the moulding is continued round the entire line;—after which the greatest richness is procured by perforation and elaborate open tracery. The west front of York Minster will furnish us with some of the ordinary varieties of pierced battlements,—St. George's Chapel, Windsor, with some of the more varied design,—various fronts at Oxford with open parapets in which the continued serpentine or the zigzag line prevails,—and King's College Chapel, with specimens of pierced pointed battlements, and of the elegant perforated parapet composed of quatre-foil lozenges. In addition to these, the architectural traveller will have occasion to notice many examples too irregular for classification; and he will not fail to observe also, that, where a front has any pretensions to an ornamental character, the parapet generally exhibits a climax of airy elegance,—one of the many circumstances to which the Pointed style is indebted for the aptitude with which its masses harmonize with the scenery of nature, a result the more striking as contrasted with the effect of the hard-lined blockings, attics, and balustrades of classic architecture. The same may be said of the *gable*, a feature so valuable in our style, and which, together with the roof terminated by it, is generally found, by its greater or less inclination, to adapt itself both to the high and to the flattened character of its accompanying members of composition, and more especially to that of the large window which it so frequently surmounts.

(To be continued.)

A COMMODIOUS INN.—An inn in Gravesend has in front a large board, upon which is painted the following announcement:—"Good accommodation for steam-packets."



ELEVATION OF THE WESLEYAN CENTENARY HALL,

Referred to in the Article of last Week's Number.

B. Plan as proposed by "W. C.," vide page 438.

C. Plan as the Hall now stands.

NELSON COLUMN.

THE opening of this column, so to speak, being fixed for this, the day of our publication, we have pleasure in being able to give the most-favourable illustration of it. The unpleasant effect which it produces on the view, in reference to the other buildings in Trafalgar-square, is avoided in this draught, and there is hardly another point from whence it can be seen without detriment to itself and the surrounding area. Coming up Whitehall, it has a most unsatisfactory aspect. We do not care to commit ourselves to any extravagant commendation of the National Gallery front, but, on the other hand, we are determinedly opposed to the unmeasured strictures of the critics who have spent their wrath upon it, and we will vindicate our opinion by and bye; but, bad or good, this column is no amendment—it is like a great stick or wand laid across a picture, and always marring the view of it. The opinion of some experienced and faithful counsellors was disregarded when the column was set about.

The late Sir Francis Chantrey said no little against the bad choice of situation and subject, and we shall produce his judgment, with that of some others, at a fitting opportunity, to shew how little fit are commissioners and committees to preside over and decide upon such matters. Passing from the purely technical, we cannot forbear an expression of feeling in relation to the great event and hero the column is designed to commemorate. There is nothing of class in this. We travelled the other night with an old veteran from Exeter. The weather was most inclement, and age had

spent its influence upon him; but with the characteristic pride which belongs to the role of Trafalgar Bay and the compatriot of a Nelson, he braved and smiled upon all. Trafalgar-square and the Nelson Column seemed to him

the be-all and end-all of his journey, and he appeared prepared to sing a *nunc dimittis* for very joy and pride. We did not envy, but we shate! his feeling, and what Englishman would not?



ORNAMENTAL USES OF BRICK AND CLAY IN BUILDING.

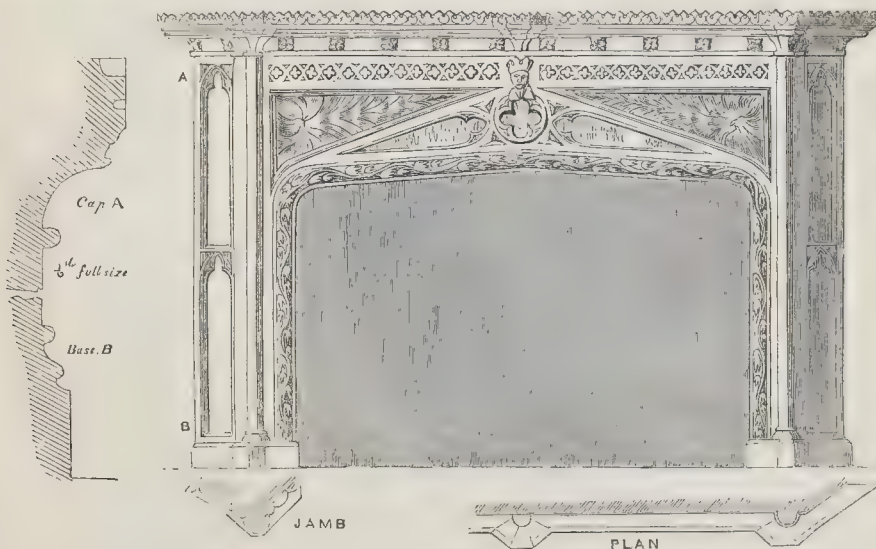
EVEN in modern Rome very great use has been made of brick. Of the famous Farnese palace, begun by Bramante and finished by Michael Angelo, the plain surfaces are of brick, so fine in its texture, and so neat in its joints, that by the superficial observer it is generally taken for stone. The balustrades, the entablatures, and other raised parts, were hewn from the ruins of the Coliseum. In the plains of Lombardy, where stone is rare, clay has, in buildings of importance, been moulded into forms so exquisite, as to have been raised into a material of value and dignity. In the ancient churches of Pavia, it presents itself in all the delicate tracery of the middle ages; in the great hospital, Campo Santo and Castiglione palace, at Milan, it exhibits the arabesque, medallions, and scroll-work of the cinquecento style. On this side of the Alps, clay has never received forms so elaborate; still, in the south of France, particularly at Toulouse, remarkable instances exist. Along the Rhone carved tiles are formed into very elegant cornices and balustrades. Even in England brick was, in days long gone by, moulded into various fanciful forms, denoting similar conceptions of its uses. But whether in consequence of the duty imposed, and the consequent very impolitic limitation of the size and shape, the legal English brick has become the least durable, and most unsightly, used in any country. This produces dislike to it as a material in buildings of importance, not from any intrinsic ugliness, for it is equally fit for all the elegancies of ornamental structure, but from long continued association of the imagination with ideas of coarseness and meanness of construction.



NEW ROYAL EXCHANGE.

The two engravings of the Thames Tunnel, that of the Nelson Column, and this of the Royal Exchange, have been selected for subjects of appropriate illustration and to subserve the end of bringing forth again to the notice of our readers at this farther and improved stage of progression, Mr. Palmer's process of Glyphographic Drawing. We are not without a feeling of self-gratulation in this respect, for it will be recollected, that in No. 3 of THE BUILDER, we predicted improvement and early excellence. We saw in the process germs of perfectibility, and hesitated not to indorse the note of credit in its favour. Of the building under notice we may say, that the more noticeable parts are now be-

ginning to rear their heads. Great credit is undoubtedly due to Mr. Jackson, the contractor, for the spirited carrying forward of his works. We hear the citizens crying out in amazement at the rapid progress of the elevated and commanding towers or turrets at the east end. More than as passers-by it is not well in our power to say; there is an unaccountable prudery, we may be bold enough to call it a mawkishness, about some of our reputed men of eminence, that badly squares with real talent; they have, or ought to have, good things to communicate to the public, but, like the dog in the manger, they will not, nor permit others—we will mend or cure them of these matters by and bye.



CHIMNEY PIECE IN THE HALL OF THE DEANERY AT WELLS.

FIRES.—Many have been the doubts and suspicions as to the origin of fires, and great excitement was occasionally prevailed when the cause of such calamities has remained in mystery. Very recently the total or partial demolition of a noble manorial pile in Montgomeryshire might have happened by fire, and the origin been involved in perfect mystery, had it not providentially happened that one of the establishment discovered smoke in time to prevent an extension of mischief. During the hot days of

the last month, the Countess of Powis's attendant, whilst in her bed-room at Powis Castle, about 10 o'clock in the morning, was somewhat alarmed at the smell of fire, and immediately instituted a search. Fire-place, cupboards, drawers, &c., were alike subjected to a scrutiny, when it was discovered that a toilet-cover on the dressing-table had just taken fire. The *femme de chambre*, conscious that no one had been or ought to have been there during the morning with fire, was somewhat puzzled. Having extinguished the ignited article, she resumed her occupation, but was again astonished

to smell fire. On approaching the table she found that the sun's rays, concentrated on a globular water bottle, which formed a lens, had burnt the tablecloth in two places through its several folds. Astonished, and incredible, she called some of the servants, who were witnesses to a third ignition by the same means. Had it occurred an hour afterwards, the fire would not probably have been discovered until it had attained an ascendancy, and thus would a fire of an alarming nature have been created, the cause being wrapped in mystery and suspicion.—*Shropshire Journal*.

PASSING THOUGHTS.

III.

I DON'T know what the profession will come to in time, but at present it appears to be in a pitiable state. Here we find a man willing to lend himself out at tenpence the hour to post books, write out accounts, and measure works—he calls himself forsooth a licensed surveyor! What this may be I cannot tell, but if men are licensed to pick pockets, it's an odd practice of our government,—for what is this but picking pockets? Does not this man work at a price which no man of his calling would do, and thereby get the employment which perhaps three or four ought to share? I hope, for the credit of the builders, this is not the case, and that this "cheap Jack" of the building profession will try to get employment by more honourable means than those which he now adopts, for if he is such a clever fellow as he pretends to be, he surely can get employment in some establishment where his services would be rewarded handsomely. He has only to advertise in the proper manner, and I doubt not he would meet with a situation.

IV.

Perhaps in a passing note or two I may be allowed to address a few remarks to the "B.A.A.D." I do so, however, with the greatest humility, and I hope those members who do not agree with me, will at least own that my efforts are for the general good of all. I do not know the objects of the society at present, but intend (if circumstances do not prevent) to avail myself of its supposed advantages by becoming a member at the commencement of the ensuing year. In the meantime, perhaps, the following remarks may have some weight:—

Would it not be advisable to publish the rules and regulations, or at least the object of the society, in *THE BUILDER*? as, by this means, many would become acquainted with its advantages which otherwise they would not take the trouble to look after.

If the laws are not already drawn up, I would suggest that members be admitted only by outline drawings, or such as have merely a slight tint; that drawings of effect *a la* Stansfield, be ineligible at an election for a member. The necessity of this is obvious—an architectural draughtsman is necessarily an outline draughtsman, and, where effect of colour is studied, the superior claims of neat outline are disregarded, much to the injury of a good draughtsman.

I conceive that the architectural draughtsmen might have a public exhibition of their drawings annually, where not only coloured drawings be admitted, but also outlines, but in a separate room. The necessity of this is obvious to every one. By these means outline drawing would be much more encouraged than it is at present; for although the heads of the profession, and especially our respected professor teaches the necessity of correct outline, yet we do not see any such drawings at the exhibition in the Academy, which would seem to say that outline drawings were held in low estimation, and that coloured drawings were the more pretty of the two, and therefore the more to be encouraged.

The advantages of an exhibition of this kind would be very great, independent of the presumable profits arising from the exhibition, as architects would go there to select their draughtsmen, for one room might be set apart for the drawings of members wanting situations.

I think if measures were taken immediately we might have an exhibition next year. I, for one, although not a member, should feel happy and proud to send an outline drawing, and I have no doubt many more would respond to the call.

V.

A great deal is now said and saying about which style of architecture we ought to adopt, but I humbly submit that we ought not to adopt any style that exists at present, but invent a new style, and not copy or cobbler either Greek or Gothic, however much Von Klenze may be in favour of the one, or Von Pugin in favour of the other. Gods, I often work myself into a fever with thinking that generation after generation are passing away and no new style—nothing to distinguish the buildings

of one century from another except it is the villainous taste displayed in some of them. But I think a spirit of originality is abroad, and we may hope for better things. For instance, I cannot help thinking, as I pass the new Royal Exchange, that a new style is attempted, something which might be aptly enough termed the *venison and turtle style of architecture*, (being a style which the gastronomic aldermen "so much admire"), for the mouldings and enrichments of the various fronts are fat, bulky, and original, and the enrichment which takes the place of the modillions in the raking cornice of the pediment, seems at first sight like so many turtles suspended by their beaks, with their feet sprawling out from the soffit of the cornice. The fat turtle aldermen, I should say, admire this building; in fact, if we are to believe the greater part of the public press, the Royal Exchange is the finest modern building in London. The turtle and venison style! What next? The spirit of originality of course will not rest here.

J. L. C.

LECTURES ON ARCHITECTURE AND ANTIQUITIES.*

Lecture II.

THE greatest monarchies which have ever existed arose in Asia, a quarter of the world which has always been famous for its immense population and its enormous wealth. These were the means, therefore, directed to construct the mighty fabrics whose ruins exist at this day, exciting the astonishment of the beholder, and inducing him to inquire into the causes of their destruction. To the sacred volume he must then turn for an answer to his question—he will there find denunciations uttered when the welfare of the proudest dynasties was at its height; threats of overthrow against the wealthiest cities in the midst of their prosperity; prophetic warnings delivered centuries before their accomplishment. And are they not fulfilled? Has one word even failed of the minutest description? No. The traveller can scarcely find the site of Nineveh, "that exceeding great city of three days' journey." (Jonah iii. 3.) In Babylon, "the glory of kingdoms, the beauty of the Chaldees' excellency" (Isaiah xlii. 19), is literally fulfilled the prediction that it should be made "heaps," and "a burnt mountain." (Jer. li. 26.) Tyre, "the crowning city, whose merchants were princes, whose traffickers were the honourable of the earth" (Isaiah xxiii. 8), Tyre is no more,—it is only "a place for the spreading of nets." (Ezekiel xxvi. 5.) We shall, however, more particularly notice the various predictions against these and other places, and their exact fulfilment, in their due order. I have spoken of the great monarchies of Asia, but in Africa we find the ruins of one which was as ancient, as powerful, as prosperous, but now as desolate,—EGYPT. The opinion is every day gaining ground, that to this ancient kingdom the world is indebted not merely for a knowledge of arts and commerce, but likewise for architecture; for this reason I purpose to make this country the scene of our first inquiry. Wonderful are the remains of temples and tombs which are now extant in Egypt, ancient historians assert that others, which no longer exist, greatly surpassed them. What are we then to think of the energies of a people who could rear such piles, when those which remain are distinguished as much for the delicacy of the workmanship as for the beauty of their design and their magnitude? Have we not a right to consider Egypt as the nursing mother of science, and the cradle of the arts, affording types and models from which succeeding ages have derived nearly all that is useful and much that is ornamental, without acknowledging their obligations to the original inventors?

It is generally supposed that Mizraim, the son of Ham, the son of Noah, led a colony into, and founded a kingdom in Egypt, B.C. 2190. Now the Assyrian kingdom was not founded till 2059 years B.C. Athens was founded by Cecrops, who was a native of Egypt, 1556 B.C. Egypt therefore is the earliest recorded kingdom, and it must soon have made great progress in agriculture, as we find that Abraham went down there (Gen. xii. 10) when there was a famine in the land of Canaan. This was about 1921 years B.C. (Jos. Antiq. b. i. c. 8.) Fertilized by the over-

flowings of the Nile, which left in its alluvial deposits treasures of inestimable worth upon the thirsting soil it covered periodically, Egypt soon became the great corn granary of the world. The inhabitants of Canaan were chiefly shepherds, and the wealth of the patriarchs consisted mostly of their flocks and herds, the land therefore was principally pasture. But Egypt appears to have been almost entirely arable, and its inhabitants corn-farmers, and when Joseph's family came to settle in the land of plenty, they were placed in Goshen, remote from the Egyptians, to whom it is said "every shepherd was an abomination." (Gen. xlii. 34.) This antipathy was in consequence of the land having been conquered by a race of Ethiopian shepherds who founded a dynasty in Egypt, 1827 B.C. Of its ample supply in the most important article of food, we find frequent mention. The famous provision made by the foresight of Joseph is well known,—on this occasion it is said that "all countries came into Egypt to Joseph for to buy corn." (Gen. xlii. 57.) During the time that the Israelites were in bondage they were employed in making bricks, straw being used for that purpose; and we know that barley, rye, and flax, were grown. The wealth of Egypt was greatly increased by her connection with the Tyrians, whose ships conveyed the produce of the bountiful Nile to all parts of the world. Egypt is said (by Calmet) to have furnished Rome annually twenty millions of bushels of corn. Among the miracles wrought by the hand of Moses is one which must have excited the deepest horror among the Egyptians, I mean the turning of the river into blood. Travellers have always spoken with admiration of the sweetness of the waters of the Nile. Mascrier says, "All who have tasted of this water allow that they never met with the like in any other place; it has in it something so inexpressibly pleasing and agreeable, that we ought to give it the same class among waters as we do champagne among wines." Harmer also alludes to it, and states "that the Turks will eat salt on purpose to create thirst, that they may slake it at this river." The pollution, therefore, of that river, so pure in itself, so delightful to the eye and taste, which on account of the innumerable blessings of which it was the fruitful source, was worshipped by the natives as a god (in a Greek inscription found in front of the Great Sphinx, the river is termed *ἡ θεὸς*), the turning of its life-imparting and wealth-bestowing waters into blood, loathsome to the sight, offensive in every respect, this miracle one would think must have carried conviction to Pharaoh's mind, did we not read that it was emphatically said, "his heart was hardened." It will be seen by a reference to the map of Egypt, that this celebrated river, after passing through Abyssinia, where Bruce discovered its source, and Ethiopia, or Nubia, traverses the entire length of the country, from Syene (mentioned in Ezekiel xxx. 10), at the 24th degree of latitude, until it discharges its waters through numerous mouths (formerly seven, to which number allusion is made in Scripture) into the Mediterranean Sea. That part which lies between Syene (now *Es Souan*) where are the cataracts, and the ancient granite quarries, and Philæ is generally called Upper Egypt (now *Said*), also known as the Thebais; the central division, from Philæ to the ancient Heliopolis, or "On" of Scripture (Gen. xli. 45), now Grand Kairo, bore the name of Heptanomis (having seven nomades), likewise Middle Egypt, now *Fostat*; the remaining portion, from Kairo to the sea, is called Lower Egypt. We find that, great as the length of the country is, about 7½ geographical degrees, the breadth of that part which was thickly populated is comparatively trifling, as nearly all the principal cities were built close to the Nile. Some of the mightiest works of this great people are to be found in Upper Egypt, where we will therefore make our first search into the remains of their temples and other extraordinary edifices. Little was known of the actual state of Egyptian architecture until Bonaparte invaded the country, and however posterity may differ about the character of that wonderful man, whose career was as dazzling as that of a meteor, and whose fall was as rapid as that of a shooting star, to him we are indebted for opening to us many of the hidden secrets of antiquity. The prospect of conquering the ancient kingdom of the Pharaohs was

* Continued from page 317.

* Latrobe.

associated in his mind with a desire to rescue its antiquities from the long night of darkness in which they had remained; the expedition was therefore accompanied by a troop of "savans," whose labours have brought to light the magnificent structures which for ages had been only known by the descriptions of Herodotus and succeeding historians, but which had been looked upon mostly but as splendid fables. At the head of the list of eminent men of letters in every branch of science who were attached to the French army, we may justly place Monsieur Denon, whose magnificent work on the antiquities of Egypt is a splendid memorial of his graphic genius, patient investigation, and laborious undertaking.* From this work we shall derive most of our information, quoting occasionally from other French writers on the subject, claiming indulgence for the attempt to convey the sense of the authors, much of whose lively description must be lost by translation.

The national architecture of every country has been found to have some relation to the natural products of those countries. A leading feature in the architecture of Egypt is a close resemblance to the reed of the Nile, which formed the ornament of the shafts of the columns, the sculptures of whose capitals are imitations of plants indigenous in Egypt, as the lotus, the palm, &c.

Mr. Barry (the architect of the New Palace at Westminster), in his travels in Egypt, visited the tombs of Beni-hassan, which are excavated in the rocks on the right bank of the Nile, about forty-eight French leagues south of Kairo. In one of these tombs he found some columns supporting the roof, which seemed to account for the origin of Egyptian architecture. Mr. Barry says, "The prototype would appear to have consisted of four large reeds of the Nile placed upon an angular block, and tied together by cords near the top, forming thereby the capital. Small sticks are introduced between the reeds at the place of ligature, to render the figure of a more circular form, and afford the means of more firmly tying the whole together. The top is crowned by a square abacus, and the reeds being thereby confined, the effect of any incumbent weight upon them would be to produce the form represented in the sketch No. 1."†



No. 1.

This tomb is of very high antiquity, and allusion will be made hereafter to some columns in front of the excavations in which Mr. Barry detects a close resemblance to those of the Grecian Doric order. Sketch No. 2 is from



No. 2.

the British Museum, in which the column composed of eight reeds still more resembles a Doric column. Recent travellers have counted no less than twenty-six temples at Beni-hassan cut out of the solid rock.

The principal city of Upper Egypt was Thebes, which gave a name to the district, Thebais. I will now quote Denon. "This city, of which Homer has pictured the extent in one expression, 'Thebes of the hundred gates,' a poetical phrase which for so many ages has been repeated with confidence; described in some pages of Herodotus, who had his authority from the Egyptian priests, and since copied by other historians, celebrated for its number of kings whose wisdom caused them to be ranked as divinities, for its laws, its sciences; this sanctuary, now abandoned, isolated, and restored to the desert from which it was rescued; this city, still shrouded in its veil of mystery—seen through the obscurity of time—was still so gigantic a phantom for the imagination to dwell upon, that the army, at sight of its scattered ruins, paused at once, and by a spontaneous movement, clapped their hands, as if the occupation of the remains of this capital had been the aim of their glorious campaign, had completed the conquest of Egypt." Homer says (Iliad ix. v. 383), that Thebes could furnish 20,000 chariots of war; and Tacitus relates that when Germanicus visited its ruins (in the first century), there were seen obelisks bearing hieroglyphic inscriptions which recorded the ancient splendour of the city; from one of which a priest deciphered to him that it once contained 700,000 men capable of bearing arms. From its hundred gates, the city was called Hecatonpylos, and because it was dedicated to Jupiter it had also the name of Diospolis Magna. Sesostris, who overturned the Shepherd dynasty, is said to have called Thebes after his father, Ammon No, and to have founded Diospolis on the opposite bank of the Nile, to which latter place the prophecies of Nahum, under the name of "Populous No," are believed to refer. See also Jer. xli. 25, and Ezek. xxx. 14, 16. It was nearly destroyed by Cambyes 525 B.C. Thus it appears that Thebes occupied both banks of the Nile (which is wider here than in any other part of Egypt), as the remains of palaces or temples are found at the villages of Luxor and Carnack on the right bank, and at Kournou and Medinet-dbou (i. e. the Town of our Father) on the other. Of these, Carnack presents the remains of one of the most astonishing pro-

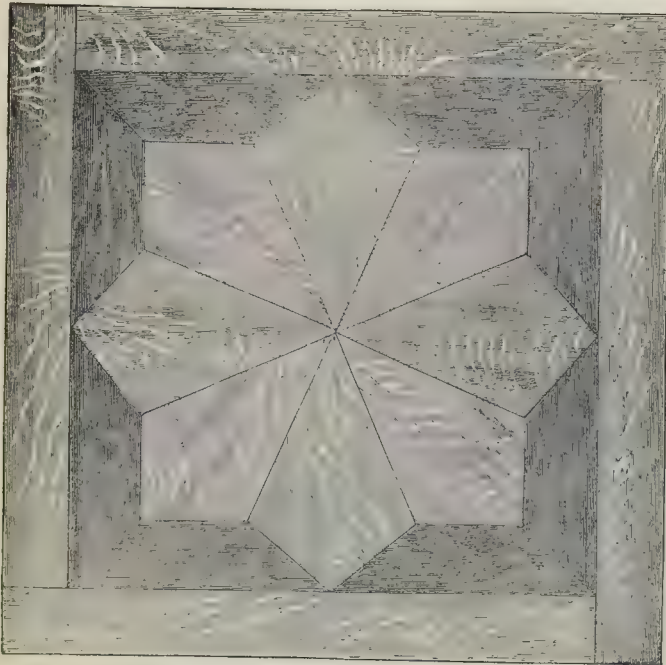
ductions of human genius and labour. Mr. Bardwell, in his delightful work, "Temples Ancient and Modern," considers this to be the temple of Jupiter Ammon. Before quoting the account from Denon, I will give the impression which the sight of this wondrous temple made on the minds of other writers. Sonnini says,—"We soon reached Carnack, a miserable village, whose cottages would serve to heighten the magnificence of the splendid ruins which surround them if there were any thing in the world to compare with the remains of Thebes—that famous city of antiquity, which was celebrated by Homer. It would have required more time than I had to spare, and more safety than was to be found in this soil, covered over with ruins and highway robbers, to have minutely examined relics which immortality had preserved amid the shock of ages and the rage of barbarism. It would be no less difficult to describe the sensations which the sight of objects so grand, so majestic, raised within me. It was not a simple admiration, but an ecstasy which suspended the use of all my faculties; I remained for some time immovable with rapture, and felt inclined more than once to prostrate myself in token of veneration before monuments, the rearing of which appeared to transcend the strength and genius of man." (Sonnini's Travels, vol. iii. p. 234.) Bossuet also speaks of the same temple in an animated strain:—"The works of the Egyptians were made to resist the effects of time; their statues were colossal, their columns were immense. Egypt aimed at vast objects, and sought to strike the eye at a distance, but always gratifying it by justness of proportion. Temples and places to this day, almost entire, where these pillars and statues are immovable, have been discovered in the Thebais. One palace above all is admired, whose remains seem to have subsisted only in order to efface the glory of all the greatest productions of human power and skill. Four alleys extending further than the eye can follow them, and terminating in each in sphinxes of a composition as rare as their size is remarkable, serve as avenues to four porticos whose height astonishes the beholder. What magnificence and what extent! A hall which apparently stood in the midst of this superb palace was supported by 120 columns of six fathoms in thickness and lofty in proportion, intermingled with obelisks which so many ages have not been able to lay low. Even colours which yield soonest to the power of time, still endure amid the ruins of this wonderful edifice and preserve their brightness, so well did Egypt know how to impress the character of immortality on all her works." (Discourse on Univ. Hist. part. iii. sec. 3.) Upon one of the colonnades at Carnack has lately been discovered the name of Sesonthis, who, according to Blair, flourished 874 B.C. We will now return to Denon, who says—"This is the grandest monument in Egypt. Situated three or four hundred toises from the banks of the Nile, its principal entrance is directed from W. to E.; two grand colossal forms, of which only the pedestals remain, stood before the door, flanked by two enormous *môles* 140 feet long, which were never finished. Behind is a large court 110 feet long, and the same in breadth, divided in two by an avenue of twelve columns; on the left is a covered gallery with small cells, on the right a private edifice, which resembles a palace more than any other part of the building, having a separate door, an inner court decorated with a gallery, behind which is a suite of rooms and a lateral gallery, conducting to the great portico; at the end of the first court are two other *môles*, not so large as the first, in front of which also are two colossal figures, of which the trunks remain; beyond these is the portico which is the most extraordinary monument of Egyptian magnificence. In the centre of this court is a double row of columns, forty in all, 11 feet (French measure); the Paris foot is equal to 12½ inches English) in diameter (the columns of the Parthenon are only 6 feet 3 inches, and of Mars Ulloa, at Rome, 6 feet), and on each side were five rows of forty columns, 7 feet in diameter." The centre avenue rose higher than its side porticos, carrying an attic or upper story. "One is more than surprised at such magnificence; one is humiliated at the comparison of our

* The splendid illustrations of Mr. David Roberts are probably the best calculated to convey an idea of the wonderful temples of Egypt.

* "Voyage dans la Basse et la Haute Egypte."—Par V. Denon.
† The sketch is taken from Mr. Gwilt's edition of "Chambers' Civil Architecture."

buildings with these. This portico is entire, but the soil having given way in several places, has occasioned many of the columns to deviate from their perpendicular, and the ceiling to open in many places. The platforms over these covered spaces served as terraces to walk upon when the sun was not above the horizon." Our author gives a very striking idea of the appearance of this court when he calls it "a forest of columns." "Beyond, again, was a third court, with chambers right and left. In this court are four obelisks of granite, beautifully wrought, two large and two smaller, and all covered with hieroglyphics. These tasteful and elegant productions were placed to adorn the entrance of a small sanctuary, for which it appears indeed that the whole of the vast edifice was reared, producing a contrast which excites in the mind a respect for the sanctity of the tabernacle which occupies the centre of all these edifices. This holy of holies is constructed entirely of granite, covered with small

hieroglyphics representing offerings being made to the God of Plenty. The ceiling is painted blue sprinkled with golden stars. On each side of the sanctuary is a small chamber; beyond the sanctuary is another large court, adorned with porticos and galleries, and having at the end a range of cells. A wall covered with hieroglyphics surrounds the entire temple; an avenue of sphinxes led to the north, another on the south, a mile long, communicated with the temple at Luxor; each held between its paws a small temple, in which was a figure of Isis. On all sides are remains of other temples more or less ruined, and at last Denon exclaims, "One is fatigued to describe, and to read, and to think of such a conception; after having seen it, one can hardly credit the reality of the existence of so many structures, collected in one spot, of their size, of the determined resolution (*constance obstinée*) which exacted their erection, and of the incalculable expense of such magnificence."



SQUARE OF OAK MARQUETRY.

Our last number exhibited a sketch of a plate of inlaid wood for flooring, and we now furnish a second design of a similar kind. Both these and many other patterns are manufactured by machinery at the East London Commercial Saw Mills, Berners-street, Commercial-road, East. This manufactory appears not have adopted the overcharged foreign and costly designs, which are very often incrustured with thin plates of fancy wood. The proprietors seem to have preferred solidity and simple designs in conformity with the English taste. The material of which the plates of inlaid wood for flooring is made, consists mostly of English and Baltic oak, which is to be obtained cheaper in England than elsewhere, from remnants in ship-builders' yards; and from the great stock of staves imported since the reduction of duty, exotic wood is for the same reason much cheaper in England than in any other place. This advantage, together with the perfection of machinery in England, renders it possible to produce both the simplest and richest patterns for flooring cheaper here than elsewhere, and for these reasons it is likely to become an article of export. The arrangement of the manufactory is well worth seeing. Twenty different circular and other saw-frames prepare the wood from

its rawest state, through various stages, to perfection. These machines cut the rails, produce the grooves and tongues, and the panels are made to the strictest rectangle with their groove; other machines produce the tenons and shouldering with facility and precision in such a manner, that the separate parts of the plate can be readily put together. Another part of the machinery cuts the wood into diagonals, so that every degree of pointed and other angles may be obtained; and thus, by this process, it is possible to deliver to the public the pattern of inlaid flooring here given at a very moderate price. A lathe is used for planing the plates off at once, and the whole process is so perfect, that it is possible to sell these products under a third of the price of what they would cost were they made by hand. The plates are made of the cleanest and driest English and foreign oak, joined together by tongues and grooves without glue, and every plate is 20½ inches square and 1½ inches thick; three plates, which form a square yard, are sold in oak at 10s., with a proportional commission to builders and agents. This price is for simple patterns similar to the design in the last number of *THE BUILDER*; but richer designs, before the reader, made in oak and mahogany, are valued at about 15s per square yard.

THE NEW IRON BEACON FOR THE GOODWIN SANDS.

In consequence of the strong winds which have prevailed during the last week, it has been found impossible to plant this ingenious invention upon the Goodwin, which was intended to have been accomplished by the use of a chain lighter, to have been brought down by the Tartarus, Captain Bullock, R.N. Unfortunately, however, the weather having proved adverse, the Lords of the Admiralty have expressed their opinion that the season is too far advanced safely and properly to plant the beacon; and they have therefore deferred doing so until the spring. This beacon, which has cost the inventor no little pains and expense to mature, is what we shall term, after his own language, "ponderous footed;" and it consists of a cast-iron chamber, 6 ft. 6 in. high, by 4 ft. square, terminating in a solid point, and weighing about 4 tons. Within the chamber there is contained a socket, which is strengthened by iron brackets. In this socket is fixed five feet of the circular shaft of the beacon, which is made of inch-iron, cast hollow, the diameter of the lower part of the shaft being seven inches, and of the upper six. The two portions of the beacon are united by a flange and core; and the entire height, from the top of the chamber to the mark, is 27 feet. The mark is an ellipse, 6 feet by 4 in diameter, composed of round bars of wrought inch iron, strongly secured to the shaft by a flange and core, constructed so as to form a most conspicuous beacon, and also to offer the least possible resistance to the action of the wind. Next spring, by the direction of the Elder Brethren of the Hon. Trinity Board, it will be planted at the eastern end of the dangerous Goodwin, on the south side of the Swathway into Trinity Bay. The sand at this part of the Goodwin is of a very hard and compact nature, so as to render the sinking to any depth a task of no very easy completion; but it is expected that the ponderous foot, or base of the beacon, being inserted some nine feet in the sand, the pressure from without of the sand upon the sides and the top of the base, in addition to its own weight (which, when filled with sand, will be upwards of six tons), will secure its perpendicular position and stability. The firmness of the sand at this part of the Goodwin, where the beacon is to be placed, will, of course, be favourable to its ultimate security. We hope that this beacon may answer the expectations of its inventor, and be the means of preserving many a vessel and hundreds of our fellow creatures from destruction.—*Dover Telegraph*.

An experiment with the electric light, which has been talked of so much as a substitute for gas, was made a few weeks ago on the top of a house on the Quay Conti, in Paris. The light was so brilliant, that at a distance of two hundred metres (about two hundred and twenty imperial yards), it was possible to read print or manuscript.

Glass scratches an iron hammer, proving that it is harder than iron; yet glass is the very type of fragility, yielding to the stroke of soft wood, or, indeed, of almost any thing.

The building of the new City prison at Lincoln, for which Mr. Marshall, of Hull, is contractor, is proceeding rapidly. The boundary walls have been erected to their full height, and the main building is now completed in its basement stories, level with the surface of the ground.

THE PAVEN'S DOG.—Every one will remember the fireman's dog, which for many years was the constant attendant at a fire, let the distance have been ever so great. Another instance, equally extraordinary, of the devotedness of one of the canine species to another occupation, may be daily witnessed in the neighbourhood of the Borough. The Commissioners of Pavements of the Eastern Division of Southwark have a number of men constantly employed in the parishes of Bermondsey, St. John's, St. Thomas's, St. Olave's, &c., and wherever they are, will be seen a brown terrier running about the works they are engaged on, and never leaving till they leave. No one knows where he comes from, where he sleeps, or how he obtains his food, except what he gets from the men, whose strange companion he has thus been for no less than eight years. He goes regularly to the stoneyard near the Greenwich railway, about five o'clock in the morning in the summer, but later in the winter, and waits till the men go to their work. But if he should have missed them in any way, he proceeds over the district till he meets with them, and then takes his station by the barrow. No other dog dares approach the spot, or a biped, the clothes of the men. When the labour is over, he goes away, but no one knows where. As a matter of course, he is a great favourite among the men, and from Mr. Hall, the superintendent, having made his peculiarities known, he has become much noticed.—*London Paper*.

Correspondence.

SIR,—In justice to the fundamental principles of pure Gothic architecture, and knowing it is not your wish that persons should be misled by contributions that may appear in your valuable publication, of which it may be truly said, "This is not the cause of faction, or of party, or of an

individual, but the common interest of every man in Britain."

I may perhaps beg a little corner for the insertion of the following CORRECT table, as drawn up by the "Cambridge Camden Society," which incontrovertible authority, I trust, will clearly prove to "J. L. C.," that he is greatly in error.

I am, Sir, yours truly,

Cambridge, October 11th. † C †

STYLE.	DATE.	REIGNING MONARCHS.	EXAMPLES.
SAXON.....	600—1066		Tower of St. Benedict's, Cambridge; Doorway, Britton, Northamptonshire; Chancel Arch, Wiking, Northamptonshire, and perhaps Chancel Arch, St. Giles's, Cambridge; Tower Bishoptone, Sussex.
NORMAN.....	1066—1154	William I. William II. Henry I. Stephen.	Doors and Chancel Arches, Milton, Hauxton, and Duxford, St. John's, Cambridgeshire; Piers at Darenth, Kent; St. Bride's, Cumberland; and Coton, Cambridgeshire; Nave of St. Sepulchre's, Cambridge; Barfreston, Kent; Adel, Yorkshire; Chapter-house, Bristol; St. Mary's Chapel, Stourbridge, near Cambridge; Crypts, York Cathedral.
SEMI-NORMAN.....	1154—1169	Henry II.	Doorway and Font, St. Peter's, Cambridge; Piers at Oakington, Cambridgeshire; and Welford, Berkshire; West Tower of Ely Cathedral; Soham and Bourn Churches, Cambridgeshire; and Rothwell Church, Northamptonshire.
EARLY ENGLISH....	1169—1272	Richard I. John. Henry III.	Doorway, Flore Church, Northamptonshire; Galilee Porch, Ely Cathedral. Piers at Witchan and Foxton, Cambridgeshire; Widdow, Somersetshire; and Milton, Lislebon, Wiltshire. Chancels of Cherry, Hinton, and Foxton, Cambridgeshire. Transept of Histon, Cambridgeshire; Choir of Worcester Cathedral; part of Salisbury; and Jesus College Chapel, Cambridge.
DECORATED.....	1272—1377	Edward I. Edward II. Edward III.	Piers at Carlton and Longstanton, Cambridgeshire; St. Mary Magdalen, Oxford; and Walsingham (Little), Norfolk. West Fronts, Exeter Cathedral and York Minster. Cloisters, Gloucester; Chapter House, Ely; Lady Chapel, Fordham, Cambridgeshire. Chancel, Grantchester; Little St. Mary's, Cambridge; Trumpington and Bottisham, Cambridgeshire; Byfield, Northamptonshire; Shottesbrook, Berkshire.
PERPENDICULAR.			
PLANTAGENET...	1377—1485	Richard II. Henry IV. Henry V. Henry VI. Edward IV. Edward V. Richard III.	Piers in St. Edward's Church, Cambridge; St. Ebbe's, Oxford; and St. Mary's, Nottingham; West Windows of St. Botolph's, Cambridge, and Norwich Cathedral; Lady Chapel, Gloucester; South Chapel, Little Shelford. Tower, Magdalen College, Oxford; Landwade and March Churches, Cambridgeshire.
(TUDOR.....	1485—1546	Henry VII. Henry VIII.	Piers in Trumpington and Little St. Mary's, Nave of Great St. Mary's, New Gateway, St. John's College, and King's Chapel, Cambridge; Saffron Walden, Essex; St. George's, Westminster.
DEBASED.....	1546—1640	Edward VI. Mary. Elizabeth. James I. Charles the Martyr.	St. Peter's and Trinity College Chapels, St. John's College Library, St. Mary's, Font, Cambridge; Brancose, Wadhams, and Otici Chapels, Oxford; Stanton, Harold Church, Leicestershire.
COCKNEY—Tea-garden or Churchwardens' Gothic.....		From Oliver Cromwell to the present time.	Christ's Church, Worthing; St. Peter's, Southwark; Lower Easton, Bath; St. Paul's, Finsbury; St. Luke's Old Street Road; The Hook, near Kingston; Christ Church, St. Paul's, and Great St. Andrew's; The Cemetery Chapel, and Porter's Lodge, all at Cambridge.

SMALL STREET HOUSES—STATE OF BUILDING IN GLASGOW.

SIR,—In glancing over your 30th number, I find a letter signed B., "On Small Street Houses," followed in subsequent numbers by others on the same subject. This is a matter on which I have frequently thought, and, had my time permitted, I intended to have written to you on the subject, calling your attention to it, and sent a sketch or two of the way in which I think it is possible to adapt the Scotch method to structures of this kind in the metropolis and large towns throughout England. But as the practice of living in flats, in use among us, has been so much run down, it would require no small degree of talent and judgment to disabuse the minds of the English public of the prejudices which I think they entertain with regard to this system; but I hold that when properly applied it is incomparably superior to your system in the degree of comfort of which the houses are capable, and in our larger towns the advantage that we have over you in external appearance and substantiality of interior finishing would surprise your London builders.

Except in very inferior situations, what we call room-and-kitchen houses have polished stone fronts, generally with architraves, round doors and windows, and sometimes even with window cornices, and a respectable cornice on the wall-head,—in fact, possessing an elevation which few of your better houses can boast. And again, those houses of four, five, or six apartments and upwards would, in their interior finish and elegance, not a little astonish some of the London cits, occupying premises of the same extent compressed into a little brick box with a wooden door-piece, and plain holes in the walls for

windows. This description is, I am sorry to say, not exaggerated, which you well know, and how much better is it to see a respectable tenement with a common entry for two or three families, tidily kept, than those single starved-like effigies to which I have alluded; but as this is a rambling sort of letter, I will leave the matter at present, promising, that should you think it worthy of insertion, I will at my leisure send you sketches of the style in which we get up "Small Street Houses" on this side of the Tweed.

In the leading article after your provincial tour, you make certain remarks, which I believe to be as applicable to Glasgow as the places mentioned. The next time that you are on the tramp come north, and you will not be the worse for it. At this moment we have, I believe, more masons working than can be found in any other city or town in the kingdom, with our proportion of other tradesmen. The field is worth your cultivation. Here we are labouring away, silently and unnoticed by the metropolitan journals, who keep *deaving* us with long and wonderful accounts of what turn out, upon our going to see them, not worth the looking at. If I could enumerate all that we have been doing here during the last half-dozen years in the erection of public buildings, you would scarcely credit me. By the church extension scheme we have built, I think, about twenty new churches in connection with the Establishment! besides nearly as many dissenting ones; these, at an average cost of from 1,000l. to 4,000l.; also a very large Roman Catholic chapel. Some are trashy, others handsome and worthy of criticism. At the present time the "free church" are getting up nearly a dozen more in the neighbourhood. There have also been erected within the

same period a magnificent club-house at a cost of upwards of 25,000l., five fine new banks, varying from 12,000l. to 30,000l.; a new theatre, court-houses and merchants' hall, a lunatic asylum at an expense of from 40,000l. to 50,000l., a corn-exchange, railway termini, a city hall, capable of containing upwards of three thousand individuals seated, schools, markets, &c. &c., with storehouses, displaying at the same time a beauty and adaptation of design for which we often look in vain in buildings of higher pretensions. Amongst the various descriptions of buildings mentioned, there are many which would grace your most aristocratic streets, if that be any great praise! Surely, then, among such an amount of public buildings—not to mention private speculations which, within the same period, have begun and finished entire streets, terraces, crescents, and in some instances the builders also—our metropolitan friends might surely find something worth saying that perhaps would benefit architects engaged in their construction as well as give useful hints to some at a distance, London ones not excepted.

I am, respectfully,

B. G. R.

Glasgow, 13th October, 1843.

CHAPEL OF ST. MARY MAGDALENE, STOURBRIDGE, AND BARNWELL PRIORY.

SIR,—Your correspondent "W. W.," who sent you a drawing of a section of the chapel of St. Mary Magdalene, Stourbridge, has so unaccountably combined the histories of that building and of Barnwell Priory, that I am induced to forward you a short account of the two foundations.

St. Mary Magdalene Chapel.—At Stourbridge, in the suburbs of Cambridge, is a chapel dedicated in honour of St. Mary Magdalene, which was attached to a hospital for lepers. There is no record of the time of the foundation of this hospital, but it was some time previous to the year 1199, for in Michaelmas term in that year the lepers recovered in the king's court a free tenement in Comberton, of which Allan de Berton had dispossessed them.*

About the year 1211 King John granted to the lepers a fair in the close of the hospital, on the vigil and feast of the Holy Cross. Cooper believes this to have been the origin of the famous Sturbridge fair. Camden states that it was established by a clothier of Kendale, who casually wetting his cloth in that water on his passage to London, exposed it there to sale on cheap terms, as the worse for the wetting, and yet, it seems, saved by the bargain. Next year he returned again with some other of his townsmen, proffering drier and dearer cloth to be sold; so that within a few years hither came a confluence of buyers, sellers, and lookers-on, which are the three principals of a fair.

In the year 1278 Cambridgeshire was visited by commissioners appointed by the king, for the purpose of making inquiry into the rights and revenues of the Crown, the oppressions and exactions of officers, the privileges of corporate bodies, and a variety of other matters. Under the head of "Religious Houses" in this inquisition, it is especially presented that the advowson of the mastership of the hospital of St. Mary Magdalene, belonged to the burgesses of Cambridge, but had been taken away from them about thirty years before by Hugh de Norwold, Bishop of Ely, whose successor retained it, having placed therein chaplains, to the exclusion of the lepers, who ought and used to be there supported; that this usurpation was to the disinheritation of the king, and the detriment of the burgesses, who held the town of the king in fee farm, that complaint had been made on this subject to the king and his council, but that no redress had been obtained.†

King Henry VIII. granted the chapel on lease to the corporation of Cambridge.

In 1605 King James granted this chapel and the lands thereto belonging, the booths and booth grounds belonging to the fair, with the liberty of building booths, and the profit thereto belonging, to Thomas Willys, Esq.

The chapel and grounds are now the property of the University.

Barnwell Priory.—This is the most ancient religious house which we read of as founded in Cambridge; it was established in 1082, by Picot, the sheriff, at the instance of his wife, Hugolina, for a prior and six canons; its original site was near the castle. The foundation having been left incomplete at Picot's death, and his son having been attainted for rebellion, the new monastery partook of its patron's misfortune, and fell into great poverty.‡

Payne Peverell (standard-bearer to Robert Duke of Normandy) to whom the king had given the forfeited barony of Bourn, pitying its impoverished state, begged of the king a spot of ground in the suburbs of Cambridge, where was a spring called

* Palgrave. Rotuli Curie Regis ii. 62.

† Annals, vol. i. p. 34.

‡ Deeds among the archives of King's College.

§ Leland's Collectanea, vol. i. p. 437.

Barnwell (as it is said) from its being the resort of children, who performed certain childish ceremonies there on the eve of the Nativity, and of St. John the Baptist. On this site, where there had been a hermitage and an oratory dedicated to St. Andrew; he built a new monastery on a larger scale, dedicating it to St. Giles and St. Andrew; hither he removed the canons from their small cell near the castle (of which some ruins were visible in Leland's time), and intended to increase their number to thirty (that being his age), but died before he had made a sufficient endowment. The Peaches, who inherited the barony of Bourn, were great benefactors to this convent. In 1284 Sir Gilbert Peche gave the patronage to King Edward I. In 1287 a part of the convent was destroyed by fire; at the dissolution its revenues were rated at 256l. 10s. 11d. clear yearly value. The site was granted successively to Sir Antony Browne, Edward Lord Clinton, and Thomas Wendy, M.D., and John Wendy (son of Thomas) was seized of it in 1559. It was afterwards in the Chicheley family. In the year 1659, Sir Thomas Chicheley having conveyed the site of Barnwell Priory, and the estate annexed, to Neville Alexander Butler, Esq., in exchange for the manor of Orwell, it became the seat of the Butler family. After the death of the late Jacob Butler, Esq., which happened in 1765, the estate was sold to Thomas Pantom, Esq. There are some crypts, &c., of the ancient building still remaining.

I cannot imagine how "W.W." could have made this most extraordinary blunder: he states the name of the founder of the priory and the date of its foundation; and, by way of history thereof, adds a brief statement of facts relative to the hospital.

At the end he states that "in 1391 Robert Takell, then custos, died, and Fordham, Bishop of Ely, granted forty days' indulgence to all who assisted in the repairs of this chapel, or extended their charitable benevolence to the hospital."

I cannot find any authority for this assertion. Baker (MS. xlii. 206) mentions that an indulgence was granted by the Bishop of Ely in 1392 to such as should relieve the brethren and sisters of the house of lepers or hospital of St. Anthony and Eligius.

I presume that "W.W." has misunderstood this, and that he supposes the indulgence to relate to the Hospital of Lepers at Stourbridge. If this is not the case, perhaps he will oblige me by naming his authority.

I am, Mr. Editor, Yours obediently.

C. J. HURT.

Cambridge, Eve of St. Lukes, 1843.

DR. DRAKE'S NEW MOTIVE POWER.

SIR,—I confess to having been very much struck with the feasibility of the "New Motive Power" of Dr. Drake, referred to in your last BUILDER. It is there stated that "the motion is created by the combustion within the cylinder of atmospheric air combined with a certain proportion of gas, which is ignited by a process known only to the inventor." Will not the secret be exploded whenever we contemplate the effects of the electro-magnetic or of the galvanic battery? The project reminds one of "Brown's gas vacuum engine;" but science has made rapid strides since then, and the notion now assumes a more tangible shape. It appears to me to be more than probable that the sources for the "combustible" will be animal or vegetable matter, because coals yield too much sulphurous gas to be compatible with the polished surface of the working cylinder. The proposition must certainly deserve attention, where so much economy is apparent.

Yours respectfully, W. E. GILL.
St. Mathew's place, Hackney-road.

P.S.—Whenever such a project is carried out, then a few casks of oil may be found to supplant the cumbersome freight of coals, whilst space would be greatly economized also in the engine itself.

TO KILL BLACK BEETLES.—NO. 1.

SIR,—My husband, who is in the bricklating line, was a reader THE BUILDER last Sunday mornin, when he sea to me, sea he, "I say Bet, here's a chap as wants to know how to kill black beetles; can't you rite a line to tell us how you got rid of the varmint?" "Well, sea I, Bill, I'll try." And this is how it was, Mr. Headwater. We has a back kitchen and a attic, for which we pays a matter of four shillins a week besides the other occupants, these nasty black beetles, which wouldn't go no how. Well, what do you think I does?—Why, I takes a puddin basin, the very identicle one what I uses for my Bill's Sanday puddin—but that's no matter—and I puts a littel water in it, and puts it nere the fireplace at night, and piles up the ashes all around it so as just to cum to the edge of the basin. So the nasty black beetles gets a crawl in

up the ashes till they gets to the edge, when in they drops, and the very next mornin my old man counted out eighty-two out of one little basin, and he digs a hole in the garden and berries them.

In five mornins we catched more than 300; and if I'd had more nor one puddin basin, I am certain sure I could have catched many more.

My old man that of takin out a paten for the discovery, but on second thoughts sends it to THE BUILDER, hopin you'll forgiv all errurs.

16 Oct.

BETSY.

BLACK BEETLES.—NO. II.

SIR,—In your last number, "M. L. B." wishes to know a remedy against the accumulation of black beetles. Let him get a hedgehog and place it where they are most numerous, and in a month he will not find a beetle in the house.

Yours truly,

G. B.

Tenders.

TENDERS delivered for building house and stabling for Messrs. Bellingham and Co., Great Cambridge-street, Hackney-road.—Mr. Thomas Ward, Surveyor, 95, Kingsland-road.

House.	Stabling.	Total.
Wilkinson. £724 9 0	£488	£1,212 9 0
Webb. 996 0 0	498	1,494 0 0
Threadgold. 940 10 0	554	1,494 10 0
Wood. 976 0 0	671	1,647 0 0
Wythe. 1,110 0 0	551	1,661 0 0
Jay. 993 0 0	722	1,715 0 0

The tenders were opened in the presence of the several parties, and Wilkinson's accepted.

TENDER for the erection of a shop, &c. for Mr. Wheeler, at 29, Frederick-place, Hampstead-road. Mr. Waller, Surveyor.

Monson.	£173 10 0
Dunsmore.	167 10 0
Airey and Bellingham.	165 10 0

No quantities furnished. Contract 12th October, 1843.

NOTICES OF CONTRACTS.

THE following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification of which they may choose to avail themselves.

Building a sewer, Bridgewater-square, city.—Sewers Office, Guildhall.—Joseph Daw, Prin. Clerk. October 24, 1843.

Constructing a sewer, Hinsh'a-court, Blackfriars. Sewers Office, Guildhall.—Joseph Daw, Prin. Clerk. October 24, 1843.

Erecting a new gallery in a chapel at Houghton, Huntingdonshire, re-roofing, repairing, and painting cottages, &c. in same village.—Messrs. Abbott and Habershon, architects, St. Neots; Mr. Potto Brown, Houghton. Oct. 27, 1843.

Adding to and altering St. Andrew's Church, Upton-cum-Chalvey, Bucks.—Ed. Davis, Esq., architect, Sussex-place, Slough; William Beauchamp, Esq., churchwarden, Slough. Nov. 1, 1843.

Building an hotel and offices, on ground occupied as Banff Hotel.—Edw. Mortimer, Esq., solicitor, Banff. Oct. 31.

To BRIDGE BUILDERS.—New Bridge, Dairy Bank, Burslem.—L. G. Hales and Son, Cobridge, Staffordshire Potteries. October 23 to 28.

SURVEY.—Parish of Whitechurch, Devon.—Mapping and apportioning 5,000 acres.—Bridgman and Scobell, solicitors, Tavistock; or G. and J. Prillham, solicitors, Plymouth. October 25.

YORK AND NORTH MIDLAND RAILWAY.—Tenders for the supply of 5,000 tons iron rails; also 1,500 tons of iron chairs.—Company's Office, York. October 25.

Repairing Turnpike Roads, Bridgewater.—T. Symes, Clerk. October 20.

TENDERS for erecting a Workhouse for the Sevenoaks Union.—Mr. Carnell, Clerk to the Guardians, Sevenoaks. November 1.

COMPETITIONS.

Design for a testimonial to the late G. Clendinning, Esq., to be executed at Westport, at a price of 800 guineas.—Dr. Dillon, Infirmary, Castlebar, Mayo, 20 guineas, Jan. 1, 1844.

Premium of a gold medal or money for the best mode of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

TO OUR CORRESPONDENTS.

"H. W. D., Surrey Cottages."—This communication is reserved for more deliberate consideration than we can just now bestow upon it.

"M. Saul's" favour will be made available in a future number.

"O. P."—We can appreciate the research, and much of the argument of "O. P." We may be able to give a portion, at least, of his letter next week.

"P. T." received.

"A Young Student."—We are obliged by his well intended suggestions.

"W. H. M." received, and under consideration.

"D."—His commendable effort shall be adequately seconded by us.

"Mr. Brodun Jones" shall be attended to.

"G. R. W."—Too late this week for insertion. His correction would be just as likely to mislead our printers as the thing referred to.

"Mr. Walheim."—We are glad to hear from him again.

"An Old-fashioned Architect."—We will reserve a space for him.

"Tekrus."—We are greatly obliged by his kindness, and will thank him for the proffered memoir.

"Mr. McCulloch."—The matter he refers to has been the same subject of complaint here. We shall have a word to say upon it, and anent competitions generally. We can get no information ourselves.

"N. H. Kennanbare."—We thank him, and shall insert his paper.

James Pickard's next week, with some suggestions as to the proper spirit of criticism.

"An Architect and Subscriber" shall appear.

"Forester."—His information too late for this week, but he has our thanks.

"W. B. Tring."—The font drawing is received and accepted with thanks.

ADVERTISEMENTS.

COMMISSIONERS OF FINE ARTS' REPORT ON THE MEANS OF PREVENTING DAMP IN WALLS.

THE DIRECTORS OF THE SEYSSSEL ASPHALTE COMPANY have much pleasure in recommending to the notice of Architects, Builders, and others, the application of THE ASPHALTE OF SEYSSSEL as the only effectual means of preventing DAMP rising in WALLS.

J. FAUREL, Secretary.
Seyssel Asphalt Company, Stangate, Westminster-bridge.
August, 1843.
The following account of its application is extracted from "The Appendix to the Commissioners of Fine Arts Report," page 18.

"In 1839 I superintended the construction of a house of three stories on the Lac d'Engien. The foundation of the building is constantly in water, about 19 inches below the level of the ground-floor. The entire horizontal surface of the external and internal walls was covered, at the level of the internal ground-floor, with a layer of Seyssel Asphalt, less than half an inch thick, over which coarse sand was spread.

"Since the above trace of damp has shewn itself round the walls of the lower story, which are for the most part painted in oil of a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 2½ inches above the surface of the soil, and only 19, at the utmost, above that of the sheet of water.

"The layer of Asphalt having been removed and removed, the purpose of inserting the walls of two doors, spots in discoloured the presence of damp have been since remarked at the base of the door-posts.

BASTENNE BITUMEN COMPANY.

Offices, 31, Poultry.
The Directors of this Company beg leave to call the attention of merchants and shippers in general to the very beneficial results attendant on the use of Bitumen in the erection of buildings, both in this country and abroad.

1st.—Its application as a flooring in malt-houses, granaries, tan-rooms of breweries, distilleries, &c. will be found eminently useful; also, in lieu of stone or brick for the basement of dwelling-houses, &c. It excludes all moisture, affords a vapour from drains, rats, and vermin of all sorts; it allows a dry warm footing, and is in appearance neater than stone. It imparts not the slightest impurity to grain or any thing with which it comes in contact.

2ndly.—For the covering of railway arches, vaults, or cellars, a slight coating keeps out all rain or dripping, protects the brickwork, and adds solidly to the arch.

3rdly.—For roofs it is superior to any thing hitherto introduced, and on flat-roofs a tank can be made to contain rain water.

4thly.—For baths, water-tanks, the river fronts of wharfs, &c., or on the tops of walls, or any brickwork, a coating of Bitumen serves all purposes to which lead, stone, and cement are now applied, with far greater effect and at much less cost. Brickwork cemented with Bitumen instead of mortar is impervious to wet, far more solid, and for the same reasons infinitely more durable, and in wet or damp situations it uses in this way tends to the comfort and durability of houses in an inconceivable degree.

5thly.—For the flooring of conservatories, hot-houses, &c., it is eminently preferable to any other, not only for its durability and uniform neatness, but from its being of an equal temperature in all seasons, and for ornamental garden-walks, as it excludes weeds and fungi.

The company's prices for export are as follow:—Bitumen without grit, 6d. with, 7d. 1843.
Works executed in this country, 3½ inch thick, 6d. per foot square; 2½ inch thick, 7d. per foot square; 1 inch thick, 8d. per foot square.

Works not measuring 400 feet, 1d. per foot extra.
Roofing executed at 6d. and 7d. per foot square.
Concrete is charged in addition, according to thickness, when required.

Carriage and men's time are charged extra when works are executed beyond three miles from the General Post-office.
CHARLES F. TILSTONE, Secretary.

THE BUILDER,

NO. XXXVIII.

SATURDAY, OCTOBER 28, 1843.

THE SUSSEX MEMORIAL DESIGN, BY MR. HANSOM.*

Extract from a Letter to Mr. Hansom concerning his Design, and his Reply.

MY DEAR SIR,—

I have scarcely made up my mind whether to like your "Sussex" affair or not. In fact, I would rather say I do not like it. What other verdict could you expect from a "Pinnock's Catechism," and "Pugin's Grammar" man? You ought to think yourself well off that such a fellow speaks of it in only a half condemnatory way. My opinion is that these experiments of yours upon the "Harmony of Discords" will never do. It can't succeed. People see that it is neither fish, fowl, nor flesh; and if you tell them that they are wrong, and that you have provided them with all three, it will be just as little to their tastes.

I cannot say how heartily I fall in with your thoughts and feelings about the insignificance and silliness of "obelisks," and "pillars," and "single statues." You certainly are quite right when you insist upon "edifices" as proper monumental memorials, and I hope you will never give up the agitation of this question in all right places and times. The project for the grand "Nelson Tower" was conceived in a very just and worthy spirit. But, if I carry in my memory the right impression of what you used to say about it, it would have been (almost by the necessity of its plainness of construction) a building of a most decidedly homogeneous character—its main characteristic, next to its awful dimensions, was to have been its homogeneity. How different, in this one and telling respect, from the Sussex conglomeration of uncombinable elements. It is a very beautifully-devised thing as far as abstract shape and arrangement go, but it wants augustness, it wants oneness. How easy would it have been to have taken some ancient parish cross, and to have swelled it out to the desired dimensions, in this way you would have given it those attributes which (in my eye, at least) it very much wants. Why should you be perpetually hunting after wildfancies and experimental combinations, while there is lying all around you such a rich legacy of beauty which the men of old have left you in the wonderfully adaptable and all-pervading architecture of ancient England?

Yours very faithfully, J. A.

MY DEAR REV. SIR,

I gladly avail myself of the occasion suggested by your acceptable letter to answer a few objections that have fallen in my way concerning my Sussex Memorial Design. Yours is the best specimen I am enabled to select, and in answering it, I shall have done the most that is in my power to square accounts between myself and the critics up to this period. Several letters I have had of a laudatory kind, but these are nothing to the purpose, except in so far as they confirm me in the hope that to a reasonable degree I have right on my side, and encourage me to persevere. I have a great desire to travel in the world with a tolerably good passport, and would rather wait till my plans approve, than force my way against objections, however unreasonably entered. I begrudge not the labour, therefore, endeavouring to convince them; a little clearing of the road at first may prove the cheapest means of future travelling.

You say you "have scarcely made up your mind yet," which I interpret favourably, inasmuch as it tends to shew that you are not giving implicit trust to mere habits of thinking. I like, but are disposed to reason and argue with yourself, and to correct, if needs be, the erroneous impression of *taste* you may have conceived. I can easily understand why you would rather say you do not like it; but I perceive in such irresolution many influences of timidity, prejudice, and fear; and these things

not being based upon a firm bottom, are open to attack and dislodgement, about which I hesitate not to set myself, as resolutely as my anxiety to be right with a friend, and to have him right, will admit of. And so you think that I am experimenting on the "harmony of discords?" Pray, my dear Sir, are you not begging the question most hugely, are you not going in the very teeth of all that is to be affirmed from the premises? Shew me that I have taken the discordant and harsh sounds in any of the languages of art, and then it will be right to charge me with the vain experiment of harmonizing them? Why the directly contrary is the fact! I have been revelling in the choice of *concord*s, at least so to my taste, and I have not heard any one yet dispute it, or shew what objectionable or offensive manner of ancient art I have adopted. You know a beautiful speech of Chateaubriand's about the prismatic spectrum—how from a single pencil or ray of light many and beautiful colours are thrown out, which he applied to the labours of that school of artists who issued from the cloisters in Florence, with Fra Angelico, whom you and I have delighted to contemplate; how the artist brothers out of their cells resembled each the rainbow tint; how the painter, the poet, the preacher, lived in their refraction or going out; but how, retired within the sanctuary, one soul of devotion, one ray of glorious light alone was visible. Time has been the spectrum in art, and a very rainbow, wide arching from the earth's extremes, has been built;—from one principal and focal light, primitive and compound colours, all beautiful, have been thrown forth. This spectrum is not yet set. Harmonies of colour, or, to revert to your simile, harmonies of *concord*s, are yet to be produced, and it is my belief that still one primitive—a whole *tone* of sound or colour, call it what you will,—is in reserve; and half tones and blendings of the primitives, and of new compounds, remain to constitute the good and the pure of mundane enjoyment.

Your good-natured banter, as to its being neither fish, fowl, nor flesh, reminds me of a similar compliment paid to myself in a political discussion in which I was once drawn to take a share by a zealot of party, and, in truth, I am constrained to lament that art now-a-days, like politics, seems to be considered a party question, and mobs and clubs are mistaken for arbiters. Well, my hot politician, after expending a large proportion of his fire, without warming me into a siding or opposing, turned his weapon of assault upon me for being, as he termed it, "neither fish, flesh, nor fowl." Upon which I quietly remarked, that I was content with his definition, and should be glad to know which of the three he considered himself. But you say "people" will not be satisfied without they have one or the other, and you very appropriately make it a question of *taste*. Are you quite sure that in these days of high "god!" a dish made up of the three will not be acceptable to them. Suppose my design to be fitly characterized as being neither "fish, fowl, nor flesh," what say you, and what will *people* say to a feast of genuine turtle? Mind you, I do not vouch for its genuineness, or plume myself upon my fishing or research, and perhaps I ought the less to do so, when you undertake to dub it a "conglomerate of uncombinable elements." You may have the true smack of an epicure, and detect in it a mockery, and being made of uncombinable elements, a bad mockery at best; but I am not quite satisfied that if not a genuine primitive, it is not a good conglomerate—

and for my part I had as lief have mock-turtle as mock-fish, mock-flesh, and mock-fowl, to which the *gastronomes* in the kitchen of art are so liberally treating us at every turn.

You appear to me to confound homogeneity with a word I will coin, *monogeneity*; my Nelson Tower design was a sort of *monogeneous* structure, single-featured and single-bodied, so is an obelisk, a pyramid, a monolith; but a thing may be homogeneous, and yet have many parts. Without intending a pun, I may instance man as the best definition of homogeneity; he is a conglomerate, too, "fearfully and wonderfully made," yet he is an incarnation of unity.

You say my design wants *augustness* as well as this feature of *oneness*. In this I think you are unfortunate. If I pride myself upon any thing in it, it is in obtaining the first quality. One little word I will venture to say in this respect—let it be built, and if its effect be not august, august to almost overpowering, I will be content to have it set against me as a miserable failure. I have a notion that it would be fearfully august,—four huge hemi-cycles in masonry, springing from a pedestal of sixty feet cube, and supporting a fabric of kindred limbs of masonry, bold and expressive as the convolutions of so many master oaks of the forest, and borne on the top of this, as in the calyx of a beautiful flower, the germinating principle of the arch which pervades the design. A combination of this nature, homogeneous essentially, and absolutely homogeneous as I contend it to be, will not, I think, be wanting in augustness, and for the rest it is answered.

But I may be told it is not practical. Shades of the heroes in art! who reared ribs and vaults and domes high in the clouds, with almost unseen dependence upon earth, I offer it to you devoutly, fervently, enthusiastically! Let your deeds attest whether I have too daringly emulated you in this—whether I have not staid at humble and becoming distance. I am confident in my art—it obtains my faith, my hope, and my love.

A parish cross—there you have hit the mark—but how you should stumble on it, and see that I had not previously taken my stand there. Why, I have taken the parish cross, reverently and without profanity. What the parish cross contained in principle and in essence applicable to a Freemason and a Sussex Memorial I have taken, but not prostituted or profaned by mechanical and doltish copyism—at least so I hope.

Lastly, you observe, *why should I be perpetually hunting after novelties, &c.* Let me ask, why should I not? Is not the new and the old alike from one source; may I not hunt after novelty, as you term it, as well as *rake into antiquity*? Is the inventive less honourable than the appropriative genius? Is research, and the holding up the telescope to the future, less commendable than poring into the ruins of the past? Would you decrie the novelties of gas and steam in favour of the old light of reeds and rushes, and the early engine of locomotion? Would you have checked a Watt in his career, a Fulton or a Stephenson, and bid them be content with the *rich legacy* of utility which the old world found suited to its wants? No, I am assured you would not; and he who would were an impious and an impotent. All we require is to turn the talent with which Heaven has blessed us to the best account, and in obedience to its laws; and that I and you may never deviate from this, bounding on to the future, or lingering by the past, is the earnest prayer and hope of your faithful and sincere friend,

JOSEPH HANSOM.

* See No. 33 of THE BUILDER.

ON THE ORIGIN AND PROGRESS OF
CHURCH ARCHITECTURE.

THE terms "Christian" and "Classic," as applied to church architecture, have originated controversy of a somewhat acrimonious character, and given rise to correspondence which an exercise of even-handed impartiality has induced us to admit into the columns of *THE BUILDER*; the subject, though interesting, threatens, however, to overrun reasonable limits, and we therefore decide upon terminating it by offering an elucidation consistent with the best authorities open to us.

Catacombs, vaults, and sequestered caves, were the abodes, the churches, and the burial-places of the first Christians; there were deposited the bodies of the earlier saints and martyrs, and whose tombs served as altars, on which the survivors performed their sacred and commemorative rites; when, therefore, the term "Christian Architecture" is used in a broad and general sense, it can apply only to the period when the doctrines of Christianity had so far prevailed over polytheism that its followers were permitted and encouraged to erect temples. Such an event occurred for the first time A.D. 323, when the Emperor Constantine embraced the Christian faith. The subversion of a popular superstition, its mysteries, and its priesthood, was a hazardous measure; and it may be that the odium incurred by the emperor had considerable influence in inducing him to remove the seat of empire to Byzantium.* The leading characteristics of Constantine were decision, and rapidity in executing resolves, and he was true to them in his conduct towards the successor of the apostles, his first act having been a gift to Pope Sylvester of the Palace of the Lateran; this edifice comprised one of those large halls of audience and justice, named *basilicæ*, where the emperor gave his decisions, and to which a baptistry of an octagonal form being added, was dedicated to St. John. It may be here remarked that the church similarly named, and in the immediate vicinity of the Lateran, is that in which the popes are to this day inaugurated, and which is inscribed with the pontifical motto, "Totius urbis et orbis princeps."

Other imperial buildings were bestowed by Constantine for religious purposes, and several were built on the skirts of Rome by his order, but in all the original feature was preserved—the *hall* with the addition of the baptistry for celebration of the essential initiatory rite of Christianity. These, then, were the first structures consecrated to Christian worship—buildings in which Pagan emblems abounded, and which had probably been the scene of Pagan invocations and auguries—buildings converted on an impulse, and without thought or immediate conception of fitness, save only in provision for the baptismal rite, which might best be performed within an area of circular construction, that all present should conveniently witness the public profession and acceptance of the convert.

By the death of Constantine in 337, Christianity lost its great supporter; the successors of his name and family were lukewarm, their wavering partialities for previous superstitions being scarcely disguised, and further persecutions were preparing for the church. In 361, Julian publicly sustained the old Pagan rites, and in 375, Valentinian raised altars to the Gods; it was not until 389 that the Emperor Theodosius, in declaring the Christian religion to be that of the state, gave an enduring stimulus to church architecture; the churches of Constantine at Rome, hastily built and already in ruins, shared in the common fate of demolition with the temples of the proscribed Gods, and were replaced by immense structures suited to that unity of belief which requires, at certain periods, the collection of the whole community. It is certain that church builders of this era, in availing themselves of the appliances at their command, were considerate in the uses made of them; the *form* and *title* of the *basilica* were retained, and for this decision there were many valid reasons; the churches of Byzantium, built by Constantine, and already claiming that species of veneration accorded to priority, were of that form; it had, moreover, the quality of *fitness* in an eminent degree, and the retention of its

title was a judicious propitiation of the fierce prejudices of Paganism, as being associated with popular ideas of a site and scene of the administration of justice, and an exercise of the attribute of mercy.

Notwithstanding the lapse of ages, the inroads of time, and its innovations, several of the churches at Rome still retain much of this primitive shape. We have, however, in Hope's historical essay on Architecture, mention of one of these basilicæ brought to light in the course of excavations made at Otricoli in 1775, and that industrious and acute observer's remarks upon the conversion and adaptation of the Roman hall to the purposes of Christian worship are well worthy attention. He says of this species of building—"While the temple offered to view external rows of columns, more or less numerous, preceding and surrounding its cella, the basilica seems to have presented nothing externally but a close, bare wall. Whatever porch it might possess was within this, and made no display on the exterior; its principal area, of an oblong form, was divided by a double range of columns in a central avenue, and two lateral aisles, in one of which waited the male, in the other the female candidates for justice. These three longitudinal divisions were terminated by another of a transverse direction, raised a few steps above them, whose length embraced their collective width, and whose destination was to hold the advocates, the notaries, and others engaged in prosecuting causes. Opposite the central avenue, this transept swelled out into one of those semicircular recesses, or terminations, with a ceiling rounded off like the head or couch of a niche, so frequent in the later Roman buildings, called in Greek *Abais*, and in Latin *Tribuna*. In this sat the magistrate, with his assessors, and from this courts of justice have since been called *Tribunals*. Other recesses, semicircular or square, opposite to the lateral avenues, served for different purposes of convenience.

The basilica was thus, not only from its greater size, but from its peculiar distribution, well suited to every purpose of Christian worship. Even supposing some of them to have been open at the sides and over the centre avenue, a wall might close in the one, and a wooden roof cover the other. As by the apostolic constitutions the church was to represent the ship of St. Peter, the centre avenue might represent that *naos* or nave, and even preserve its name, while the lateral aisles might maintain that separation between the sexes considered in early times as necessary at church as in a court of justice. A part of the nave might be screened off from the remainder for the singers that hymned the praises of the Saviour, and furnished with ambores, or pulpits, for the ministers that read the Scriptures. The altar on which the sacrifice for the salvation of man was to be commemorated might be placed at the termination of the nave, in the centre of the transept, already in heathen times, seeming by its disposition with regard to the nave, to have foretold the future triumph of the cross. In the centre *Abais* might sit, elevated both above the congregation and the altar, instead of the magistrate, the bishop, whose very name, as well as office, called upon him to look around, supported right and left by his clergy, as the former was by his assessors; while the lateral absides might serve as a sacristy and place of purification. Thence, after Constantine had given two *real basilicæ*, the Sessorian and the Lateran, to serve as churches, he built his other churches in the same form."

(To be continued.)

COMMUNICATION WITH IRELAND.

CAPTAINS BACK and Fair have made a Report to the Lords of the Admiralty, by whom they were employed, as to the pre-eminence to be given to the harbours of Portynllan and Holyhead, in connection with the packet intercourse of this country and Ireland. They have examined as to powers of making the harbours by vessels under all possible circumstances of difficulty, referring to the exposure to winds, facility of lighting, landmarks, and depth of water; also as to the capacity for docks and harbourage, and their Report is succinct, forcible, and convincing. They give to Holyhead an undisputed preference.

PASSING THOUGHTS.

VI.

I CANNOT afford more than a passing thought to "tCt," for I am happy to say my time is a little better taken up than by entering into foolish discussions, which can have no other object than taking up space in this valuable paper, and appear to be commenced merely for the purpose of creating words. If "tCt" had given even a little reflection to his note in last number, he would have discovered that he has said nothing to "clearly prove" I am "greatly in error." Surely "tCt" must be very sore-headed indeed to defend his initial by such formidable characters as two daggers; I hope he does not intend to be "daggers drawn" with me, for it looks very like the commencement of an onslaught on behalf of the Cambridge Camden Society; however, perhaps he will oblige me by proving more clearly to my dull brain the error in which I am at present existing, for my part I cannot make it out how it is. Hereford Cathedral (the part shewn in page 377), according to two authorities, Britton and Dallaway, was built anterior to 1107, and according to "tCt's" own account, the Norman period did not close till 1154, so that unless he proves that Hereford Cathedral was not built in 1107, his statement must go for nought, and he be set down as a half-informed carper.

VII.

I was much pleased with the remarks offered in the last number respecting the Nelson Column; their justness, I think, no one can deny; for independently of the bad choice of situation, of which much has already been said and sung, it is very clear they have mistaken the means by which to erect a memorial to the Hero of the Nile—the fact is there is no *fitness*, and that's summing up in a few words its *unfitness* for the situation it now occupies.

I should like to see in the designs of memorials a vast deal more of originality; why should we be eternally referring to precedent for every thing we do—did the inventors of these precedents do the same? No, indeed, they did not, or we should not at this time be in possession of such a variety of styles; then why should we look to precedents?

"The reason's plain as way to parish church,"

because the generality of our architects will not give themselves the trouble or the time to think and invent for themselves. Some there are who begin to break through the trammels of rule and precedent, but their attempts at present are crude enough—still they deserve praise as *pioneers*; the Belvedere Apollo or the Medicean Venus were not perfected at one stroke of the chisel.

There are some good points about Mr. Hanson's design for the Sussex Memorial, and the remarks which accompany it are exceedingly good, and shew a great desire to break through the hackneyed routine of every-day design. I do not attempt to say that we cannot design good buildings either in Greek, Roman, or Gothic, because I know to the contrary; but I could wish to see something which would mark our era, and give the architecture of the nineteenth century a distinguished and distinctive position in the Temple of Fame; but there are many prejudices to be overcome before this can be accomplished. Most architects entertain such a veneration and affection for columns and entablatures, that before much can be done with the generality of them, it must be shewn that little credit is due to an architect who makes columns the principal feature of his design, and relies solely upon them to create a good impression—they are things that pass with the vulgar; but no man possessed with a feeling for architecture will be found to give it much praise, well knowing that any person moderately acquainted with the proportions of the orders can design a building to look well who makes one of the orders the principal feature.

J. L. C.

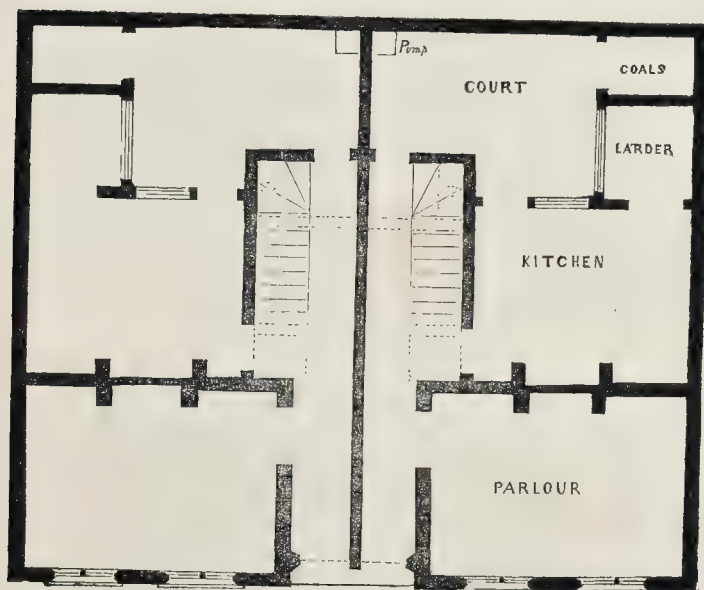
CHINESE TARIFF.—We observe that in the new tariff under the treaty with China building materials are to be exported from China duty free. Red and white lead and marble slabs have duties imposed, but of no great amount. Copper may be imported by us, though at a high import. Iron and Lead are provided for more favourably. Colonial woods are also provided for.

* Constantinople.



ELEVATION OF A DOUBLE COTTAGE.

(From a Correspondent.)



Ground Plan.

"CLASSIC NOT CHRISTIAN."

who. — "Classic, national!
Mere human creature—cobwebs all:
They are idolatrous, and Pagan,
Not less than worshipping of Dagon."
Hudibras, Canto 1.

—Next to the self-consciousness of an honest
our to arrive at the truth, I value the opinion
interested and competent judges; it was, there-
with no small pleasure that I read your leading
in No. 35. I trust, like yourself, that I have
reasonable prejudice for the old or the new, as
out that I value what is good wherever I find
perspective of its age or its author. I must
knowledge the justness and value of your

remarks upon the tone of conducting a controversy.
I believe it is not often I offend on this point; but
there are bounds to every one's patience—there are
cases where "*difficile est satiram non scribere*."

Few, perhaps, have a greater value for the Gothic
architecture of England than myself. Few feel its
grandeur and beauty more. Few reverence more

— "the face of those tall piles,
Whose ancient pillars rear their marble heads
To bear aloft the arch'd and pond'rous roof;"

and for that very reason I trust I may be excused
the expression of indignation at the quacks and
sciolists, who make a pretended admiration of the
beauty of these buildings a cover for cant and jargon.
When, therefore, Pseudo-Ecclesiologists, wood-
cutters, and copper-scratchers dictate, Sir, to you, to

me, and to the whole profession; say, more, when they
abuse all other men's works, and all styles but their
own; when they nick-name the monuments of
classic antiquity, and revile its students, I trust you
will allow that some little warmth of expression
may be tolerated. He who professes to admire
Theocritus, but shews his folly by abusing Homer
and Æschylus: he who praises Chaucer and Spenser,
deserves the indignation of every true lover of
poetry, if he sneers at the classic majesty of Milton.

Mr. G. R. Lewis's last letter, however, is of
that extraordinary character, and his tone is so
extremely peculiar, that there is something unplea-
sant in handling and analyzing it. A man who
can coolly write that "churches designed in his
(Vitruvius's) style would be buildings in Vitruvius's

style, and not churches," must either be ignorant of the meaning of words, or is a person not to be argued with. Equally extraordinary is the notion that the early Christians "had not the power to perceive the Holy Scriptures contained the true principles of ecclesiastical design, on which they ought to have acted." Surely they knew more of the Scriptures than those to whom their perusal was forbidden. But "they were in the dark," says Mr. Lewis, "on Christian art, at which we need not wonder when their troublesome times we take into account." What, when the emperors of the world became Christians, when they bestowed their silver and gold, their most precious marbles, and richest bronzes; when all that the arts of imperial Rome could do was lavishly done—the palmy days from Constantine the conqueror to Justinian the law-giver, were those dark times? I will not waste words in refuting such dogmas. I will not take up your valuable columns nor your readers' time, by further notice of Mr. Lewis than to request he will quote me fairly in future, and not represent me as saying such nonsense as "after the Christian era had rolled away," or by referring my notice of the primitive and pure church, and its subsequent corruptions, to the architecture, instead of the religion of the times. If he would answer my "empty" queries instead of misquoting them, it would be, to say the least of it, the most creditable way.

I now contend that a classic church is a Christian church—nay, more, that the type of a Christian church is originally classic, and yet not Pagan. The classic architecture of the Romans may be called "Pagan" when applied to their temples; as we call the Gothic "monastic" when applied to abbeys and monasteries. But the type of the Christian church was not the temple, but the classic basilica βασιλική οίκος, or court of justice, to which the term "Pagan" can no more apply than the term "monastic" to "castellated" Gothic. It is true that a man might call it by any name he pleases, might swear it is so, might dub you "impertinent" if you modestly doubt it; just as he might say, "St. Martin's-in-the-Fields is not a church, but a building in the style of Gibbs," and "St. Stephen's, Wallbrook, is not a church, but a building in the style of Wren." But a man might also call Dr. Croly a priest of Jupiter, and Mr. Alderman Gibbs a vestal virgin; my business is not with any such men, but with you, Sir, and your readers, who I know will regard argument and not assertion.

I now further contend, that the prominent features of the Roman basilica were, what we now call nave, aisles, clerestory, choir, and transepts; and that these are the true features of the Christian church; that they were maintained, with very few exceptions, through the different debasements of the Roman style, the Byzantine and Romanesque, to the early grotesqueness of the Norman. From thence, as better taste and fancy prevailed, the same type was preserved through the early English, ornamented, and Tudor styles in this country; and I do contend that our glorious cathedrals and abbey churches owe their original to a classic style; though parsimony on the one hand and quackery on the other forbid, for a time at least, any hope of a perfect development of it in our days.

Now let me endeavour to prove what I say point by point. Let us first inquire what the basilica was? Turn to Vitruvius, lib. 5, cap. 1, you will find he describes a rectangular oblong building, divided into three parts by rows of columns. The central part, or nave, he calls "testudo;" the side divisions, or aisles, he calls "porticus;" over the testudo he describes a blank space, or "pluteum," against which the rafters, "cantheria," of the porticus pitch; behind the columns are pilasters, "parastatæ," on the tops of which the timbers, "consignationes" of the ceilings of the aisles rest; above the pluteum are other columns, "superiores columnæ" (bearing the roof of the testudo), between which, it appears, were windows, "lamina." Much difficulty has been found in making out this passage of Vitruvius; but thanks to his commentator Daniel Barbaro, and to the discovery of the remains of a basilica at Pompeii, I believe the main points are settled. At the end of the building, "extremis partibus," were "Chalcidica," of which more anon, and a βήμα, or "tribunal," forming a sweep less than a semicircle, "hemicycli schematis minore curvatura" (the chord being in fact to the versed sine as 46:15), and curving outwards to make room "negotiantes in basilica ne impeditent." So much for the general features of the basilica, as described by Vitruvius, and commented on (chiefly by D. Barbaro (in loco) and by Palladio in his third book.

The next step is to show the difference between the Pagan Temple and the Classic Basilica. This difference may be gathered partly from examples already existing, partly from Vitruvius, lib. 3, cap. 2 et seq. or more shortly from Palladio, book iii., chap. 7, and from his Fourth Book on Temples, especially the 5th chapter. It is shortly this: the

porticus of the temple (I do not mean the entrance portico, but the ambulatory inclosed by ranges of columns) was outside the walls in the temple, and within in the basilica. Palladio's words are—"We, by omitting the portico, build them (i. e. churches) very like basilicas, in which, as it has been said, porticos were made in the part within." It is true that the larger temples to Jupiter and the Diæ majorem gentium had ranges of columns within, but these were all hypothetical, or without roof; see Vitruvius, lib. iii., chap. 2; and this Palladio and all the examples confirm. Besides this the temple had neither pluteum, chalcidicum, nor tribunal. There was, therefore, very material difference in the design and type of the temple and the basilica. The classic temple was, of course, of Pagan type—the classic basilica had nothing of the Pagan temple about it; and can no more be called Pagan than Windsor Castle can be called a monastery.

I must now crave a few words with regard to the chalcidicum. Much difference of opinion exists on this point, and when I remember that the best modern authority, a man of genius, a scholar, and a real architect, Mr. Joseph Gwilt, takes a very different view from mine, in which he is supported both by Perrault and the editor of the fine Utin edition of Vitruvius (1827), I must necessarily advance my own opinion with diffidence. At page 90 of his admirable Encyclopædia, in the plan of Pompeii, he calls the chalcidicum a single building (marked F) at a considerable distance from the basilica. But Vitruvius uses the word in the plural, and expressly says they (the chalcidica) were to be attached to the basilica at its extremity. "Sin autem locus erit amplior in longitudine, chalcidica in extremis partibus constituantur, ut sint in Juliâ Aquiliani." "If the site be longer (than the proportions he has laid down of the length to the width, i. e. not less than a third nor more than a half), let the chalcidica (plural) be placed at the extreme end as they are in the basilica Julia Aquiliana." It is true, as Mr. Gwilt observes, that S. Pompeius Festus (de verborum significatione Amst. 1699, page 76) derives the name from Chalcis, a city of Eubœa. "Chalcidicum, genus est edificii, a city of Eubœa." This, however, does not explain either its use, form, or situation. Philander, however (in Vitruv. page 80, note, Edit. Amst. Elzevir. 1649), derives Chalcidicum from χολος money, and δικη justice; and supposes that it was either a mint or treasury. But I think it far more probable that they were places where the monies awarded by justice were paid: that they were, in fact, erections right and left of the tribunal, to which the parties retired to settle their money-matters, and to consult with their lawyers, just like the room at the side of the Queen's Bench Court at Guildhall, where the court fees and witnesses are paid. I am strengthened in this opinion by a passage in Leon Baptista Alberti (lib. vii., cap. 14, edit. G. Leoni, 1726), a very first-rate authority; in fact, if it is conceded that his Causidica is identical with the Chalcidica, of which I have very little doubt, and in which I am supported by the authority of Polenus, I think there is an end of the matter. Alberti's words are these: "Aggiungero dipoi al traverso del Tribunale una Nave, in quale noi chiamiamo Causidica, perciochè in quel luogo concorrevano Notari, Procuratori, ed Avocati; e congiungessero insieme queste Navi a similitudine della lettera T." "They joined then, at right angles to the Tribunal, a nave which we call Causidica, because in this place the notaries, proctors, and advocates, congregate, and they joined these naves (plural) together like the letter T." And shortly after he says, "E la nave a traverso, che dicemmo causidica." "And the cross nave which we call Causidica." The βήμα, or tribunal, of course projected between them, and formed one limb of a cross, the testudo and also formed the long limb, and the chalcidica the transepts; in fact, the Italians at this day call the transepts "crociata."

The next step in my proof is that the early Christians copied the basilica in building their churches. This is commonly known, and easily proved by reference to the plans of those now existing, as San Paolo, &c. &c. But there is a passage in Palladio so much to the purpose, that I venture to transcribe it: it is in Book iv., chap. 5. "This happened because the first who, enlightened by truth, gave themselves up to our religion, were accustomed, for fear of the Gentiles, to assemble in the basilicas of private men; whence, seeing that this succeeded very well, because the altar was placed with great dignity in the place of the tribunal, and the choir stood very conveniently about the altar, and the remaining part was free for the people, it has not been altered since."

Now, Sir, we find shortly after this that the testudo took the name of nave, or ship, from a fancied resemblance to the Ark that saved Noah and the human race—the porticus were called aisle, or aisles. The βήμα, or tribunal, became the choir or chancel (in fact, it retained its name βήμα a long

time, see Bingham's Christian Antiquities, vol. iii. 186), the circular end became an apsis, the pluteum and superiores columnæ became our clerestory (see the plates to book vii., of Alberti's Architecture, Leoni's edition), and the Chalcidica (nisi fallor) became the Italian crociata, and our own transepts.

Thus, Sir, from a purely classic model, we have the entire type of a Christian church.

But let me take another line of reasoning. If churches in the style of the naves of Winchester and Canterbury are conceded to be Christian churches, there can be no reason to exclude Salisbury and buildings in the lancet style; and though previously to this the windows, doors, &c. had circular instead of pointed arches, and instead of piers and bolts there were heavy squat columns, there can be no cause to excommunicate the Anglo-Norman or Saxon styles. Surely these were also Christian churches. If this be conceded, why should the Lombardic and Romanesque churches be un-Christianized, whose only difference was that the columns were smaller, and their caps more like Roman capitals? And, if the Christianity of these be admitted, why not that of the Byzantine churches, which differed only in a less pure style from those of Constantine? And these last, as I trust I have proved, were the classic basilica architecture is not new to me, because I have met with pseudo-Ecclesiologists before; it stands thus διαστικώς:—

Churches with Roman columns, entablatures, &c. are classic churches.
But—the Romans were Pagans.
Ergo—St. Martin's-in-the-Fields (being in the classic style) is a Pagan church.

It might as well be said, "The Romans were hook-nosed; ergo, nobody should go to St. Martin's but hook-nosed men."

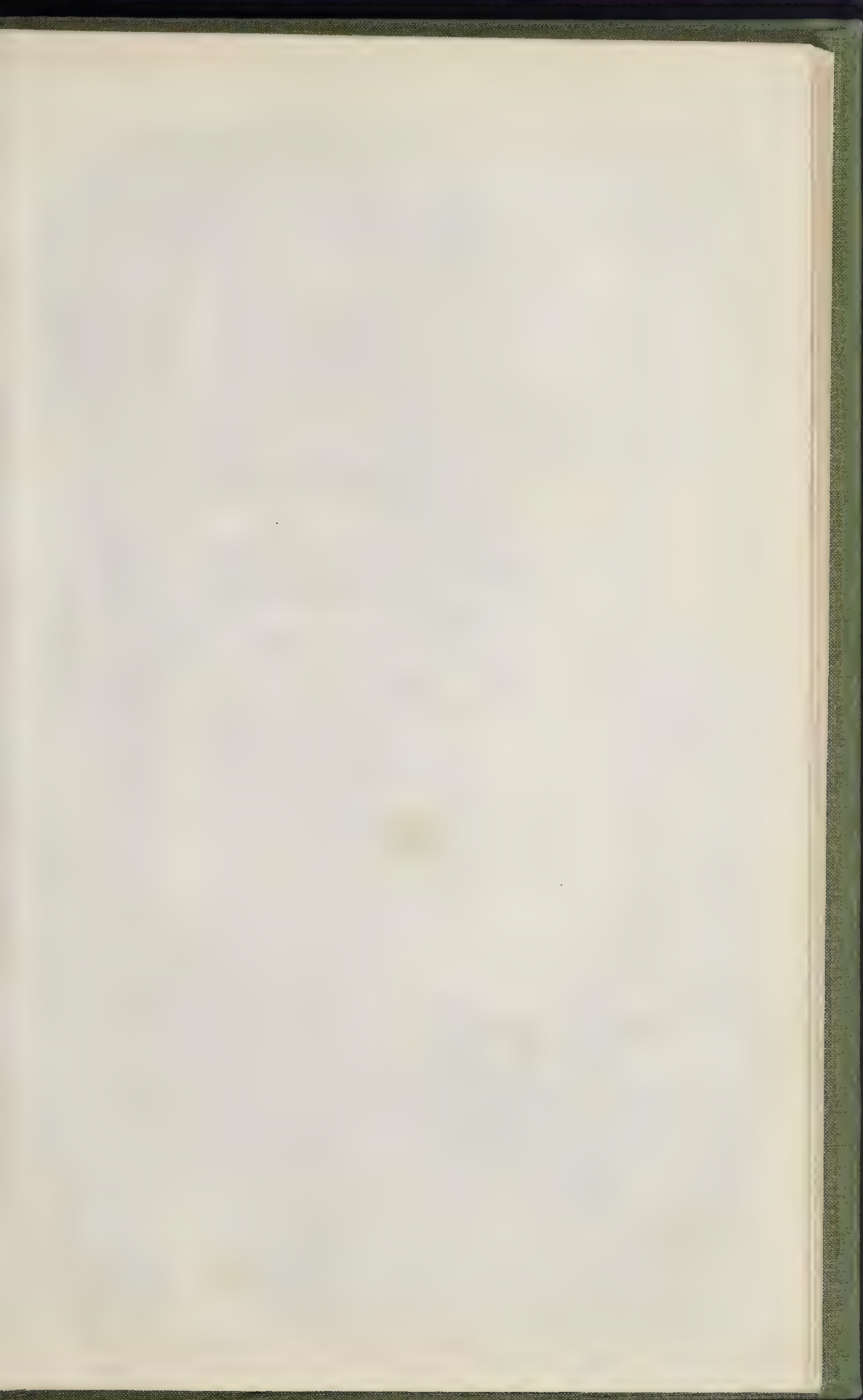
You, Mr. Editor, will immediately see the logical fallacy in the syllogism. I endeavoured to illustrate it in my last letter by a *reductio ad absurdum*, thus:—

The Latin was the language of the Romans.
But—the Romans were Pagans.
Ergo—St. Cyprian (one of the Fathers of the Church), who wrote in Latin, was a Pagan.
The absurdity is apparent, and is, I still contend, an exact parallel to the dictum, "Classic is not Christian."

I find I am, against my will, compelled to notice Mr. Lewis once more. He demands my name and address, "that we may be on equal terms." I think we are on equal terms now; I have made no sort of personal allusion to him, but have merely commented on his letters. "Quod scripsi, scripsi," he can do so with mine. But from his calling me "empty, impertinent," &c., I fancy he seems to be inclined to be personal. This is a thing I cannot stoop to. I think, therefore, by giving my name I shall put myself on unequal instead of equal terms with him. No, Sir, I think I shall keep to my old signature, 'tis one I am proud of, though, I fear, not so deserving of as very many. I shall continue to subscribe myself as, Sir,

Your sincere admirer,
AN OLD-FASHIONED ARCHITECT.

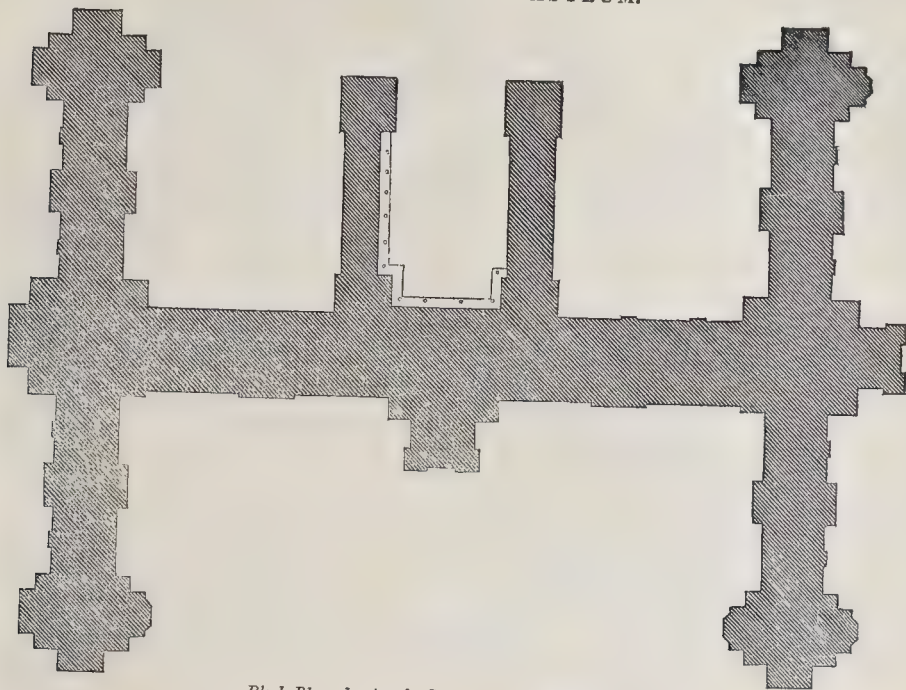
THE LEVIATHAN TELESCOPE.—The Rev. Dr. Robinson, the celebrated astronomer, of Armagh, in a letter to the writer, describes the gigantic telescope, now constructing by the Earl of Rosse, as nearly complete. He says—"The speculum, which weighs three tons, has been ground to figure, and can be polished in a day. The tube, partly a cubic chamber where the mirror is fixed, and partly a cylinder, of inch deal, strongly hooped, and eight feet diameter at its centre, is complete. The massive centres on which the telescope is to turn are in their place, and the apparatus which supports the speculum, which is of iron and of great weight, is also complete. The telescope is not to be turned by any part of the sky, but limited to a range of half hour on each side of the meridian, through which its motion will be given by powerful clockwork, independent of the observer. For this purpose it stands between two pieces of masonry of Gothic architecture, which harmonize well with the castle. One of these pillars will sustain the clockwork and the observer, and the other the clockwork and the other machinery; one of which is finished, and the other nearly completed. An extremely elegant arrangement of counterpoises is intended to balance the enormous mass, so that a comparatively slight force only will be required to move it; and of great weight, which is also completed; and Lord Rosse considers that two months will be sufficient to have the instrument fit for trial. The arrangements will not permit the examination of an object at any time, but only when near the meridian, when objects are best seen. So large a telescope will always require the most favourable circumstances of air, &c., and there will always be enough of objects at any given time to employ it fully. The aperture is six feet, and the focal length 52 feet."





VIEW OF THE PRINCIPAL FRONTS OF THE INFANT ORPHAN ASYLUM, WANSTEAD.

INFANT ORPHAN ASYLUM.

*Block Plan, shewing the General Disposition of the Structure.*

This building is designed for the accommodation of four hundred children, but at present contains not more than some hundred and sixty. There are thousands, unfortunately, thousands of candidates, poor orphan children! but even the number for which this building is framed cannot be provided for, unless by the generosity of a large number of subscribers. It is not for us to essay an appeal to the hearts and sympathies of the public; we should but bunglingly discharge such a duty; and last Tuesday the matter was advocated by a distinguished pleader, the Rev. Mr. Dale. We cannot, however, forbear indulging for a moment in seconding his exertions, and calling upon all our friends of the building class, and out of the building class, to exercise that God-like liberality which this occasion gives the scope for.

We are not afraid that this institution will not be nobly supported. The building which our engraving presents to view is a type of the high purpose by which men are to be animated, and of the high impulses to which they yield in such a subject. How frequently do we hear of niggard virtue—but how shall we apply such truth to that virtue of benevolence? It is a liberal and a regal virtue, and seeks, as in buildings like to this, for adequate and correct expression.

Upwards of 30,000*l.* have been expended on the structure, and yet much remains to be done in fittings and furnishing, but this only as the inmates increase in numbers. The situation chosen is a lovely and a favoured one.

Wanstead Common, although so near to London, bears all the primitive charms for which it has ever been characterized, and a nice spot has been hit upon with trees and shrubs peculiar to the Common, and yet so as to appear to welcome this pile of well-affected beauty as a thing of growth or founding rival with themselves. The mixed Tudor and Stuart in the mode or style of building

is carried out with the accustomed skill of the architects, and it would be hard to describe how much is owing to the good taste exercised in the selection of the materials. White brick, we believe, was intended in the original or first provisions of the contract, but the walls have been very wisely constructed of limestone facings, hammer dressed, from the quarries of Sneaton, near Whitby. This, which is so largely effective in raising the exterior character of the building, was accomplished at a cost of little more than 1,000*l.*, but the use of Caen and of Bath and Whitby stone, for the dressings of the windows, for quoins, plinths, cornices, &c., swelled the whole extra amount to upwards of 3,000*l.* The first point, however, is a marvellous one to make note of, that with sea freights from Sneaton to London, coming up the Thames, and the carriage from the Thames to Wanstead overland, not more than a little over 1,000*l.*, should have been expended in so large a work for the exterior walling. We would have our readers judge for themselves as to the superiority of character which the adoption of this material has secured; it reflects great credit on Messrs. Scott and Moffatt to have hit upon and carried out so successful an expedient.

We have not hitherto brought the names of these gentlemen forward in what we have had to say regarding this edifice. With our professional and builder readers their names will be familiar, and great numbers of the non-professional have become acquainted with the works of these gentlemen, particularly in union workhouses, and latterly in churches, foremost among which we may mention Camberwell New Church now erecting, and we may add the Martyr Memorial at Oxford. Their indefatigable industry and talent, unquestionable evidences of which are given in the work before us, have entitled them to considerable reward and employment, and of late

there is scarcely a competition of a certain class in which they have not been the successful candidates. This matter of the Infant Orphan Asylum was so contested in the year 1841, and the palm awarded to those gentlemen. Mr. Jay, of London Wall, was the contractor, and the work commenced about the autumn of the same year, without, however, much more than the foundations being put in till the spring of the year following. Great progress was made thenceforward, as will be judged of by the building being at this present time in occupation, and so prepared for some time past. It may be a question, however, whether the building had been, as we say, sufficiently seasoned for the reception of its juvenile inmates. We thought, when we looked over it, that the effects of a little precipitancy in this respect were marked upon the countenances of some of the children. This, however, might arise from other causes, or be altogether unavoidable in the change from the comparatively wretched previous provision of three or four accommodation houses at Dalston, or from a change in the water, a point, by the way, to which we would venture to recommend particular attention. There is a lake, or sheet of water, in the rear, or out from the right wing of the building, which, as part of the landscape, is particularly pleasing and effective; but we question whether it will not be found that its quality is deteriorated, or that it possesses a certain rawness which unfits it for culinary and other purposes of diet, derived from its peat-like sources or tributary channels. This is a matter deserving of grave attention, and we do not mention it without being impressed ourselves with the importance of calling that of the authorities to it.

This consideration brings us again to that part of the subject which is more particularly allied to the household than to the house, to the interesting little inmates, and that charity

which presides over their domestic care, more than to the architectural character of the edifice.

In the particular structure in question, there has been much hit off in which we can imagine the architects not to have been overruled or trammelled by the officious or unwise interference of a committee. It is not always so. Yet we must observe of the interior, that it hardly squares with those notions of completeness and comfort which an exterior glance at the building would lead you to expect. Much of that breadth of exterior character is obtained at a sacrifice which in our minds had been better avoided. Considering who are the principal occupants of the building, it seems to have been forgotten as to what are the chief constituents of comfort in some of the apartments. A large and airy bed-room may be in some instances a desideratum, but we think in the dormitories of this institution, there is almost twice the space assigned for the purpose that the exigencies and proprieties of the case called for. The beds of little children seem out of place in a large vacant and lofty apartment; there is a want of domesticity in the appearance, and, we will venture to say, is to be found in the use. Snuggles and cheerfulness—most essential qualities in such a structure—are not brought into association here; and the moral effect of such qualities in that which surrounds children of a

tender age has much to do with fitting them for their future position in the social and domestic circle.

We should not, however, take strict note of exceptions where all is so far good, or towards good, as in this instance, and we only do so to call attention to any remedy that may be devised in the future fitting up of the apartments, as well as to awaken the consideration of architects to such points in future edifices of this or the like nature. We say future edifices, for we hope to see many others spring up, as many as the pressure of misfortune and the calamity of bereavements shall call for. Take away a little of the over-formal and mechanical aspect in the arrangement and working of these institutions, and we have then supplied to us that which will spread a charm over the land. Loud preaching, and eloquently appealing to our senses, an active and practical benevolence will be aroused within us at the very sight of these structures—the poor themselves will not be indifferent to their influence, they will feel that a sacred principle, cognizant and protective of their rights, is indicated by these beautiful land-marks; they will see the soil of their country devoted, and endowments secured, in which is their freehold, and they will be jealous of the desecration and decay of such to an extent that will animate them to take a main charge in its maintenance.

We shall not dwell more at length, nor can we with propriety enter into further details concerning this institution. We had intended giving plans and some other details of the edifice, but ascertaining that there was some feeling of objection to it, we were not rude enough to press the matter, and have therefore contented ourselves with a block plan to show the general disposition and proportions.

We may observe that the higher wing is devoted to schools, day-rooms, dining room, and dormitories for the elder children; and the left wing to stores, nurseries, &c., for mere infants, with a general chapel. The back central projections are mainly for offices, that on the left being conspicuous for a complete arrangement for washing and laundry purposes. A steam-engine in the basement of this part is employed to pump water to the various cisterns in the building, to work the mangle, and a washing and wringing machine. The drying closet is on a very complete principle. These, with the cooking apparatus of the kitchens, have been fitted up, we understand, by the Messrs. Haden, of Iron-bridge, and will well repay inspection.

In conclusion, we may note that admission to inspect this most interesting institution is regulated by tickets, obtained of the committee, and that the doors are only open for this purpose from the hours of ten to three on Mondays.

LECTURES ON ARCHITECTURE AND ANTIQUITIES.*



RUINS OF THE TEMPLE OF PHILÆ.

LECTURE II.

THE Memnonium, or Palace of Memnon, was a magnificent structure; by some it is considered as the tomb of Osmandyas, who flourished 2272 B.C. It stands on the opposite bank of the Nile to that where the temple at Carnack is situated. Memnon was nephew to King Priam, to whose assistance he took 10,000 men at the siege of Troy, where he was killed by Achilles, and great honours were paid at his death. The Egyptians erected a statue to his memory, which became famous in all after ages. (From a lately-deciphered inscription on the statue it is conjectured to be that of Amenophis, who was contemporary with Joseph.) It was supposed to have the wonderful property of uttering a melodious

sound every day at sun-rising, like that which is heard at the breaking of the string of a harp when it is wound up—

“Dimidio magice resonant ubi Memnone chordæ.”
Juvenal, Sat. xv.†

This celebrated statue was dismantled by order of Cambyzes, but its ruins still astonish modern travellers by their grandeur and beauty. Denon tells us that this far-famed statue is 64 feet high, in one single block of red granite (one foot which remains is 4 feet 6 inches long, one of its ears 39 inches long, and it is said to be 60 feet round the shoulders); it is perceived at a distance of five leagues. On

† It is not from affectation that a Latin quotation will now and then be introduced; translation of poetry would weaken its force, and the meaning is not absolutely necessary to assist the text, as in the case of quoting from French and other prose writers.

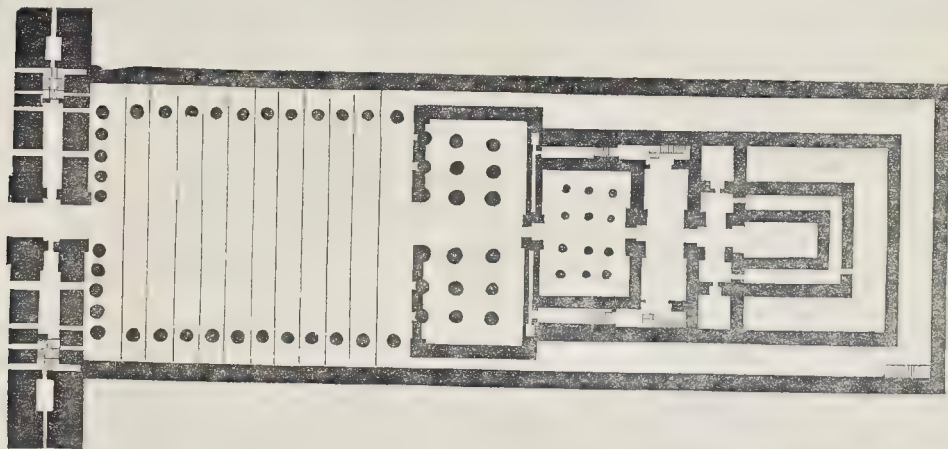
its knees are inscribed the names of illustrious Greek and Roman travellers who came to see and hear it. The head of the lesser Memnon, as it is called, is, through the exertions of Belzoni, now in the British Museum, to which place a visit will reward those persons who wish to form an acquaintance with Egyptian antiquities.

I said that remains of Thebes exist at the modern Luxor; the view given in the first Lecture shews the entrance to the temple. Denon here exclaims, “What grandeur and what simplicity in this one view! it appeared to me the most picturesque representation (tableau) of the history of the time, and that which comparatively best proved it.” Whilst he was absorbed in reflections on its past and present state, the sheik of the village, finding

him on one of these occasions thus occupied, asked him very gravely "If the French or the English built all these structures?" This question put to flight the reveries of the Frenchman, who quaintly observes, "Celle note acheva mes mémoires." The two obelisks of red granite rise still to a height of 70 feet out of the ground; he judged that 30 feet more were concealed, so that these obelisks were 100 feet high, of single blocks of granite. (There is an obelisk at Rome 115 feet high, which was transported thither by Constantine II. from Heliopolis.) They are entirely covered with beautifully-carved hieroglyphics. The two great *môles* which form the gateway

are covered with sculpture, representing combats with chariots in ranks, each drawn by two horses, and having one driver. After several other remarks, all in high commendation, Denon adds, "Such structures appear like dreams, or the works of giants." So Champollion exclaims of Carnack, "These porticos must be the work of men 100 feet in height!" The columns at the Temple of Luxor are 9 feet in diameter, and 56 feet high. At Medinet-Abou is a palace in a tolerable state of preservation; there is a court 55 feet long and 65 feet broad, around which are four rows of columns 7 feet in diameter, and 45 feet high; at the distance of a league and a half is a small temple dedi-

cated to Horus. Ascending the Nile from Thebes, we find the ruins of Apollinopolis Magna, now *Edfou*, where are the remains of a temple dedicated to Apollo, who is the same as Orus, or Horus, the son of Osiris and Isis. Denon states that he made a journey of more than 50 leagues, for the single purpose of adding this design to his collection. This temple is about 170 feet long, 180 feet broad, and 70 feet high. In general arrangement the temples in Egypt resemble each other, it is not therefore necessary to give a particular description of each. The plan of the temple (which is herewith shewn) will suffice to give a notion of the arrangement of Egyptian temples in



PLAN OF THE TEMPLE OF ORUS.

general. The islands of Elephanta and Philæ, situated near the cataracts, are rich in temples, particularly the latter (of which a view is given)

—“Whose ruins smile
In the mirror of the Nile.”—J. HOPE.

It is 800 feet long, and 420 feet broad, and it is almost entirely covered with the most stately monuments of different ages. The front is a rampart wall, to serve as a protection against the rising waters of the Nile; the entrance to the temple was approached by a magnificent double range of columns around a court 250 feet long, behind which were rooms for the priests. The pyramidal *môles* are each 47 feet long and 27 feet thick, and 75 feet high; two rows of gigantic hieroglyphics adorn them, representing five of their grand divinities; there are likewise other figures of priests, &c.; on each side of the door (which is 26 feet high) is an obelisk 18 feet high, and a sphinx 7 feet long. Behind is a court 80 feet long, and 45 feet wide, also flanked by galleries of columns. On the right, behind the columns, is a suite of cells 10 feet deep, and on the left a private dwelling, composed of a portico at each end, and of three rooms of various dimensions, communicating one with another, and opening to the porticos; this is the only building that Denon ever saw of the kind. Two other *môles* serve as the portal to the most beautiful and regular part of the edifice; this is a species of portico, decorated by 10 columns and 8 pilasters, 4 feet in diameter, as magnificent as they are elegant; the columns and walls are covered with sculptures, the ceilings are either painted in astronomical tables, or with white stars on an azure ground. Beyond this, again, was the secret part of the temple, divided into four rooms, one leading to the others; in these remote chambers it is supposed that the sacred birds and reptiles were kept. (It was death to any one to kill an ibis, a crocodile, or a cat.) Herod B. 2, c. 65.) None of the Egyptians, excepting the priests, were allowed to enter the island on pain of death. From a passage in Diodorus, and another in Seneca, it appears that the ancients considered Philæ as the burial-place of Osiris; the hawk was his emblem, and

occurs frequently in the sculptures on the temple.

Descending the Nile, on its right bank, we come to Ombos (now *Kaum-Ombo*), where the crocodile was worshipped, and where are the remains of a splendid temple, in which occurs the singular instance of two entrances. The temple in the Isle of Elephanta is a monument of great interest, on account of its celebrity, its preservation, and the beauty of its internal sculptures. It occupies the centre of the island, it is consecrated either to Wisdom, under the name of Cnephi, or else to Horus, the son of Isis. It is preserved nearly entire in the midst of the ruins by which it is surrounded; the figure of granite, which is seen in front, is ten feet high, and is probably that of a divinity or priest. Still lower down the Nile is Cnubis, opposite Latopolis; here is also the ruin of a monument which is of the highest antiquity. At Esneh, the ancient Latopolis, are the remains of a temple, the portico of which is called by Denon the most perfect in proportion and purest in execution of the Egyptian monuments. It is a very excellent specimen of this peculiar style; three rows of columns are ranged beyond that which is shewn (see Sketch, Latopolis).* In this portico we see plainly the imitation of the reed in the shaft of the columns, and likewise in the frieze, and in the latter instance I think we may see the origin of the triglyphs in the Doric order. The lotus flower forms the principal ornament to the capital, to which it gave the hint for its vase-like shape, and which bears a significant resemblance to Corinthian capitals. This temple was dedicated to Jupiter-Ammon, whose emblem was a ram. The sculptures on this temple are curious proofs of the worship that was paid to the crocodile and to the Nile.

Returning to the neighbourhood of Thebes, we find near Medinet-Abou, a modern village with the name of Ermente; this was the ancient Hermontis, where is a temple consecrated to Isis, the portico of which appears never to have been completely finished, whilst the sanc-

tuary beyond is highly wrought. Denon is of opinion that the very early practice was only to build the sanctuary, and that in after times, porticos, galleries, and walls around, were added, to render the ceremonies more imposing or to serve as residences for the priests and perhaps the kings. At Hermontis is an ancient reservoir, built to receive the overflowings of the Nile, four staircases descended into it, and in the centre it is supposed stood the celebrated Nilometer, mentioned by Aristides the sophist; this was a column on which were marked the different degrees of the inundation: it is now in the island of Rhoda, near Kairo. We now come to Dendera, the ancient Tentyris, or Tentyra, where are three temples; the most celebrated is that dedicated to Isis. Of this temple travellers speak in unbounded terms of admiration and delight. Denon says, when he stood beneath its portico, "I thought myself, may I really was, in the sanctuary of the arts and sciences. Its austere architectural simplicity is enriched by its sculptures, which do not, however, confuse its fine lines: its large cornice forms a majestic finish to the edifice." Belzoni, when he saw this temple, was struck with astonishment. He says—"Early in the morning my curiosity was at a high pitch, the noted temple of Tentyra being the only thought I had in my heart. Accordingly we set off on asses, as usual, and proceeded to the ruins. On arriving before it, I was for some time at a loss to know where I should begin my examination. The numerous objects before me, all equally attractive, left me for a while in a state of suspense and astonishment. The enormous masses of stone employed in the edifice are so well disposed, that the eye discovers the most just proportion everywhere. The majestic appearance of its construction, the variety of its ornaments, and, above all, the singularity of its preservation, had such an effect on me, that I seated myself on the ground, and for a considerable time was lost in admiration. The quadrangular form of the capital first strikes the eye—on each face there is a colossal head of the goddess Isis with cow's ears. They are all mutilated, yet, notwithstanding this disadvantage, and the flatness of their form, there is a simplicity in their coun-

* This Sketch will be given in a future number.

tenance which approaches to a smile. On all the walls, columns, ceilings, or architraves, there is nowhere a space of two feet that is not covered with some figures of human beings, animals, plants, emblems of agriculture, or of religious ceremony." Belzoni ascribes the date of its erection to the time of the first Ptolemy, who was contemporary with Alexander the Great (who died 323 B.C.); but M. Champollion asserts that the Ptolemies only rebuilt the temples which had been erected by the Pharaohs. The second temple is small, dedicated also to Isis; the third is covered like the temple at Edfou, with sculptures representing the birth of Harpocrates, the god of silence, (the same as Orus, or Horus), and the precautions taken to secure him against the attempts of his uncle Typhon.

Entering Middle Egypt we find Hermopolis, now *Eshmouneim*, where is a temple dedicated to Hermes, or Mercury. To give an idea of the colossal proportions of this pile it will suffice to state that the diameter of the columns is 8 feet 10 inches, the space between them is the same, and the space between the two middle columns is 12 feet. The portico is 60 feet high, the architrave is composed of five stones, each 22 feet long, and the same number form the frieze; the single stone which remains of the cornice is 34 feet long. These details will enable us to judge of the capacity of the Egyptians to raise enormous masses, and of the magnitude of the materials employed by them. These stones are of a grès, or sandstone, as fine as marble; they have no cement between them. The shafts of the columns represent reeds, and the base the lotus plant. Denon says "the capital has nothing analogous to any other known capital, but is equivalent by its gravity in Egyptian architecture to the Doric capital in Greek architecture, and one must allow that it is richer. All the other members have their equivalent in the other orders." I may add that the columns at Hermopolis bear a close resemblance to that in Mr. Barry's sketch, and with that justify the opinion that to Egypt we must look for models of Greek architecture. Of the ancient Oxyrinchus, now *Benesech*, once the flourishing capital of a province, but now buried beneath the sands, one column alone remains, a melancholy unit standing in the midst of a desert. The sand, that scourge in the torrid regions of Africa, is every day burying beneath its terrible covering the ruins of ancient cities, and the more modern habitations which have succeeded. The temples of Egypt are very uniform in their general design and appearance. The entrance was mostly composed of two pyramidal masses, rising to a great height, with a lofty doorway filling up the space between. Behind these *môles* was a court containing a number of columns according to the splendour of the temple, beyond which was usually a second grand gateway like the former, but not so high; behind this was the sanctuary, sometimes as at Carnack, standing alone in the centre of a large court, or sometimes as at Philæ, situated at the end of several chambers. Obelisks, sphinxes, and other colossal forms, made the avenues to these grand edifices, which were well calculated to impress on the minds of the worshippers who came there an awful reverence for the divinities enshrined within such wonderful fabrics.

We have now noticed nearly all the temples which can give us an idea of the architecture of the ancient Egyptians. Many besides those mentioned existed at different places along the banks of the Nile, which have disappeared, either because they are buried beneath the sand, or were removed to adorn other cities. King Amasis built many temples at Sais (which, according to Strabo, was the metropolis of Lower Egypt), in one of which was a room, dedicated to Minerva, of a single stone 36 feet long, 24 feet broad, and 14 feet high, which was brought by water along the Nile from the Isle of Elephantia, a distance of more than 200 leagues; it employed the labours of 2,000 men for three years. At Buthos, still nearer the sea, was carried another monolithic temple of enormous size dedicated to Latona.

Memphis, the "Noph" of Scripture (Ezek. xxx. 13), was the capital of Middle Egypt, and after the decay of Thebes, rose into splendour. Here were the ruins of a celebrated temple dedicated to Pthah, the Vulcan of the

Greeks, said to be built by Psammethichus, 655 B.C., in which colossal figures took the place of columns, and of another to Serapis (supposed to be the same as Osiris), which was noted for its magnificence. Few of its columns and ornaments are to be seen on the site of "This ancient city, Memphis the renew'd,
Almost cœval with the sun himself,
And boasting strength scarce sooner to decay."
Young.

The greater part were carried away to adorn the modern cities of Kairo and Alexandria, where are frequently found columns of granite of a single block adorning the halls of justice or the mosques.

Monsieur Ripaud, one of the *savans* attached to the French expedition, says, "The monuments of ancient Egyptian architecture prove that every thing was done either for their gods or their kings. Five immense palaces and thirty-four temples still remain, and the single private habitation that we can discover is discerned only through the piles of rubbish which faintly announce its plan." Diodorus Siculus (lib. i. cap. iv.) speaking of Memphis, to account for the splendour of its public buildings and especially the tombs, and the comparative meanness of the houses, says, "They call the houses of the living *imns*, because they stay in them but a little while; but the sepulchres of the dead they call everlasting habitations, because they abide in them to infinite generations. Therefore they are not very curious in the building of their houses; but in beautifying their sepulchres they leave nothing undone that can be thought of."

Having seen what is most worthy of notice

among the palaces of the kings and temples of the divinities of this ancient people, we will consider a subject which excites not less astonishment, viz. the receptacles which they provided to receive the embalmed remains of the dead. Before we proceed to this inquiry, we will pause to gain some light as to the motives which dictated such extraordinary efforts. The ancient Egyptians believed that after a certain number of ages, they should return to life, if their bodies had not experienced any alteration in the tomb; thence arose their custom of embalming (which ceremony occupied forty days as we learn from the account of Israel being embalmed, Gen. i., 2, 3), and the great care they took to place their mummies above the inundations of the Nile. The king and his subject, the rich and poor, alike entertaining this expectation, took the same precaution for their bodies, and observed the same care in the choice of their sepulchres. The chain of the Libyan mountains is pierced, in front of Thebes, with a prodigious number of caverns, or sepulchral grottoes, and wherever the ruins of an ancient city are found, there are likewise seen in the neighbouring hills, the tombs of its inhabitants; in every tomb the walls are covered with sculptures which no doubt record the history of the individual who is enclosed within. Some of these cavern-tombs are of very considerable extent, the principal are the Necropolis at Thebes, the caverns of Silsilis, those at Lycopolis,* now *Siout*, and the Grottoes of Beni-hassan.

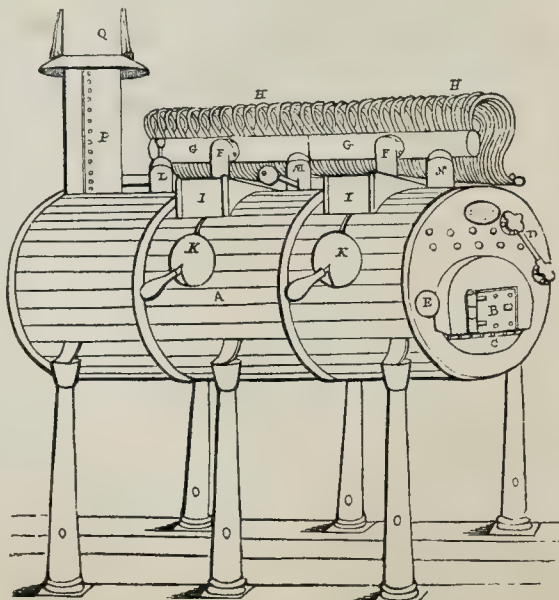
* The Copts have a tradition that it was at this place that our Saviour and the Virgin found a refuge from Herod, and many of them retire hither to pass their last days.

ARMSTRONG'S HYDRO-ELECTRIC MACHINE.

AMONG the many novelties in science lately introduced to the public, this machine stands pre-eminent, pointing out, as it does, an entirely new mode of developing electricity. On a late visit to the Royal Polytechnic Institution, we were much pleased with the extraordinary effects exhibited by it, and not less with the clear and lucid manner in which it was lectured upon by Professor Bachhoffner, under whose direction it is. The singular fact of electricity being produced by the discharge of steam at a high pressure was discovered by mere accident. It appears that in 1840 some trifling defect having occurred to a stationary engine at Newcastle, the engineer became enveloped in a cloud of steam, and very much to his surprise received an electrical shock. On this coming to the knowledge of Mr. Armstrong, he immediately determined on endeavouring to ascertain the cause, and the result

of his labour is the introduction in London of this really astonishing machine.

The professor, in accounting for the electrical excitation, ascribed it to the friction of the particles of water against the inner surface of the tubes, which are 46 in number, and which in the accompanying engraving will be clearly pointed out. In this view of the case Mr. Armstrong, Dr. Faraday, and other authorities concur, and there appears to be little doubt that the theory pointed out is the true one. The experiments made were of a singularly brilliant character, including those of the spangled plate, the spangled tubes, the passage of electricity through an exhausted tube, exhibiting the artificial aurora, the explosion of gunpowder, the actual ignition of wood shavings (an effect that could never be produced by electricity until done by this machine), the passage of the electric fluid along a line of matter formed of alternate pieces of pith covered with tinfoil and beads of glass, the effect of which was exceedingly beautiful, and



a host of other experiments equally interesting and instructive.

Too much praise cannot be awarded to Mr. Armstrong for his indefatigable perseverance in bringing it to perfection; nor to the directors, for their public-spiritedness in placing before the public a machine at once so interesting and so truly scientific.

The following description will enable our readers to comprehend the form and make of the machine, but the results produced by it must indeed be seen, to be appreciated.

The Boiler.

A. The boiler, made of rolled iron plate, $\frac{1}{4}$ ths of an inch thick. B. The fire door.

C. The ash pit. D. The water gauge.

E. The feed valve to attach a force-pump to. F F. Tubes which convey the steam to the cross tubes G G, into which are inserted 46 curved condensing pipes, H H, at the extremities of which are the jets, from which the steam issues into the atmosphere. The jets

consist of brass sockets, containing short tubes of partridge wood, in which the steam, with the water forced out of the condensing pipes, is subjected to intensely violent friction.

I I. Boxes under which the side valves are concealed, and which are opened and shut by the handles projecting from the round surfaces K K.

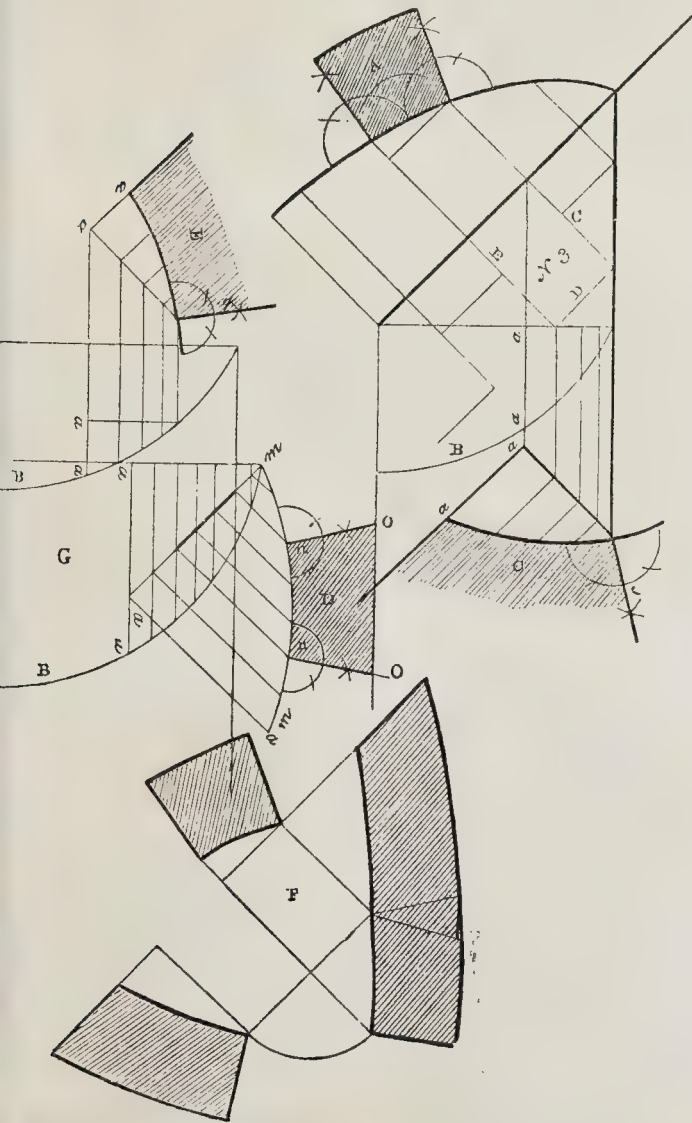
L. The safety valve, the steam from which blows up the chimney, P, which is furnished with a sliding funnel, so that when the machine is put in operation, the funnel may be raised, by which means the boiler, standing on the glass legs O, is completely insulated.

M. The indication valve.

N. Jet for the ball experiment.

We are glad to hear the institution is flourishing, and feel assured that the diffusion of scientific information, in the popular way in which it is now done, cannot fail to keep this establishment in the high position it has attained.

RIM OF A SKEW ARCH, COURSES WROUGHT AT RIGHT ANGLES FROM THE FACE OF ARCH.



SIR,—As I assume that the rim of a skew arch is a plane cutting a cylinder in an oblique direction at any given angle, the moulds for working the stones must be sections of that cylinder as far as the lines for such stones go. Arches constructed with the beds or courses

running diagonally, strengthen, I believe, the acute angle of the rim, and so away in a great measure with the weak corners consequent on working them with the beds or courses parallel to the springing line. I have never seen any work treating on skew arches, nor ever had any thing to do with one, but I have confidence in the plan I have laid down being easy to understand, and correct in principle; as such I submit it to your notice.

I am, Sir, yours truly,

W. LINDLEY.

P.S.—I am glad to see that one worker in stone has been dragged from his hole; I hope more of them will be brought out. I have known masons now for twenty years, and, with one or two exceptions, have never known any thing of them in the way of improving themselves or others more than so many bats in winter, huddled together in the roof of a barn.

A. Elevation, being a section of the cylinder produced by ordinates from its right section or base.

Mould C, for line C, on No. 3 stone of rim D and E correspond in the same manner a a, corresponding ordinates, and so on with the whole of the ordinates throughout the work.

m m, the soffit produced past the springing line and farther than the points n n of mould D, for the purpose of producing the joint lines O O. The lines for back joints of moulds E and C must be produced in the same way.

F is the stone No. 3 transferred to shew the rise of the mould at the four angles, and give the twist of the soffit.

G is the cylinder transferred to prevent the lines being intermixed and confused in producing F and D, a proper application of the moulds, which I conceive will be easy to accomplish, will give the twist of beds and soffit; the soffit may then be wrought by a template made from section, applying it at right angles to the springing line and the beds by a similar method to that by which the soffit of a winding step is wrought.

The stones are drawn to a much larger scale than would be necessary in working them, for the purpose of making the method more plain.

Correspondence.

BRITISH MUSEUM.

SIR,—Notwithstanding the attempt to raise opposition and obstacles to get up, if possible, a competition, the British Museum, I am happy to say, is going on swimmingly. The row of houses which is to form one wing, is far advanced, and, in fact, the whole is now so shaped out, that to suggest any change of plan would be futile. If not particularly imposing, the effect will, I have no doubt, be neat enough; or if you like, chaste, and quite as much as the occasion requires, for who, after all, are the people who either visit or care three straws about the British Museum? No other than the holiday public—the *Oi Polloi*, washed and unwashed—who flock to gaze at “them there grim old Egyptian bodies, and the Elgin marbles.” That the more aristocratic classes of the public, and the patrons of art and letters in art, are altogether indifferent as to what the British Museum turns out as a piece of architecture, is evident enough. Therefore, so let it be, and let us hope that as they are silent now, silent they will remain, and not set up a howl of blustering lamentation should they think fit to be dissatisfied with what Smirke will have given them. Let us, at all events, be decently philosophic, and make up our minds to admire Smirke. Some people of course do admire now, and why cannot all follow their example? Artists are apt greatly to overrate the importance of what is mere matter of taste, and to attribute to it influences existing merely in their own imaginations, just as those learned Thebans, the Camdenists, would have us believe that their church-building regulations are part and parcel of Christianity, and that the church itself is in danger—not because the Bench of Bishops have discarded their orthodox episcopal wigs, but because strict architectural precedent, *alias* copying, is not sufficiently attended to, and old superstitious conceits duly kept up.

As to the British Museum, I don't suppose it will prove a paragon of beauty, but even should it turn out to be one of unmitigated ugliness, we may still very well endure it, just as we have all along endured that of old Montague House. So let us be philosophical, Mr. Editor, for as my grandmother used to remark, “philosophy is a very fine thing, and it costs nothing.”

I remain, &c.,

POCURANTE.

Temple, October 23.

Notwithstanding what we have said in the

THE BUILDER,

NO. XXXIX.

SATURDAY, NOVEMBER 4, 1843.

We beg to announce to such of our friends as were last week disappointed in obtaining impressions of our paper owing to the greatly increased demand which occurred, that having completed the reprint of that Number, orders sent to the Office will meet with immediate attention.

We had prepared an article in exemplification of the mode by which even the advertisements in *THE BUILDER*, numerous, practical, and valuable as they are, may be read and studied with profit: indeed, we may challenge any paper in the kingdom to produce such an array of respectability and selectness in this department as is weekly presented in our columns. Such support gives vitality, strength, and a promise of long endurance to our paper, which we are anxious to raise to the highest pitch of value as the Trade Journal of the first trading interest of the empire. Our remarks, however, on this subject, are of necessity postponed from want of space.

THE CLENDINNING TESTIMONIAL.

MANY complaints have come to our ears as to the difficulty of obtaining information to guide the competitors in preparing designs. It will be seen from the weekly notices in *THE BUILDER* that a premium of twenty guineas is offered for the best design for the Clendinning Testimonial, of which we have given notice; we now publish the particular instructions given out by the committee for the further guidance of those intending to compete. The market-place of Westport is an octagon of 212 feet diameter. Particulars are obtained at No. 16, Wimpole-street, London.

Testimonial to the late George Clendinning, Esq.

"The committee suggest something like the crosses of Queen Eleanor, combining a bust in bronze of the deceased; they do not, however, desire to confine the taste of the artist to a cross, but they are desirous that a bust should be embodied in whatever design may be submitted. The drawing will not require to be coloured. A portrait of deceased can be referred to in order to assist the artist in the bust.

"Should the artist be fully qualified, he will be employed to erect and superintend the testimonial, provided his plans and estimates are approved of; at the same time, the design possessing most merit will be taken on the terms proposed, without reference to the completion or erection of the work. Architects must supply working plans without additional expense.

"A sum not exceeding £800, will be expended, and this sum is to include every expense connected with the testimonial.

"The stone of this country is chiefly secondary limestone; the tradesmen of a very inferior class. The committee would suggest green stone or granite; carriage by sea moderate; so that the contractor could, at a small expense, convey the work ready for erection to the quay of Westport, one mile from the quay.

"A plan of site, furnished with particulars to elevation of ground at two leading points, and the altitude of surrounding houses in the town, in the centre of which the testimonial is to be erected.

"The site is a weekly market-place, where vast concourse of people assemble, vending various commodities. It is also a thoroughfare from the quay to the town of Westport, so that adequate protection to the testimonial must be afforded, and this protection not to be iron railing.

"Mr. Clendinning was born in the town of Westport, where he resided for 72 years; was a magistrate of the county for more than half a century; had been deputy-governor, and filled the office of high sheriff. In all public institutions and all public business of the county he was actively engaged, and in which, from character and superior intellect, he always maintained a high and prominent position. His unostentatious charity was ever extended to those requiring it; and from numerous acts of kindness during a long life, he advanced many from humble means to comparative independence.

"To his native town he was devotedly attached, and from his moral and religious example he gave to his society a tone inferior to no other of its extent in the kingdom. It may be truly said that he was mainly instrumental with the corporation, the lord of the soil, and the industry of its inhabitants, in raising Westport to the high character it holds in the mercantile world.

"Designs to be forwarded, postage free, to Dr. Dillon, Mayo County Infirmary, on or before the 1st day of January, 1844."

ENGLISH DOMESTIC ARCHITECTURE.*

It would lead us too far were we to enter upon a critical examination of the domestic architecture of the last century and a half. That many of the mansions raised throughout the country within that period are imposing from their grandeur and vastness, or that a few have redeeming points about them, and parts which may fairly excite censure, we are far from denying. But where is there one which satisfies as a whole, or would be taken safely as a model by any builder of taste in the present day? Our route lies among the earlier English styles, which we trust are beginning to obtain the notice and admiration, to which, in our opinion, they are in the highest degree entitled.

We began by declaring our partiality to our native architecture, at least for country residences, admitting the classical styles to satisfy the varied tastes of builders and their patrons. They may be classed as—1. The castle. 2. The ecclesiastical residence, abbey, or priory. 3. The embattled mansion of the Tudors. 4. The gabled manorial-house of the same or an earlier age. 5. The Elizabethan. Individual examples of three classes may be found, it is true, graduating insensibly into each other; but yet each has its own distinguishing generic character, which forms the spirit of the building, and which it is to be regretted that modern architects have seldom preserved in their compositions. What, for instance, can be more incongruous than the union we so frequently see in the modern Gothic, as it is called, of the machicolated towers of the feudal fortress, with the large pointed and traceried windows, flying buttresses, and canopied niches of the church? Some architects seem to imagine that a crenellated parapet running round every member of the building, down to the larder and pig-stye, with a label over every gaping sash-window, make a Gothic edifice; while the addition of a few circular turrets stuck full of loop-holes, with a flag-staff on the highest, shall convert it into a castle. Others surround a plain square house with a multitude of octagonal turrets, terminating in nondescript cappings, and consider they have accomplished a Tudor mansion! Juster ideas have, it is true, begun of late to prevail on the subject, and several works lately executed afford pleasing proofs that some architects, at least, have learnt to distinguish the characteristic features of the different classes we have enumerated, and have the taste to preserve them separate. Some of those points of distinction which appear to us to have been most usually neglected we will briefly run over.

The castle is necessarily of a stern, massive, and gloomy character; its leading idea is solidity and defensive strength. The principal windows of the true castle always looked inwards; and as this would be incompatible with the light, airiness, and prospect required in a modern residence, at least it is indispensable that they be at a considerable height from the ground, unequal in size and range, deep-cut, so as to give the appearance of a great thickness of wall, and occupying but a

small comparative space of the exterior surface. There are few modern castles which satisfy us in this respect. Every one must have felt how unpleasant and absurd is the union so frequently presented by them of strength and weakness; the heavy machicolated parapet frowning over rows of sash windows, the lower tier of which open to the ground, while the whole building is, perhaps, placed upon a flat lawn commanded by rising grounds on almost every side.

The ecclesiastical residence, the dwelling of the mitred abbot with his train of shaven devotees, or of the princely bishop and humbler priest, naturally was designed to correspond with the consecrated edifice round which these buildings were usually grouped; and hence the architecture of the abbey or priory is essentially of a piece with that of the cathedral. The church itself, with its lantern towers, belfry, and flying buttresses, and the cloistered quadrangle, are the principal features of this class. For the square-headed window, of course there is no deficiency of authority; but unless the later styles are adopted, the pointed arch is more characteristic. We have noticed a most beautiful union of the two in the convent of St. Martin at Bourges, where a range of flat-headed windows, exactly of the size and form of a large modern French casement, have their jambs enriched with clustered shafts, which bend with a very acute curve over the upper angles of the opening, while the label above, though rectangular, rises with an ogee curve in the centre, and terminates in a highly-enriched finial. The interval between the label and the window-head is filled up with rich foliage. There are no traces of either transoms or mullions, so that the windows seem to have been intended for the large folding casements which now occupy them. The building belongs to the very latest Tudor or flat-arch style, and the design of the whole is peculiarly rich and congenial. The abbey, of course, is most congenial to a low sequestered spot, just as the lordly castle courts an eminence. Were it not for the frequent instances of the contrary practice, this hint might be unnecessary.

The quadrangular embattled mansion of the last Henrys affords scope for the display of much grandeur and magnificence, and adapts itself most conveniently to the plan of a modern house. The carved oriel, and deep many-light bay window, often projecting in a multitude of capricious angles and curves besides the regular octagon, the panelled angle-turrets, with richly embossed finials, and the wreathed chimney-shafts, are characteristic beauties of this class of building.

The gabled manor-house, together with these ornamental features, admits, at the same time, of a much greater irregularity of form and outline, so as to accommodate itself to every variety of disposition, and to buildings of every size, from the baronial residence to the parsonage and grange. We cannot avoid expressing a hope that the parsonage-house will be more frequently in this old English style, which alone is suited to its ecclesiastical character. Who has not had his feelings rudely grated on seeing, perched by the side of the venerable church, with its ivy-covered buttresses, mossy battlements and pinnacles, and variety of round, lancet, and square-headed windows, the spruce red-brick rectory, with just five square holes in the front for windows, and a central one for the door with fanlight over it; while a slated roof and rows of red chimney-pots crown this specimen of modern taste? It is true that cheapness is necessary in the erection of a parsonage, and comfort, not appearance, the first object of consideration; but in reality, unless a superfluity of ornament is adopted, the old English style of house is not necessarily expensive. All the forms which particularly mark this congenial style may be wrought in the cheapest materials with comparatively little labour; and a small portion of ornamental work, tastefully disposed, is capable of producing very considerable effect. It is neither in the elaborately chiselled buttress, nor the purfled pinnacle, that the character is developed; these belong rather to the cathedral pile, or spacious baronial hall, than to the minor domestic edifice. In this the span of the roof is seldom so wide as to require the counteracting power of the one, or the con-

* Continued from page 443.

tinuity of parapet-line so extensive as to need the intervention of the other.

Lastly, the Elizabethan house is distinguished by the number and size of its rectangular and many-mullioned windows, which give a peculiar lightness and elegance to its several parts. The roof-line may be either horizontal or broken with gables, turrets, and cupolas. In either case it is enriched with perforated parapets, balustrades, or other architectural devices; while similar embellishments ornament the entrance and the terraces which connect the building with the garden.

PUBLIC WORKS.

A COMMITTEE of magistrates of the county of Kent are engaged in an inquiry as to the propriety of enlarging the old prison at Maidstone, or building new prisons nearer London.

The New Royal Exchange.—The last stone of the tower of this magnificent building was set by the contractor on Tuesday last, on which occasion all the workmen were entertained, and some bottles of champagne were drunk at the top of the scaffold in honour of the completion. All that now remain to be added to the tower will be the supports of the vane and the vane itself, which will all be of gilt copper. The vane will be the same grasshopper (the crest of Sir Thomas Gresham) which for a long time adorned the old Exchange, and escaped the fire almost uninjured. It has been completely repaired, and will be regilt before it will be raised to its new situation. It has been determined that the chimneys shall be restored upon a greatly improved plan; the Gresham Committee, upon the recommendation of Professor Taylor, have directed that the peal of notes be increased from eight to fifteen. The first brick of this structure was laid in January, 1841, and the contractors say they do not recollect any public building of the same substantial character having been erected in a period so apparently unequal to its extent. It is positively stated on the best authority, that it will be finished and open for the use of the merchants by the time originally mentioned, viz. the middle of the summer of next year. The portico is completed with the exception of the fixing of the sculpture in the pediment. The sculpture will consist of sixteen figures, in high relief, by Mr. Richard Westmacott, which, it is said, bid fair to be not only creditable to that artist, but to the present state of sculpture in England. It is a matter of general complaint, that the mass of buildings called Bank-buildings, in front of the portico, has not been cleared away, as until the removal of such obstruction be effected, no just idea of the New Royal Exchange can be formed; but judging of the proportions of the portico, its boldness, depth, and beauty, the committee are of opinion, that the effect of the building will be equal to that of any public edifice in Europe. We understand, however, that the purchase of these houses is completed, or nearly completed, and that they will be pulled down in the early part of next year. As soon as the removal shall have been accomplished, the space will be arranged to receive the statue of the Duke of Wellington by Sir F. Chantrey. This statue is an equestrian one in bronze, 15 feet high, and is just finished. At the east end of the Exchange the improvements of Freeman's-court are proceeding with rapidity. All the houses are pulled down, and a handsome street of ample width parallel with the new building will be made.

Wood Pavement in Cheapside.—An injunction having been obtained by the directors of the Metropolitan Wood Paving Company against the proprietors of "Perring's Patent," with which process that portion of Cheapside extending from Bow Church to St. Paul's Churchyard was to have been laid down, the works were discontinued on Monday last. On Tuesday, a deputation, consisting of several of the most influential inhabitants of Cheapside, waited upon the Commissioners of Sewers at Guildhall with a representation of the extreme inconvenience arising from the continued obstruction of this crowded thoroughfare; and after taking the same into consideration, the commissioners determined upon the propriety of giving up the original intention of paving the whole of Cheapside with wood, and issued the necessary directions for completing that portion already unfinished with the finest Aberdeen granite.

New County Gaol at Reading.—The new gaol for the county of Berks, at Reading, which is now in the course of erection at an expense of very nearly 33,000*l.*, is fast approaching towards completion. By the end of this month the east wing of this spacious building, including the kitchens and all the necessary offices, will be fit to receive prisoners. This portion of the gaol contains between 70 and 80 cells. The whole of the internal fittings will be completed by the 1st of January next, when the prison in every department will be open for the reception of the county prisoners, a portion of whom are now in the gaol at Abingdon. The whole cost of the erection will be as follows:—The building, 28,226*l.*; the internal fittings, 3,273*l.*; and the fees to the architect, and the salary to the clerk of the works, 1,460*l.*; total, 32,959*l.*

Southampton.—Very extensive improvements are being set on foot in this important and thriving town. The paving board, who take cognizance of these matters, at their last meeting proposed that which in some cases would be regarded as the building of a new town—widening Bridge-street and West-street, a new street to West-place, and a terraced road from this along the shore to Four Posts, and widening and forming other roads to a great extent.

Yarmouth.—The estimates prepared by Mr. Tillett, the town-surveyor, for the proposed improvements of the gaol, amount to 900*l.*, exclusive of the cost of building-sites.

Dorset County Hospital.—2,000*l.* have been voted for the enlargement and improvement of this building.

On the 30th ult. the citizens of Bristol witnessed the imposing procession of the corporation, attending with the Freemasons, and the workmen to be employed, in honour of laying the foundation-stone of the new Guildhall, which is to be erected after the designs of Mr. R. S. Pope, of this city, who gained the honour, "after a sharp competition," amongst the profession, which reflects the greatest credit on the committee, by giving the same chance to others, and without being in the least way biassed by party or private feelings.—*Correspondent.*

The long-pending suit between Mr. Ranger and the Great Western Railway Company has been decided against the contractor, with costs.

A new pier is about to be erected at Hythe, and many building improvements are expected to follow.

RAILWAYS.

Eastern Union Railway.—The line from Colchester to Ipswich has been staked out, and at a meeting of the Eastern Counties Railway Company on Wednesday week, appeared to be favourably thought of.

Harwich Railway.—A line to Harwich is on the point of being determined on. Mr. Locke is the engineer of one party, for there are two in the field, and Mr. Braithwaite, the engineer of the Eastern Counties Railway, is employed by the other party.

Junction of the Eastern Counties and Northern and Eastern Railway Companies.—Resolutions were passed at the late meeting of the companies to amalgamate their interests and workings. The directors of the former company are about to apply to Parliament for powers to extend the railway from Newport to Cambridge.

South Eastern Railway.—About 300 men are employed night and day on the slip between the viaduct and bridge on the Canterbury-road.

Junction of the Taff Vale and Birmingham and Gloucester Railways.—A line through Wales, to cross the Severn, and unite with the extension to Worcester is contemplated at a cost of one million and a half sterling.

A new line of railway from Sheffield to Chesterfield has been resolved upon; a meeting was held in Sheffield last week; the capital sum is 250,000*l.* Mr. Locke is appointed engineer.

Paris is lighted every afternoon by 13,221 lamps, of which 5,894 are supplied with gas, and 7,321 with oil.

NEW NIGHT CLOCK—ST. NICHOLAS' CHURCH, LIVERPOOL.

A NEW mode of illuminating clocks has been brought into operation by Mr. H. Hughes, of Castle-street, Liverpool, of which more minute descriptions will shortly appear; but here we may state that gas is conveyed into the spindle, or shaft, on which the hands are fixed, and thence to the hands themselves. A light burns in the centre, and is red in colour. Two lights revolve with the hands, and one is green while the other is white.

The two revolving lights are further distinguished from each other by one being placed at double the distance from the centre. It is allowed by all, that by these three lights the time can be accurately told by those who are acquainted with the principle, and that there is no difficulty in acquiring that acquaintance. But that the old dial should possess no exclusive advantage in any form, but that all belonging to it should be transformed to the new, figures are given in the usual way. These figures are seen about as far as the hands are seen in the old dials. How far the three lights, placed from two to four feet apart, can be seen, is easily conceived; and this is the precise distance at which the time can be told. The size of the dial alone limits the distance. The present dial, it is expected, will shew the hour easily, in clear weather, in Cheshire, after the lights, by the help of a little experience, are properly regulated.

NEW CHURCHES.

Grazley, Berks.—A site has been given for a church and parsonage house, by Sir R. Simeon, and 1,300*l.* has been collected from the neighbouring gentry and clergy towards their erection, the stated cost of which is 900*l.* for the former, and 700*l.* for the latter; the Rev. G. Hulme, of Shinfield, who is to have the first presentation, has given the sum of 1,000*l.* towards the endowment. The buildings are to commence next spring.

Newton, Montgomeryshire.—The first stone of a new church was laid here by the Countess of Powis on the 26th inst., the site being a gift from D. Pugh, Esq., of Llanerchydol; and some bad spirit exists among parties who ought to be at amity on such a subject as this.

Red Hill, near Reigate.—The Earl of Somers has given 1,000*l.* towards defraying the cost of this church, recently consecrated by the Bishop of Winchester.

Denholme Gate, near Haworth, West Riding of Yorkshire.—A new church is about to be erected here forthwith.

The new church at Wrotham, Kent, is now completed, and was yesterday consecrated by the Archbishop of Canterbury.

Two new churches are about to be erected in Woolwich. The Roman Catholic church built there under Mr. Pugin, was opened last week.

A new church is to be erected for the English residents at Lisbon, nearer the port than the one at present in use.

The new church at Malta, erected at the charge of the Queen Dowager, is nearly completed, and will be consecrated by the Bishop of Gibraltar on Christmas-day next.

It is mooted in some circles to erect an almshouse or college for aged and necessitous clergymen.

Egypt.—The foundation-stone of a new free church, under the Scotch Secession, was laid on the 12th ult. by Mr. John Strachan, of Cardenwell, one of the elders. The Earl of Aberdeen gave the ground for the site.

On the 14th ult. the foundation-stone of the new church of St. John's, Cinderford, on the Forest of Dean, Gloucestershire, was laid by Mr. Meacham, the Governor of the forest, the presence of a numerous company. The design is in the early English manner, by Mr. E. Blore, of Manchester-square, London. The walls are of blue stone, and the dressings Lawn stone, both of the forest. The work being superintended by a gentleman from Mr. Blore's office, and proceeds very satisfactorily. Other works are in progress and contemplation in the forest liberty.

CANADA.

SIR CHARLES METCALFE is pursuing an enlightened policy by liberally cultivating the arts of peace. In his speech on the 28th Sept., on opening the Canadian Parliament, he adverts to the necessity of laying down and forming good lines of roads, and improving the prisons, so as to render them not so much places of punishment (especially for untried prisoners), as of detention and safe custody. "Justice, due even to criminals," he says, "requires that they should not be subjected to greater punishment than what is designed by their sentence, and that disease, or death, from foul air and want of exercise should not be superadded to imprisonment." Thus we see that, as it was ever, though upon more humane principles we must confess, the maxim, "*experimentum in corpore vile*," still obtains in our days; that is to say, the public health, or measures for securing it, are first tried and perfected in prisons and places of restraint.

DOUBLE SPIRAL STAIRCASES.

An ingenious invention is here shewn of a double spiral staircase, such as is now being produced at the manufactory in Berners-street, Commercial-road; it is extremely simple, and the object, as will be perceived, is to provide for ascent and descent without chance of meeting or collision. Our carpenter friends will be much interested in the description and drawings, for which purpose we insert them. A deal or other board of suitable thickness, a foot long and 12 inches wide, forms a double road, and the *riser* crosses, as it were, from corner to corner, except as arranged to form a *noel* in the centre of about 5 inches in diameter. As applicable for crowded shops, public dining and coffee rooms, for cabin stairs, railway stations, warehouses, &c., they may be und peculiarly suited, but they are not to be recommended for dwelling-houses. They are susceptible of being made most ornamental with inlaid and fancy woods, and of being decorated with drapery, choice balustrades, &c., might be closed in with a screen-work, sized or lighted from the top. It will repay visit to inspect this ingenious production, and card for that purpose may be obtained at the address, as above.



Stairs shewn with drapery, or close dado.

Correspondence.

CHURCH ARCHITECTURE.

SIR,—The very talented and praiseworthy manner in which your journal has been conducted since its commencement, and the zealous and spirited endeavours you have made to call forth every feeling which could lead to the advancement of the noblest of the fine arts, has induced me to trouble you with a few remarks upon the subject; and I am more particularly resolved to do so, from a conversation I accidentally heard, a few days ago, between two travellers with whom I happened to journey for a few miles inside a stage-coach in this county. In the course of our journey, we happened to pass a rather handsome church, rendered more imposing, perhaps, from the commanding eminence on which it stood; it is, in fact, one of Charles Barry's earlier productions, and though possessing considerable interest to the general spectator, still is not such a structure as an architect would expect from the author of the Westminster Palace. Opposite to me in the coach sat two gentlemen, one of whom remarked to the other on passing the church, "That is a very handsome church, Sir." "Yes," was the reply; "don't you think it is a great deal too good for a country-place like this?" "I quite agree with you," returned the first speaker; "the Lancashire people spend too much money on their churches and similar buildings. I know a town a little distance from here, which has two churches in it, really splendid, and have been erected at a great cost, one, I believe, more than 20,000*l*.; I think they are quite out of character with the place; if it had been Bath or Cheltenham they would have been quite sufficient, and even then I think it is a great waste of money on a church, because a plainer building would answer the purpose equally well."

Now, Mr. Editor, a great deal has been said, and more has been written, upon the subject of the degeneracy of architecture during the last century or more, and many have been the causes ascribed for its decline; architects have come in for their share of abuse (and deservedly, too), but it seems to

me there is another and a more powerful reason than the apparent want of talent in the profession, and that is the absence of public sympathy with the art; the want of the *cultivation* of that feeling for the beautiful which is more or less implanted in every breast; there is too much utilitarianism for architecture to flourish, though I do rejoice to think it is in some measure giving way to a more intellectual and liberal spirit; that it does yet exist, and to a very great extent, the conversation given above, and others of a similar kind which we may hear in any day's ride, too forcibly testify; and how, I ask, is this mawkishness, this sickly insensibility, to be overcome? How are we, the architects of Great Britain, to obtain that patronage which is ours by reason and by right? In my humble opinion it must be effected by the active exertions of *all* who are *really* architects, and worthy the name, singly and *en masse*. All who would wish to behold architecture once more the glory, the pride, and the wonder of the land, all who would wish to see England's lovely valleys studded with the gems of a noble art; her eminences crowned—not with the warlike castles, as of old, but the mansions and cottages of peace, erected in a spirit of pure and tasteful feeling, and deservedly claiming the admiration of every passer-by; every one who would that their native land should be thus adorned, must himself put a shoulder to the wheel. It is with the public, and not so much the profession, he must labour; he must begin at home, too, with his children, his relations, his friends, and the light will gradually break forth, like the golden beams of the sun, when they first disperse the mists of the morning.

Many talented and noble-minded individuals have by their writings laboured to awaken a kindred feeling in the nation; and I look upon papers like THE BUILDER, and others of a similar kind, as of the highest service to the cause of architecture; but without the co-operation of the profession generally, nay, almost universally, it is my firm conviction that neither private talent nor public journals can go beyond the foundation of the noble structure we would see raised in our land.

As I have before remarked, there are encouraging symptoms that architecture is making some endeavours to attain her original splendour; we have seen at length that those high in the councils of the nation have agreed that something must be done, and long may that sovereign and that minister live, who have given to Genius the power, unshackled and unfettered, to produce a structure worthy the seat of legislature in this great country, and one which will remain a standing monument to future ages of the genius of man, the glory of the nation, and the boast of the age in which it arose.

It was my intention to have said a few words respecting your paper, but I have already intruded too long on your columns; if, however, it should meet your views, I will in a short time speak to you again. At present let me merely add that the first number of THE BUILDER happened by some chance to find its way to the place in which I reside, and since its first appearance I watched it with an earnest and hopeful feeling that it would do something for a cause too long and grievously neglected.

I am, Sir, yours most respectfully,

A VOICE FROM THE NORTH.

Lancashire, October 26th, 1843.

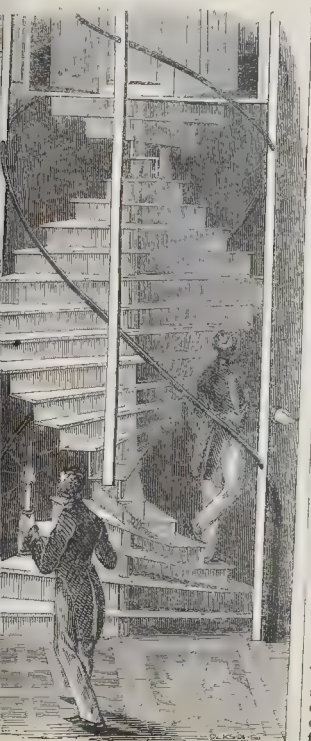
BUILDING REGULATIONS BILL.

SIR,—As it is probable the Building Regulations Bill will again be introduced into Parliament in the ensuing Session, I would beg to suggest, through the medium of your widely-circulated journal, that the Bill should provide that in all trials on building questions (now very numerous), juries should be composed of practical men, by reason of the intricacy and technicality of the matters usually in question.

I am induced to make this suggestion from being present at a trial which took place in the Court of Common Pleas, Guildhall, in December last (*Price v. Seeley*), which was an action charging the defendant with procuring two journeymen bricklayers, named Winny and Lee, to maliciously indict the plaintiff, without any reasonable or probable cause, falsely accusing him of assaulting them.

From the evidence it appeared that these bricklayers had commenced building a nine-inch fence wall upon an old foundation end wall of a house which had been pulled down belonging to the plaintiff, abutting a yard of some premises which had been purchased by the trustees for rebuilding St. Dunstan's Church, Fleet-street, of which trustees the defendant was one. The plaintiff expostulated with Mr. Seeley and his co-trustees who were refusing even to await the arrival of the plaintiff's surveyor, the plaintiff kicked the new-laid bricks down with his feet.

The Chief Justice repeatedly interrupted the council and witnesses on both sides in speaking of the legality of the building and the propriety of the wall, saying that these were not put in issue. A



Stairs shewn—open work.

juryman, however, who was evidently a practical man, would have it out, although he too was interrupted by the judge. This honest juryman saw clearly that these matters were the very essence of the dispute. Winny, in giving his evidence for the defendant, said, "The old foundation wall was covered with brick rubbish; we cleared away the rubbish, and strained a line and began to lay bricks. Mr. Price came and took the line away, and said it was his wall, and that he would not allow us to build upon it. I set our brickwork back at the south end 4½ inches from the face of Mr. Price's old wall, but as the old wall curved at the north end in towards the trustees' side, I was compelled, in order to get a straight wall at that end, to carry it out flush with the face of Mr. Price's old wall."

By a juryman:—"What was the thickness of the wall you were building?"

"Nine inches."

"What was the thickness of the old wall?"

"Eighteen inches."

"Then that would leave nine inches towards the north end; what became of it?"

"Oh! we left that on the trustees' side."

It being proved that the plaintiff did not assault these men beyond pushing them from off his premises, it was left to the jury by the learned judge upon the question of malice. His lordship told the jury they must find what, in their opinion, was going forward in Mr. Seeley's mind at the time he preferred the indictment; whether he conceived he had reasonable grounds for indicting the plaintiff, or whether he acted from malicious and vindictive motives; and that they must discharge the rights of their minds all considerations as regarded the building of the wall, or the regularity of the building by the defendant, which, he repeated, were not in issue.

From this summing up it was expected by many that a verdict would have been for the defendant. The juryman all surrounded this practical man when the time came for them to consider of the verdict; he sat, with his arms a-kimbo, in the midst of them, and apparently they could make no impression on him; he saw that they had acted wrongly by their own testimony. The jury asked leave to retire. They did so for two hours and a half, and returned with a verdict for the plaintiff with costs.

There appeared to have been considerable other irregularities and harshness of conduct in the whole affair towards the plaintiff, but I have already extended my communication beyond the intended limits, and must subscribe myself,

Sir, your constant reader,
AN ARCHITECT.

London, October 25, 1843.

IMPROVEMENTS IN TRAFALGAR-SQUARE.

SIR,—As I feel much interested in the success of your valuable publication, I lose no time in communicating some intelligence which I believe cannot fail to interest at the present moment.

Her Majesty's government, in a spirit which does them honour, have determined upon placing the fine statue of his Majesty, George the Fourth, by Chantrey, upon the eastern pedestal of Trafalgar-square, facing St. Martin's Church, whilst the statue of King George the Third, by Wyatt, in Cockspur-street, is to be removed from its present position and placed upon the western pedestal, opposite the College of Physicians. Thus will this splendid "place" be ornamented at once by two equestrian statues by our first sculptors, and we learn that the steps, the lions, and the relieves for the Nelson column will be likewise proceeded with immediately.

Nor is this all, for another decision, not less important than the one just mentioned, has also been come to, viz. the removal of St. Margaret's Church, Westminster, from its present locality to a more eligible site, by which means a splendid view will be obtained, not only of Westminster Abbey, but of that now sadly obscured Chapel of Henry the Seventh, which may be justly regarded as one of the richest and most beautiful specimens of Tudor architecture in the kingdom.

The funds and the site have both been provided, and the proposed removal of St. Margaret's will take place during the present year.

In the hope that THE BUILDER will be the first journal to promulgate this agreeable intelligence, I have the honour to remain,

AN ORIGINAL SUBSCRIBER.

CURIOSITY SPECIFICATION.

SIR,—I beg to hand you the following curiosity, which I think will amuse your readers. It is a literal copy of a specification given to a carpenter in this town a day or two since, to enable him to send in prices for workmanship. I copied it from the original, which I know came direct from the party, who, I believe, calls himself an architect. The chapel is to be built about two miles from this place:—

"Specification of the capenter and Joiner Work To be done at the new Chapel Rhydyllwyn Roof

The roof to be supported with 2 pairs of principles and 4 halph principles on the octicon part all the principles to have one King and two queen posts both to be bolted through with iron straps and braces as usual to such principles three purllons on each side the spors to be sed elevin inches apart well spiked to the purllons to be set the same distance the wall plate ciling Joists to be set the same distance as the spors mortised into and spiked under the beam bridged and well stoyed to the roof sashes and frames to be hordwood with grove in the inside casing to receive the plaster; sashes to be franked and dowed also window boards and nosings 2 inches stof bead on the cosing 11 inches apart for latin on Front doors to be in too holphes one panel each planted ½ scosis circil gothic and a counter rail on the back to form four panels insidige hunged with three pair of 4 inch Butt to a beaded and rebated fram secured with bolts and locks the pulpit and all the front framing to be planted the same as the front door all the formes in the front of pews to have ful rael under all the doors and elbows to be formed on bevill according to the reask of the posdge planted with scosis all the inside framing to be to the underside of the form and boarded with ½ board to the floor the floors to be white deal dressed and Jointed nails to be pmsned and puted Alse holph principle beams to be bolted through the other principle beam and an iron rod from then to the front wall."

Ruthin, 26th Oct., 1843.

"CLASSIC NOT CHRISTIAN."

SIR,—My only reason for troubling you with a few lines further upon this most important subject, is to enforce the originality of design, in order that the rising generation may feel themselves at liberty to invent for any purpose they may take in hand. I still say a designer should invent forms to suit the subject he undertakes to design for, and not, like an idler, use the forms which were made by others for inferior purposes, and so patch them together in the hope that they may equally as well answer the more exalted purpose and nobler end then required. Great minds will never descend to borrow, even from their superiors; Leonardo da Vinci, Michael Angelo, Raffaello, Tintoretto, Titiano, &c. did not produce their sublime works by a patch-working system. They did not descend to slavish imitation, but made their works the offspring of their own minds. "The Last Supper," by Leonardo da Vinci; "The Transfiguration," by Raffaello; "The Assumption of the Virgin," by Titiano," &c. were not produced by the deplorable copying system. The works of such great men bear the most positive signs of originality, and as they show talent of the highest order, in all the essentials connected with the subjects they are made to illustrate, they are sufficiently encouraging for every student to endeavour to fill their minds with new materials, in order to be prepared to design originally. He who places a dependence on others, will be sure to remain behind them; and no intellectual character should suffer himself to be the mere imitator of another. Great minds are ever sending forth new ideas, out of which little minds form styles, and make them stumbling-blocks to students. Instructors should advise their pupils to be naturalists, and not artificialists, for in the boundless field of nature will be seen the materials for every calling. He that hath eyes to see will by looking be sure to gather that which no one obtained before; and surely new ideas are more important than those which have been incessantly repeated, particularly when they were designed for Pagan purposes, for those of all others should be left for what they were designed, and not brought forth and patched together to illustrate the Word of God, for it would be next to a miracle that certain forms which were expressly designed for the folly of Pagan worship could be made to awaken the human mind to the sublime and awful truths of Holy Writ. Let us go straight to the point, and not wander about in a circuitous path, while the right one is in view. There is no lack of talent in this kingdom, it only requires a right direction, and our faculties legitimately exercised, when we should soon see original works produced, and an end put to classical Pagan cabal. The human mind is as capable now of sound and original thinking, as it always was; it only requires due cultivation, and to be sent to the fountain-head for the waters of life. I state not these matters now as an answer to "An Old-fashioned Architect," but for the purpose of directing THE BUILDER readers to the importance of true principles of design, and to caution them not to be led away by old-fashioned notions.

The reason the Saxon, the Norman, and early English designers succeeded so well in illustrating the leading features of the law and the Gospel by the sculptured forms, architectural divisions, and arrangements they produced, was entirely owing to their minds being independent, seeing the folly of endeavouring to adapt forms that were foreign to

their purpose; and being determined to think for themselves, they invented whatever was required; thus, in like manner, should every one act. Great inventors are great observers. I would advise every one who intends to excel in either of the sister arts, to become active observers in the wide range of nature, suffering not even a blade of grass to escape their observation, and continually storing up a fund of materials in nature's works, which will always furnish them with new ideas whenever they are required. It is by this means, and this only, that the human mind can be enlightened. Antiquarian lore will never make a designer, however much it may make a disputant; but your valuable BUILDER is not so large that it has columns to spare for such useless matter. Your leading articles shew that you have great and noble ends in view; and I trust, from the great ability evinced in them, that they will make your admirable journal desired by every one in this kingdom, who is interested in the all-important building art. Let your work be what you call it, THE BUILDER, and not allow its space or your readers' time to be taken up with idle disputes and unwarrentable attacks, and, from your own resources, which bid fair to be great, you will make your BUILDER a work of the utmost importance as regards all matters connected with the building craft, as well as the intellectual improvement of the minds of your readers,—the greatest of all gifts which may be in your mind to bestow.

I am, Sir, yours truly,

GEORGE R. LEWIS.

61, Upper Norton-street, Oct. 30, 1843.

We have inserted Mr. Lewis's letter, because there is a spirit in it not altogether unbecoming of the utterer of the "last word." We were disturbed to see the "waxing warm," and a display of the mettle of combatants, but feeling confident in the good sense and awakened courtesy of both parties, we let the matter proceed its length, because there was pains mixed up with it; and to those who do not warm with the fray, there was profit. We have had other letters on the subject, but as they were not, in our opinion, calculated to throw much additional light upon the matter, and were likely to confuse, as many voices do to all disputes, we presumed upon our privilege, and held them back. Now that the matter is over, for we must beg that it be so understood, leaving the public to form their own judgment, we may exercise our best wit in selecting the best suggestions that have been thrown out, as we have said, and once for a while, again, we must beg to remind our friends who do us the honour to contribute to our pages, that cannot be judged a mark of fair dealing or honourable purpose, that men should assume to see one over another. It is really ridiculous to see what airs and struttings one may indulge in, as if our own good opinion was not the first thing to be distrusted, and an evil opinion of others the last thing to be cultivated. We will conclude by begging our friends "An Old-fashioned Architect," and Mr. Lewis with their tested ability, to join with us in earnest, practical labours for the benefit of the student and the workman. We are getting a little too high for some of these, and are glad to make ourselves heard in calling "hark back" upon our original purpose.

CHICHESTER.—The interior of the cathedral now undergoing a reformation, such as restoring ancient tombs and their effigies, and the mutilated Parbeck marble columns, which have so many years been suffered to remain in a decayed state. The whole is under the superintendence of Mr. Richardson, who lately displayed his talent in restoring Temple Church to its present beautiful state.

The senate and people of Hamburg, in acknowledgment of her Majesty's bounty, and the liberality of the English nation, in alleviating the distress occasioned by the late calamitous fire, have addressed a letter to the queen, signed by the presiding burgomaster, and forwarded it to their present here, Mr. Colquhoun, who has presented it to her Majesty. The address is beautifully written in vellum, and illuminated with gold and colour letters. The illustrations and the writing are executed in the taste which began to prevail at the beginning of the sixteenth century, combining classical antiquity with the Gothic, and forming a taste style usually designated the Renaissance. The whole is bound in boards, made from the oak wainscoting of the council chamber of the Senate House, saved from the fire, with antique hinges, studs, corners, and a clasp, in the form of a book. The ornaments on the boards are, on one side the mythical crowned figure of Hammonia, the titular genius of Hamburg; and on the other, the arms of the city, made from the bells of the churches destroyed by the devouring element.

NEW LIGHT.

It is now four years since the first experiment on the subject of rendering continuous, and fixing at a given point, the electric fluid, and making it applicable to the general purposes of lighting was not made in Paris, but the discoverer was not able to induce any person to advance even 1,000*fr.* for an apparatus on a sufficiently large scale for a public experiment. A public experiment took place at the Place de la Concorde, in the presence of several of the authorities, and from four to five thousand of the inhabitants of Paris, on the 20th inst. On one of the bases of the statues called the Pavillon de Lille, a glass globe of apparently twelve or thirteen inches diameter, with a moveable reflector, was fixed in connection with a voltaic battery, and at a little before nine o'clock the electric fluid was thrown into play by a conductor. At this time all the gas lights in the place, about 100 in number, were burning. As soon as the electric light appeared, the nearest gas lights had the same dull, thick, and heavy appearance as oil lamps have by the use of glass. Soon afterwards the gas lights were extinguished, and the electric light shone forth in all its brilliancy. Within 100 yards of the light it was easy to read the smallest print; in fact as light as day. The astonishment of the assembled multitude was very great, and their delight as strong as their admiration. The estimate made by scientific persons who were present, was that the electric light was equal to twenty of the gas lamps, and consequently that five of these lights would suffice to light the whole place most brilliantly. As regards the expense of production, nothing has transpired, but it would be considerably less than that of the generation of gas, whilst the first outlay for machinery and conductors would not amount to a twentieth part of that required for gas works. There would also be another great advantage in the electric light. It gives out no bad smell; it emits none of those elements which, in the burning of gas, are so injurious to health, and explosion would be impossible. The only danger that would be would be at the battery itself, but it would be under the control of competent persons; and even in this respect there would be no danger, even to unskilful persons, with an apparatus of moderate size. Internal lighting would be as practicable as external lighting, for by conductors the fluid would be conveyed to every part of the house. This experiment was with a voltaic battery of two dried pairs, composed as follows:—1st, an iron globe of glass; 2ndly, in this globe a layer of charcoal, open at both ends, and impregnated in the nitric acid contained in the outer globe; 3rdly, in the cylinder of charcoal a porous porcelain vase, containing acidulated water (with sulphuric acid)—this replaces the iron in the common battery; 4thly, in the porous vase a cylinder of amalgam of zinc immersed in acidulated water. The pile was on the Pavillon de Lille; the two copper conductors from the two poles, and pointed with charcoal, lead to an empty globe from which the air has been exhausted. The fluids on meeting produce a soft but intense light. The experiment was considered highly successful by the authorities who were present, and it is to be regarded on a larger scale. Should the thing be as well in a general way as it did last night, and the cost be less than that of gas, it must be, there will be a dreadful revolution in gas-works. A company for the use of the electric light would realize a handsome profit on charging only a sixth of what is now paid for gas. The strength of electric light did not appear to exceed that of hydro-oxygen; but then how much less is the expense of production! The hydrogen light requires a double and most expensive apparatus, and is only applicable to a few localities; the electric light may be applied externally and internally in any place.

WAYS.—Parliamentary notices have been sent to the doors of the parish churches in Edinburgh bills to be carried through Parliament in the session—1st, for the prolongation of Edinburgh and Glasgow Railway to the North; 2nd, for the erection of a railway from Bridge, Edinburgh, to Berwick-upon-Tweed, a branch line to Haddington.—Edinburgh.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

Windows—Warehouses—What is not within the Act.

A room on a first floor, and another on a second floor, being part and parcel of the dwelling-house, and having internal communication therewith, are not warehouses within the 48 Geo. 3, c. 55, sch. (A), although solely used as warehouses for the deposit of goods.

At a meeting of the commissioners of land and assessed taxes, acting in and for the division of Pennlyn, in the county of Merioneth, held at the town-hall, Bala, the 8th and 14th September, 1840, for the purpose of hearing appeals against the first assessment (48 Geo. 3, c. 55, sch. A);—*Mrs. Davies of the town of Bala, draper, appealed and claimed exemption for five warehouse windows, under and by virtue of the Board's circular letter to surveyors, dated July 28, 1840—3363. The appellant stated that her dwelling-house, shop, and warehouse, are one and the same building; that the shop is a continued front of the dwelling-house, having an internal communication therewith; there are two windows in the same not charged; that the warehouse windows which she claimed to be exempt from the duty by virtue of the said letter, are two rooms appropriated and wholly set apart and used as a warehouse only, in which shop goods are lodged and kept, and are used in no other way whatever; that one of the said rooms is on the first floor, immediately over the shop, the other is on the second floor, immediately over the same, and extends over the whole of that part of the building, from front to back; that the said rooms have no internal communication whatever with any part of the dwelling-house, there is a door-place in the first-floor room, and one in the room above, but are never opened, the only access thereto is a stair from the shop, which doth not in the least interfere with the dwelling-house. At the back of the shop, on the ground floor, there is a parlour with a door into the shop, and immediately above the same, and at the back of the first floor front warehouse, there is a sitting-room; the said warehouse rooms are considered in every respect the warehouse contemplated by the said letter, the windows of which by virtue thereof are exempt from duty, in which opinion the commissioners concurred, and allowed the appeal, with which determination the surveyor was dissatisfied, and contended the appellant was not entitled to the relief granted, inasmuch as the rooms used as a warehouse in this instance are in every respect a part and parcel of the dwelling-house, there being a sitting-room and a parlour immediately under the upper warehouse, and the whole being under the same roof, requested that the case be stated for the opinion of her Majesty's judges, which we hereby state and sign.*

Given under our hands this 18th day of February, 1841.

R. W. PRICE, } Commissioners.
RICE ANWYL.

We are of opinion, that the determination of the commissioners is wrong.

J. PATERSON. T. COLTMAN. W. WIGHTMAN.

Windows—Workshop—What is not, within the Act, 48 Geo. 3, c. 55, sch. (A).

Appellant, a carpenter and joiner, claimed exemption for a room in which he worked, in front and on the ground floor of his house, with which it has an internal communication on such floor, viz. with the kitchen, and it has also bedrooms over it. Held, not exempt, the same being part of the dwelling-house, having an internal communication therewith and bedrooms over.

At a meeting of the commissioners of land and assessed taxes, acting in and for the said division and county, held at Llanddwye, the 21st and 22nd days of August, 1840, for the purpose of hearing appeals against the first assessments (48 Geo. 3, c. 55, sch. A);—*David Morris, of Barmouth, carpenter and joiner, appealed against a charge for window duty, claiming exemption for one in a workshop. The appellant stated that the room wherein he works is in front and on the ground floor of the house in which he resides, that there is an internal communication on that floor between it and the dwelling-house, being a door into the kitchen, that there are bedrooms over the same, that he considered the windows of such workshop, by the board's letter of the 28th July, 1840—3363, not liable to duty, and contended that he was exempt therefrom; and contended that he was entertained a similar opinion, and allowed the appeal, which determination the surveyor contended was not within the meaning and intention of the said letter, inasmuch that the exemption is provided for such workshops and warehouses only that form no part of the dwelling-house; although the room in this instance is set apart and used solely as a workshop, still it is a room of the same house,*

and is a part and parcel of the dwelling under the same roof, having an internal communication therewith, and having bedrooms immediately over the same, demanded a case for the opinion of her Majesty's judges, which is here stated and signed accordingly.

Given under our hands the 4th day of February, 1841.

DAVID EVANS, } Commissioners.
RICHARD DAVIES.

We are of opinion, that the determination of the commissioners is wrong.

J. PATERSON. T. COLTMAN. W. WIGHTMAN.

MAIDSTONE PETTY SESSIONS.

Redress for Workmen.

*Mr. Cobb, builder, was summoned by one of his workmen, Francis Jarman, for 16*s.*, balance of wages due to him.*

Complainant stated that he had been to work for Mr. Cobb at Tunbridge, and was discharged there by his foreman a fortnight ago. He went to Mr. Cobb for his wages, which he refused to pay him, and told him that he had behaved like a rogue; he said his son was going to Tunbridge to see the foreman and he should not settle with him till after that. Complainant again went for his money, when defendant's son brought a bill against him of 5*s.* 3*d.* for gates and 5*s.* for sand.

Mr. Cobb said that complainant had not been discharged by the foreman; the foreman had talked to him about being so long going his journeys, and he then became abusive and said he would not work any more and went away, leaving two of his horses at Tunbridge. He owed 11*s.* for turnpikes and sand, which was quite equal to his balance of wages. He (complainant) had worked for witness upwards of five years, and he had never had any occasion to complain of him till lately.

Complainant denied that he owed any thing for sand, but admitted that the amount for gates was due, which he had acknowledged to young Mr. Cobb.

Mr. Cobb said that he only owed him for 4½ days' work, which amounted to 12*s.*, and 5*s.* 3*d.* of that was to be deducted for gates.

After some further argument between them, The Mayor said that as the complainant had been an old servant, he thought they had better retire and settle it between them.

Mr. Cobb, however, not feeling disposed to accede to this request,

His Worship said defendant must pay 6*s.* 9*d.*, the balance due to the man, and the expenses of the court, and that if he afterwards found the sand had not been paid for, he (the Mayor) would pay him again out of his own pocket, for he firmly believed the statement of the complainant.

Mr. Cobb then paid the money and the parties retired.

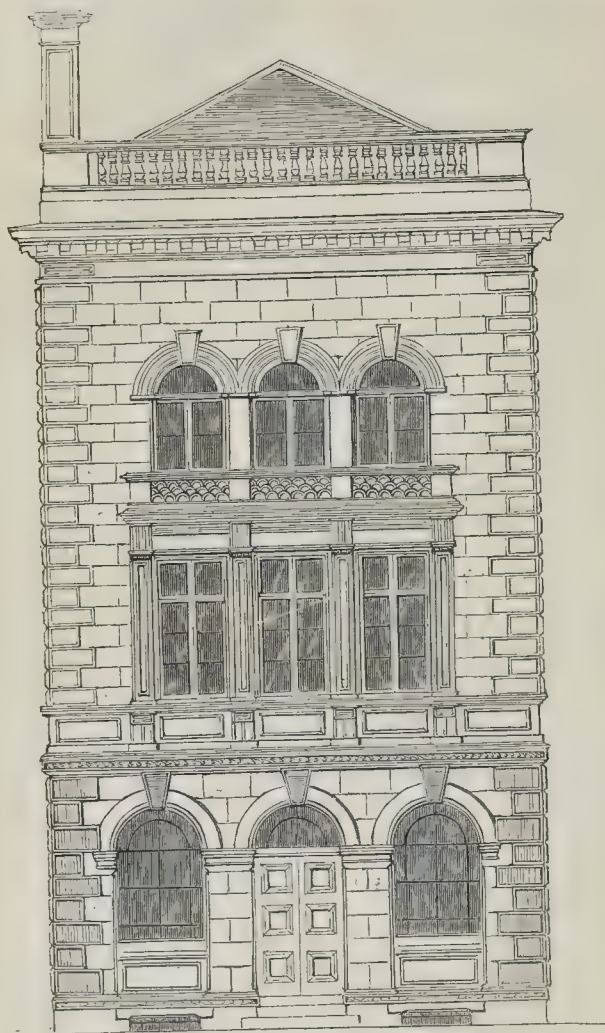
DISCOVERY OF AN ANCIENT CHURCH AT ALGIERS.—The *Moniteur Algerien* announces the discovery at Orleanville, in preparing the foundations for some new buildings, of the ruins of an old Christian church. On the porch of the edifice was found an inscription in Latin, of which the following is a translation:—"Here reposes our father Reparatus, Bishop, of sacred memory, who, for eight years and eleven months, performed the sacerdotal functions, and who has passed before us in peace, the 11th day of the Calends of August, in the 436th year of the birth of Jesus Christ."

A LARGE SPINDLE.—A large cylindrical mass of wrought-iron, weighing no less than 22,400 lbs., was shipped from the foundry of Messrs. Farwell and Preston to the Clarence Dock. This immense piece of metal is intended for the spindle of one of her Majesty's steam-frigates; it was placed on two strong trucks, and was drawn through the streets by eleven powerful horses, twenty or thirty men holding by drag ropes in the rear to prevent the trucks from attaining too much velocity in descending inclined planes.—*Liverpool Mercury.*

The new prison buildings at Shepton Mallet are to be heated and ventilated on the plan pursued in the new Model Prison, London; a sum of upwards of 1,000*l.* has been voted by the magistrates at the Michaelmas Sessions for that purpose.

It is said that a large "cinder tip" (a mountain formed by accumulation of cinders from iron works) at Merthyr is about to be let on building leases by the Pennydarran Iron Company.

The King of Prussia, one of the most accomplished and liberal monarchs of the age, has presented to Mr. Britton a splendid "Gold Medal of Merit," as a compliment for his numerous literary works on Antiquities and the Fine Arts; but principally in acknowledgment for his "Dictionary of the Architecture and Archaeology of the Middle Ages." The designs on the obverse and reverse are peculiarly beautiful, strictly classical, and arranged with novelty and taste. Around the verge is this inscription:—"Presented by the King of Prussia to John Britton, 1843."



RECENT PUBLIC BUILDINGS OF LONDON.

NO. II.—THE ALFRED LIFE OFFICE, LOTHBURY.

5 10 20 30 Feet
Scale.

THE Alfred Life Office, of the front elevation of which we this week present our readers with an engraving, is an example of how much may be effected at a moderate expense, and with common materials, by a man of taste relying upon his own resources, rather than miserably imitating the inventions of his predecessors. Adaptations of the ancient edifices are seldom successful; many of the best specimens that have been produced in the present day, approaching very nearly to the servility of copyism. The Travellers' Club House is the best example with which we are acquainted. The Reform is an improvement upon the design which it is said formed Mr. Barry's model. But in both these instances great wealth was at the architect's command wherewith to produce corresponding magnificence, and taste rather than economy was the governing principle. In those buildings which are appropriated to the purposes of commerce, such facilities are seldom afforded for the man of genius to avail himself of in the preparation of his design; and, whatever may be the space allowed him, external effect is generally sacrificed to the arrangement of an interior crammed with diminutive rooms, in which any marked display of style or decoration is not even attained to be attained.

And not only do these circumstances operate unfavourably for architectural effect, but even when a considerable outlay is resolved upon, and much expense is incurred in decoration, architects too frequently forget that demand for originality which the nature of the building creates. In too many instances, a few overgrown columns on a stilted basement, and with two or three tiers of windows between them, are the only evidences that an architect has been employed. Costliness is the criterion of merit, stone rather than style is matter of commendation, and people judge of the importance of a building rather from its materials than its design.

Such, however, is not likely to be the fate of the Alfred Life Office, since the materials are of the most common description, while the design is more than usually meritorious. Considering that the architect had a frontage of no more than twenty-eight feet, that considerable light was required to each story, thus materially trenching upon the repose of the building; and that very little expense could be spared for decoration; his production will be found to possess a consistency and marked character no less pleasing than uncommon. It is unnecessary to enter into a detailed description, as the engraving is sufficiently accu-

rate to enable our readers to appreciate the merits of the design. Perhaps more breadth might have been given to the piers of the windows in the upper stories, but as this could not be afforded, from the diminution of light which it would have occasioned, this defect is rather a misfortune than a fault. One peculiarity, which the drawing is too small to shew, is the manner in which the angles of the ground-floor piers are treated, a small circular shaft, terminating in a leaf, being placed in a recess formed for the purpose. The angles are thus preserved from the mutilation to which, had they terminated with the usual sharp arris, they would have been subjected. Indeed, careful study has been bestowed upon every part of this exterior, and as a whole it is a credit to the architect, and an ornament to the city.

The whole of the front, with the exception of the quoins on the ground story, which are of stone, and scarcely distinguishable from the other portions, is executed in the metallic cement left unpainted, and certainly producing a very satisfactory effect. Messrs. Lee were the builders, and Mr. Harrison, of Finsbury-street, the plasterer under whose immediate superintendence the front was stuccoed. The architect is Mr. H. Clutton, of St. Martin's-place, to whose kindness we are indebted for the drawing from which the accompanying engraving was prepared.

W. C.

NEW DOCKS, LIVERPOOL.—Mr. Hartley, the surveyor to the Dock Estate, has reported on the necessity of a large extension of the dock accommodation of the port of Liverpool. Of fourteen docks in existence, he says not one could be let dry for the purpose of repairs. After recommending several alterations and connection of docks, he proposes that a large graving dock for large steamers should be constructed, together with such other graving dock accommodation as the general wants of the port require. The dock committee have decided to purchase for these purposes, land from the Harrington Dock Company to the extent of 127,700 yards, at 12. 11s. 6d. per yard! Other land will be bought of the corporation, and also of Mr. John Shaw Leigh; so that we may expect great activity very shortly.

NEW WATER-WORKS, LIVERPOOL.—Mr. Simpson, from London, is now engaged in Liverpool making surveys and forming plans for the better supply of water for extinguishing fire, &c., so that Liverpool has taken up the subject in the right spirit, and as ought to be done here in London and in every large city. Some umbrage is taken by the Liverpool engineers at the employment of a stranger,—we know not whether justly or not,—but we certainly should have thought Liverpool itself had been sufficient for all its own wants in this respect.

JUNCTION OF THE ATLANTIC AND PACIFIC OCEANS.—The long-meditated project of piercing the Isthmus of Panama, for the junction of the two great oceans, is daily more and more attracting the attention of nations, as its importance is continually enhanced by the relations which the gigantic conquests of discovery abroad and science at home are establishing between the various portions of the globe. In addition to the active inquiries and experiments in which, as is well known to our readers, both England and America have long been engaged with this view, the French government has now despatched a mining engineer of distinction, M. Napoleon Garella, to make a careful examination of the isthmus and report on the most eligible direction which a canal of communication between the Atlantic and Pacific can take.

TEMPLE CHURCH.—On Sunday morning this church, which had been closed since August for the purpose of repairs, was reopened for divine service. A large number of benchers, the respective houses, and many templars, were present. Considerable improvements have taken place since the church has been closed, and a new pulpit, designed by Mr. Smirk, richly ornamented with carved work, has been erected. Benches for the accommodation of the choir have also been erected, which are ornamented with carved figures of angels, wings expanded. Adjoining the north transept, two rooms for the use of the choir have been erected, and the church has undergone thorough cleansing.

Collectanea.

CHARACTERISTICS OF POINTED ARCHITECTURE.*

The Tower, Spire, and Turret.

Not to dilate upon the variety of picturesque external forms anciently assumed by that essential feature of domestic architecture, the chimney, we may, in our upward course of observation, select as the subjects of some general remarks, the tower, spire, and turret. In the former of these, when happily composed, the peculiar characteristics of the perpendicular pointed style are developed with wonderful effect. Tall lines of regularly-graduated buttresses are here displayed with great advantage, and can never indeed be omitted without insipidity and vacancy of composition. Long and deeply-sunk windows, with high labels, here produce conspicuous dignity of outline and force of shadow,—effects further promoted by the use of niches or high panels of tracery. Airy battlements, light pinnacles, distinct purling, and holdy-varied grotesques and knots of foliage unite in finishing the mass with dazzling but consistent elegance. The towers of Gloucester and Wells Cathedrals; Magdalen College, Oxford; Taunton Church, Somersetshire; and Great Malvern Church, Worcestershire, will furnish a few out of numerous happy illustrations of these excellencies, in some or in all points; and will shew, at the same time, how greatly many other of our towers, that may be of an equally or more expensive character, might have been improved by an observance of similar principles, especially upon the points of abutment and termination.

The lantern-tower is an elegant variety, which, to be properly so called, should both contain more of window than usual, and also transmit light into the area of the building which it surmounts, as at York and Ely Cathedrals. The octagonal lantern, though destitute of the latter application, is frequently used with great advantage to terminate the square tower, as in the fine example of Boston Church, Lincolnshire, and many others.

The spire, ever characteristic and imposing, is a feature of which more is always to be seen than said. The same principles, however, which regulate a good pinnacle of the first order, are those which produce elegance in a spire. This member is one, it may be observed, most frequently found in the older productions of the pointed style, but which is yet by no means foreign to the practice, much less to the feeling of the perpendicular mode. We have also some specimens of a kind of curtailed spire, wherein the ordinary figure is cut off at about one-third of its height, and finished with a parapet and pinnacles: of this description is the interesting steeple of St. Nicholas' Church, Gloucester.

The octagonal turret is another terminating feature of frequent use in the later practice of pointed architecture. This is sometimes finished with a plain or with a perforated battlement, sometimes with the addition of a purling pyramid or depressed spire, as may be exemplified from Magdalen College, Oxford; but most frequently with the ogee-cupola, as in Henry Seventh's Chapel, or the yet more aspiringly elegant turrets of King's College Chapel.

The characteristics of these masses should severally seem to be those of dignity in the tower, lightness in the spire, and richness in the turret-crowned cupola; characteristics which, as supported by the all-pervading genius of the style, will ever render such features admirable, whatever deteriorating comparisons may be made in respect to them by self-constituted critics.

PLAN FOR A SWISS COTTAGE, &c.

SIR,—Returning you thanks for the insertion of plan of a farmstead intended for a five-acre allotment, I feel obliged by the remark of your correspondent "W. H. J.," whence it may be gathered that his principal objections appear to be in the size given to the farm-yard, to the idea of having three stalls in the cow stable, and to the dung pit. As knowing some little respecting farms, derived from information received from the father of modern agriculture, the late Earl of Leicester, a man who had lived to see, and had the courage to acknowledge, that the system of large farms was



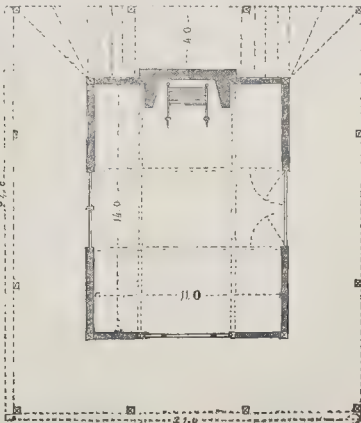
PERSPECTIVE ELEVATION OF A SWISS COTTAGE DESIGN.

bad, I concurred to a certain extent, in having the cows stall-fed, being more profitable and, I believe, more congenial, especially in the heat of summer and in the cold of winter, to the animals themselves. I should desire to see the farm have a colt or two, to be reared for sale, also a sheep or two for the same purpose. I have seen many farmyards about the size as stated by your correspondent, but I wish to see "elbow or leg room" for the cows when they are daily turned out of their stalls. The dung pit in my arrangement is, with all deference to "W. H. J.," a somewhat pet thing with me; not that I am an admirer of dirt for the dirt itself, but the manure pit would be so arranged as to receive the surface water with all the drainage for the cottage, the pigs, the cows, &c., also would receive the waste from the garden, manure being a most essential matter. A place is provided for the pigs' food, two tanks in front of the sty, being conveniently placed both for receiving and for feeding. As a great admirer of your I may say

invaluable paper, accept my thanks for the many very interesting sketches you are so kind as to introduce.

In No. 34, a constant reader, who subscribes himself "Thomas George, Hendon," is desirous of having a design for a Swiss cottage. The following Monday I sent the enclosed sketch to his address, but he was not found by the Post Office authorities. I am free to confess that for one I do not fall in with Mr. Charles Allard that a tee should be held out as a stimulus. Enclosed I beg to send you my idea of a Swiss cottage of two rooms, the ceiling of the lower room to be divided into sunk compartments by the binders, or girders and joists; the floor to the upper room would be of marquetry, so worked as to form the panels to the ceiling under. Estimated cost about 110l. The roof to cottage and chimney-shaft of iron galvanised.

I remain, Sir, your obedient reader,
P.T.



Plan of Swiss Cottage.

* Continued from page 445.

ON THE ORIGIN AND PROGRESS OF
CHURCH ARCHITECTURE.

(Continued from page 454.)

REVERTING to the era of Theodosius (A.D. 379 to 394) as that of the permanent though really the second period of Church Architecture, we find that the *debris* of heathen temples, as well as the materials of the ruinous basilicas of Constantine, were converted to the purposes of church building. The body of these early churches was preceded by a portion of insulated columns, serving to harbour catechumens and penitents who were not permitted to enter the body of the edifice. In very early times, says Hope (forming his opinion from a mosaic existing in St. Appollinaire-di-deatro, at Ravenna), the portico, or *narthex*, seems only to have been screened from the outer air by curtains hung on rods; it gave entrance to the nave, bounded by ranges of columns taken from the heathen temples, often differing in size, materials, and workmanship, reduced or raised to uniformity, as the case might require; on the columns of the nave was raised a wall, the upper part perforated, and which supported the beams and rafters of the central roof. The body of these first Christian churches, with the exception of their antique columns, had not a single member or moulding projecting from the flat perpendicular surface. The sanctuary was separated from the nave, not only by cancelli, or rails (whence chancel), but also a curtain, withdrawn only during a part of the service; in this part was the absis, or concha. A division of the nave, near its upper end, was raised by a few steps for the reception of the minor clergy and singers; on the same line rose two marble pulpits, that on the right for reading the scriptures, and on the left for reading the epistles, the former flanked by the small marble pillar on which was placed the paschal candle. The nave and aisles of the true basilica abutted against a transverse wall which, through a vast central arch opposite the former, and lesser lateral arches opposite each of the latter, gave an entrance into the transept, and that part which composed the sanctuary; and the central arch leading to and from the very entrance of the nave, shewed beyond it the sanctuary, the tomb of the martyr to whom the church was dedicated, the altar over that tomb, and the crucifix and trophies of the triumph of Christianity.

Such is a very near and consistent description of the first structures devoted, or dedicated, to Christian worship; derived either from remains casually brought to light or from existing examples which have escaped the hand of time. We have seen that in the early ages, the meek and persecuted sufferers for Christ's sake disputed not upon the form or materials of the temple; the little less than miracle of the wide diffusion of their faith burst upon them, and they marvelled rather than repined when the walls of the pagan hall reverberated the hymn of praise and thanksgiving; neither disputed they even upon the presence of heathen emblems in the temple; those of the vintage, and of harvest, typical of divine beneficence in the recurrence of those seasons, were still revered; they were gladdened in a general acknowledgment of the efficacy of the one great sacrifice for human redemption.

Undoubtedly, then, the first Christian churches were built after classic or pagan (the term is optional and unimportant) models, and the convenience of these forms is still recognized in designs for ecclesiastical structures of the largest class. While we admire ability in discussion, and can appreciate laborious research, the time has gone by for reference to the older architectural works for purposes other than ascertaining the standard or governing proportions of the classic styles, and the gratification of a laudable curiosity on points of minor interest; puerile adaptations from the Italian schools of architecture have already inflicted extensive and lasting mischief; for while the conception of grandeur and fitness exemplified in the Roman basilica, and preserved in the Christian temple, has never been exceeded, mongrel admixtures, all professing to be derived from *authority*, have been suffered to debase British architecture of every class.

Many of our readers may not be aware that the term "Christian," as applied to Gothic

architecture, originated with Mr. Britton, the indefatigable and respected illustrator of our cathedrals; the consistent uses of it, which promised to be of much value, are thus clearly and elegantly pointed out by the talented writer of the article "Civil Architecture" in the *Encyclopædia Britannica*. "Mr. Britton, than whom perhaps no man possesses an equal right to affix an appellation to the pointed arch style, from the splendid services he has done in the publication of his cathedral and architectural antiquities, wishes to introduce a term which is not at all unlikely to succeed, as it is equally appropriate and independent of national feeling and hypothetic origin. He calls it *Christian architecture*. This is a generic term, and admits each nation to distinguish its own species or style. It accords also with the usual distinctions of Grecian architecture, as Dorian, Ionian, and Corinthian, for each nation has its peculiarity of Gothic. The term 'Christian' applies well to Gothic architecture, that which arose on the extinction of the Roman architecture, and was again subverted by the introduction of the pointed arch, and which owed its introduction and progress to the Christian religion." More need not be said upon the intention with which Mr. Britton applied the term, or the better uses of which it is susceptible; certainly that distinguished antiquary had no idea that he was thus opening a door to controversy, or that fallacious distinctions would be urged upon points where the better informed are necessarily unanimous. The Roman manner, or style, was preserved, acknowledged, and even boasted of by Christian architects for centuries; the perversion of the term "Christian" to an exclusion of the title of classic architecture to that appellation is therefore too ridiculous to be further entertained.

It may be interesting to those who have had an eye to the cavil which has rather insidiously stolen upon us, that we should proceed with the grounds for these conclusions. Rome, in the last years of her glory, while ceding her provinces, and awaiting the crisis of her political fate, nourished the germs of her future ecclesiastical supremacy; Christianity flourished, and the capture of the imperial city by the mixed hordes of Alaric, in 410, seems to have been, as it were, a gathering of many nations, whose subsequent divergence carried both a knowledge and the spirit of religion to the extremities of Europe. In the former dependencies of the empire, and in Rome itself, the conquerors, once assured of the stability of their dominion, became patrons of the arts, and introduced the highly ornate, yet rude and ill-designed style of sculpture, of which tolerably well preserved remains still exist in several of the Lombardic capitals. But to confine our historical recollections chiefly to British church building; there is satisfactory evidence that sacred edifices existed prior to the Saxon occupation; and, indeed, the birth-place of Constantine would scarcely be omitted in his rescripts to the provinces, commanding the erection and repair of churches. The Saxons were more accustomed and attached to timber buildings, and until the era of the Heptarchy would probably have done little in the way of more permanent erections. Britain, however, partook largely in the spread of Christianity, and several of the Saxon kings became munificent patrons of church building and endowment; from this period we begin to catch glimpses of tangible historical facts. Bede, who flourished and wrote in the seventh century, cites the mission of Naitan, king of the Picts, soliciting the Abbot Ceolfrid to send him architects to build a church after the Roman manner. Edwin, the first Christian king of Northumberland, built in 672 his church at York, under the direction of Paulinus, a missionary from Rome. St. Wilfred, who in 674 built the church of Hexham, Northumberland, and the church of Ripon, had himself learned architecture at Rome, and brought with him artificers from that city. St. Benedict, who built the monastery of Wearmouth, likewise procured workmen from abroad, and built his church *more Romano*. Alfred imported artists, who built the churches of his time *more Romano*. In fact, the whole history of church building of that period is of the same description, and those works at large were designated "Opus Romanum."

Rude imitations of classic architecture are thus known to have pervaded the land; rude

in proportion to the distance and infrequency of communication with the seat of civilization; rude in proportion to the unfitness of the material architects were frequently compelled to employ, and the unpractised condition of the native workman; in all remains decided, or rather conjectured, to be of Saxon origin. Massiveness is the prevailing feature; hence the low cylindrical, square, or bevelled pier; or pillars with bases and capitals often fantastically carved, surmounted by heavy semi-circular arches springing directly from their tops. After the Heptarchy, and during the Danish incursions, churches and churchmen suffered in the largest degree; the Northmen, the fiercest and most prejudiced of the Pagan tribes, waged against them a war of extermination, which the older chroniclers describe and lament at some length; architecture retrograded, and it was not until about the middle of the tenth century that a revival of any importance took place, which was ushered in by the founding of the noble abbey church of Romsey, and a little later (980) Bishop Ethelwold built the crypts of the Cathedral of Winchester.

We now approach the period of the Norman Conquest, and with it came renewed and active progress both in ecclesiastical and castellated architecture. The churchmen, members of the family of the Conqueror were inducted to the richest benefices, and generally the Saxon clergy were deprived and replaced by Normans; numerous cathedrals were now set on foot, yet, in all the original features common to Saxon and Norman builders were continued; save only that the progress of society had induced ideas of superior magnificence, which were presently to be realized by the uncontrolled and unrestrained appropriation of the resources of a prostrate country. In this movement Gundulph, the Norman Bishop of Rochester, took the lead, and at once carried the style to its maximum in dimensions and decoration. The true Norman, together with what is called the semi-Norman period, occupy little more than a century, or from 1066 till towards the last years of the twelfth century.

Having thus passed the line of demarcation usually recognised by ecclesiologists, we enter upon debatable ground, the early English period, introducing various modifications of the circular arch, and terminating in pointed or lancet-shaped Gothic, to which the term "Christian" has also been erroneously deemed exclusively to apply. A masterly and, to our mind, acceptable elucidation of the principal points at issue on the former and current designation of this style is given in the volume previously quoted, in effect as follows:

The Gothic style originated in imitations of the churches of the metropolis of Christianity, and not from any previously existing examples among the northern nations. The Celtic monuments were the only specimens they possessed; the general forms and modes of Roman architecture may be traced throughout, and the Gothic is more clearly deducible from that origin than Roman is from Greek, or Greek from Egyptian. Degrees of perfection were consequent upon habits, manners, and advancement towards civilization; and much depended upon direct communication with Rome itself. It may be called Gothic, as in a great measure induced by Gothic invasions of the Imperial territory, and as more commonly practised by the nations to whom the term Gothic may be properly applied. It has been well observed that of all the nations claiming to have originated the Gothic style, none can produce genuine specimens before a certain period, and to which their histories distinctly refer. Now, if it had been invented by any of the European nations, that one would certainly have been able to shew specimens of it of a date anterior to some of the others, but that is not the case. The perfect lancet arch came into use immediately after the period of the first crusade; nothing approaching it was previously attempted in Europe, although it already existed in the East. It is also indisputable that the Saracenic and Mahometan nations do, and have used the pointed arch, but they were never until lately known to adopt any European custom or invention. The pointed arch was a graft upon the Gothic arch of Northern Europe, as the circular arch of the Romans had been upon the columnar ordi-

nances of the Greeks, but with very different results. The amalgamation in the latter case destroyed both the beauty of the stock and the scion; while in the former the stock lent itself to the modifying influence of its parasitical nursing, gradually gave up its heavy, dull, and cheerless forms, and was eventually lost in its beautiful offspring, as the unlovely caterpillar is in the gay and graceful butterfly.

In the absence of positive evidences, argu-

ment and analogies such as these go far to bring conjecture to a resting point. That the pointed arch had its origin in the cathedral buildings of England is a favourite theory, clung to by a gradually narrowing circle of antiquaries: the continental nations, however, exhibit the features and phases of the style in contemporaneous and even more elaborately decorated structures. It is the undecidable nature of this question that has given rise to

the numerous and ingenious reasonings brought to bear upon it, which, though they fail to convince, may be aptly likened to the labours of the experimental chemist. Discoveries other than those sought are obtained, and an admiration of creative science excited, while the practical and moral results are a dissemination of those principles of ancient art which were mainly stimulated by the faith and devotional feeling of our forefathers.



TEMPLE IN THE ISLE OF PHILÆ, ON THE NILE.

(By a mistake of the Engraver, the Sketch of the Temple of Orus at Edfou, of which the Ground Plan was also given, was inserted in the place of the above in our last number.)

Literature.

Pictorial Spelling and Reading Assistant.—Steill, Paternoster row.

WE have not been backward, nor do we in future intend to be, in advocating matters that point to things before and behind "the shop"—provision for *old age* and the care of the *young*, for the building class embraces these in large, and honoured, and beloved amount, demand our watchful anxiety; hence we turn at present to that most grateful task of noting what may be of advantage to the workman's child, and, indeed, to every class of intelligence within or without the builder's circle.

Pictorial illustrations are found to be great aids to description; they are not only aids to a clear understanding, but they act as excitants, and help to fix the attention, which is a great point with children, when all other means in some sort fail. At the foot of nearly every page of one hundred and twenty, a proper and well-executed wood-cut is appended, with a description, the word chosen being one from a number which occupies the upper part of the page as a spelling lesson. Turning at random, we have in the lesson "Slave, s., a bond servant," and below, it enters into a narrative or history of slavery among the Hebrews, and the sale of slaves is illustrated by the sale of Joseph to the Egyptian merchants. Next follows a brief account of Egypt, its greater peculiarities, and a marginal vignette of the great sphinx. It is a valuable and an interesting spelling and reading book.

Ecclesiastical Architecture—Illustrations of Baptistical Fonts. London. Van Voorst.

WE prepared our readers for an early notice of this work by referring to it in a former number. When we say that the wood-cuts are principally by Jowett and Thompson, we have given a voucher for their excellence, and we may add that the selection is worthy of the talent employed in the illustrations. We were at first disposed to take exceptions at the brevity of the notice or description which accompanies each drawing, but when we come to consider how much of sameness it would induce, going over so much of common ground as this defines, we are inclined to applaud the publisher's judgment. There are, among the sixteen examples given, some that are exquisitely beautiful, one of which we cannot help naming; it is a noble font and we subjoin the description

to give an idea of the manner in which the examples are spoken of:—"PATRINGTON.—This beautiful specimen of decorated work is in the parish church of Patrington, in the East Riding of Yorkshire, dedicated in honour of St. Patrick. It is carved in Caen stone, and remains in fair preservation, with the exception of the upper part of the bowl; it is now, we are sorry to say, painted. It stands near the north-east pier of the tower, is 2 feet 11 inches from the step to the top of the bowl, 25½ across the top, and the bowl, which is lined with lead, and has a water drain, is 14 inches deep."

We opine that these researches after fonts will rescue many a one from desecration as pig-troughs, water-spout cisterns, &c. We know of one, an interesting Norman relic, standing, or which was lately standing, in an obscure corner of the churchyard, grown over almost with nettles and weeds, and receiving the shoot from the water-spout. We mentioned it once to the incumbent, but it seemed a matter of less interest to him than it would have been to have noted the loss of an old shoe. The Camdenians, with their strong language and abundant use of expletives, may twang through the hide of such a callous as this; but we are forgetting ourselves, and following an example we would in some respects eschew.

Another number of fonts is promised for this 1st of November, so that a rich collection will be furnished to the curious by such means. We cannot express less than a high gratification with the work.

Particulars of the Church of St. John the Baptist, erected at Eastover; with engravings. Printed for the Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels.

THIS is a church built from the designs of Mr. John Brown, of Norwich and London, and is selected by the society above referred to as most worthy to be published, or as being "one among the best of those which have come before them during the preceding twelvemonth." The church is adapted for 500 sittings, including 80 children, and cost, exclusive of the site and architect's commission, but including fence-walls, gates, bells, &c., about 7,000*l.*; from which it will be seen that the usual stint, of "4*l.* or 5*l.* per head," of the sittings has been greatly departed from,

and something nearer 14*l.* per head has been the rule. It will naturally be inferred that this is a handsome church, and we shall not hazard much chance of contradiction in affirming it to be so. A beautiful timber roof of curved spandrel, span and collar ribs, enulating on a smaller scale the famous roof of Westminster Hall, gives a charm and grace to the interior, and when we state that it rises to the height of 58 feet at the ridge or apex, covering a nave of 84 feet long by 32 feet 6 inches broad, it will be conceived that nothing niggardly has been practised in finish or dimensions.

In the description given by the society in this little tract, after describing that the walls of the church are constructed of rough stone and faced on the outside with Bath stone, as well as the mouldings and returns of the window jambs, &c., it states that the inside is "covered with smooth stucco, which is very properly not jointed, in imitation of stone, but left to appear as what it is, a decent covering for the rough walling between the hewn stone mouldings, and a suitable surface whereon to inscribe scrolls, or texts."

The organ is to be placed in a tower behind a stone screen, which, as it appears, will resemble the stone tracery in the arches of the triforium of some large churches.

The seats are all open with low backs, with handsome ends of solid oak 2½ inches thick, and surmounted by carved poppy heads; an opinion is offered by the society, that perhaps it would have been preferable to have adopted those "good models of church seats—low and level tops—found in the churches of Somerset and Devon, as more fitly suggesting the equality of rich and poor in the House of God." How it pleases us to hear these sentiments escaping from the lips so long closed to their utterance, and not over-tolerant in days we are old enough to remember, of those who advocated any such equality in or out of the House of God.

It appears that in the progress of the building it was found expedient to cut through the concrete bed of the foundation on discovering that the superior pressure of the tower, the masonry of which was kept free from that of the body of the church, was acting as a lever, or so causing the concrete to operate, and overpoising the body of the church.

It is also noted that the side walls of the nave are found to hang over inwards about five inches, caused by the closer jointed character of the ashlar facing of the exterior of

the wall, and the comparative looseness or roughness of the interior, and the consequent inequality in settling; but a consolation is extracted from it, inasmuch as the inward leaning of the walls is said to be more favourable to resist the thrust of the roof!

Mr. Brown is the architect of several very handsome churches of this class. We have seen one at Lee, near Blackheath, lately erected; another at Bedford, and another at Stamford. A sameness of character pervades them all; but perhaps Mr. Brown judges that a good thing cannot be too often repeated. Salisbury Cathedral may be taken as the model from whence these churches are reduced, or their details copied. A bold tower and spire rising to the height of 144 feet stands at the west end; the chancel is 32 feet long; an octagonal vestry stands on the north side of the chancel; a good deal of canonical order is observable in the arrangement.

WOODEN RAILWAYS.

A new invention has come before the public which offers to be of great benefit to society, viz. a new system of railroads, composed entirely of wood; a small trial line has been laid down to test the principle near Vauxhall Bridge. It is the invention of Mr. William

Prosser, who has, at considerable expense, proved the system. The line laid down, though short, has yet a variety of gradients as well as curve and straight lines, as the following statement will show:—For 33 feet fall 1 in 25; 85 feet, 1 in 400; 170 feet rise of 1 in 100; 80 feet level, 140 feet fall of 1 in 95; and 25 feet rise of 1 in 12, in which line there is a curve of 720 feet radius. The line is constructed of Scots fir rail, six inches square, prepared by Payne's process, that of exhausting the pores of the wood and injecting under great pressure metallic solution, and afterwards lime, which semi-petrifies the wood, rendering it indestructible by damp, &c. It also gives it the properties of resisting pressure and wear to a great extent, while it increases the "bite" of the wheel, enabling locomotives to ascend inclines otherwise impracticable. Of this any one who sees it will at once be convinced. This being the case, railways can be made at comparatively less cost, as the great outlay is caused by the necessity of having as level a line as possible, and instead of going round or over hills, the practice is now to go through them, to the manifest loss to the shareholders.

There is a locomotive engine at work; this engine, a common road carriage, built by

Mr. John Squires, for the Albert Steam Carriage Company, is adapted for running on the wood rail by another contrivance for guiding the locomotive. This consists of an addition of anti-friction wheels fixed to each end of the carriage; these wheels run on bevil axles, and have a double flanch, the inner flanch running parallel to the inside of the rail, and the upper one parallel to the surface, but not touching it, except in case of accident to the main wheels, when they come on the rail and convey the carriage to its destination in safety.

The advantages to all are numerous:—to the shareholder an immense saving is effected in outlay, in current working expenses, in engines and carriages, and in the time of completing the line, and in consequence a quicker return for the capital invested; this will enable him to give the public cheap travelling, while they, in return, will swell his receipts by increased numbers;—to the landowner and farmer, as the land will not be so disfigured, while the facility of cheaply conveying its produce will be a great boon, not obtained by the present system;—to engineers, contractors, &c., by increased employment; as places whose population cannot support an expensive railway, may a cheaper one;—and to the public, above all, cheap, quiet, and comfortable travelling. B.

PLAN FOR MEASURING INACCESSIBLE DISTANCES.

Sir,—As it is sometimes desirable to measure an inaccessible distance when you cannot command a suitable instrument (when great accuracy was not required), I have been led to adopt the mode of measuring explained in the accompanying diagrams, which I have not seen in any book, and should you think them worth a place in your journal, I shall be glad, and perhaps I may send you another on the same subject.

I am, Sir, your most obedient servant,
Kinnahare, October 16, 1843. N. H.

To measure an inaccessible distance with the chain only.

Fig. 1. Let it be required to measure the distance between A and B, they being upon opposite sides of a river. Measure any convenient distance from B to C, suppose 100 links, the same from C to D, and from E to B, then place a pin at E, and set another at F, exactly in line with A, E, and D, C. Measure the distance correctly between F and D, which suppose 50 links, then you have the following proportion, viz. as $FD = 50 : DE, 100 : E$ B, 100, to the distance B A, which in consequence would be 200.

By the same rule the distance between two objects, both inaccessible, may be measured.

Fig. 2. The distance from A to B, and from A to C, being found by the first rule, suppose that from A to B to be 1,000, and from A to C 1,200. Take any proportion of these, say one-fifth, which for the side A B will be 200; set this number off from A to D, and set off the fifth part of $1,200 = 240$ from A to E, then measure the distance between D and E, which suppose to be 120, then it is evident that the distance between B and C will be exactly five times that number, or 600.

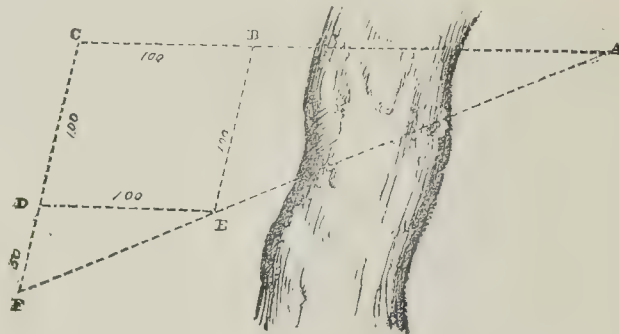


Fig. 1.



Fig. 2.

Miscellaneous.

LYNN, NORFOLK.—At a meeting of the committee of subscribers, it was resolved that application be made to the town council to grant the Tower Field as a site for the intended new church. A meeting of the council was held on Thursday, to take the same into consideration, when, as there appeared a diversity of opinion as to the propriety of granting the same, in the present depressed state of the corporation finances, the site in question being very valuable for building-ground, it was resolved that a committee be formed to consider the application, and deliver a report to the council at a future meeting, the council being disposed to assist the subscribers. It is earnestly hoped that the council may yet grant the request, as, in addition to the site being very eligible, the old tower standing thereon may be made use of, and contribute greatly to the beauty of the sacred edifice. The subscription list amounts to 4,336l. 8s.—*Stamford Mercury*.

ST. MARGARET'S FREE CHURCH, BELHELVE.—This barn-like edifice was no sooner roofed in than it was taken possession of by a strong, athletic person of disordered intellect, who, like others of the party to which he professes to belong, declares himself to be conversant with the mind of Jesus Christ upon the subject of non-intrusion. He employs himself in arranging the wood in the form of seats, and maintains that he holds a commission from on high to hold forth there, which no human power dare deprive him of. Under these circumstances, the progress of the work is at present at a stand-still; but we understand the famous new Machar elder, Mr. James Mackenzie, has donned a new suit of black, and proceeded to Glasgow to consult Dr. Chalmers upon the subject. What the doctor will do in such an emergency remains to be seen.

CHURCH DECORATORS.—A new profession is being formed, as we have all along pointed out would be the case. Mr. Taylor Bulmer, a gentleman from the north we believe, is gathering great repute from the success of his works in Liverpool and Hull, the sanctuaries of two Catholic chapels there being, it is said, most effectively embellished under this gentleman's hands and direction.

Several workmen are now being employed by Lieut.-Colonel Sir Digby Macworth, Bart., in digging the Amphitheatre, called King Arthur's Round Table, at Caerleon, and the fields contiguous, for the purpose of discovering some remains of the ancient and once glorious city—Iscia Silurum. Various portions of buildings have been discovered.—*Merlin*.

INCORPORATED SOCIETY FOR PROMOTING THE ENLARGEMENT, BUILDING, AND REPAIRING OF CHURCHES AND CHAPELS.—This society have resumed their sittings for the present season. Grants have been voted towards building a church at Cowhill, in the parish of Oldham, Lancashire; building a church in the parish of St. Andrew, Plymouth; building a church at Broad Town, in the parishes of Broad Hinton and Cliffe Pyard, Wiltshire; building a chapel at Ingleton, in the parish of Staindrop, Durham; building a chapel at Milton-next-Gravesend, Kent; rebuilding a chapel at Penrhos, Montgomeryshire; enlarging, by rebuilding, the church at Dawley, Salop; enlarging, by rebuilding, the nave of the church at Holcombe Burnell, Devon; repairing the church at Holwell, Beds; enlarging the church at Codford St. Mary, Wilts; enlarging, by rebuilding, the nave of the church at Winterborne, Whitechurch, Dorset, increasing the accommodation in the church at Llandyfriog, Cardiganshire; increasing the accommodation in the church at Hixton, Cambridgeshire; enlarging the church at Woodham Mortimer, Essex; building a church at Eccleshall, in the parish of Bradford, Yorkshire; and rebuilding the chapel at Ellerker, Yorkshire. The population of these parishes and districts is 108,508 persons, with fourteen churches and chapels, accommodating 13,873 persons, including free seats for 4,666 persons. With the society's aid seven new churches will be erected in populous districts, by which means, together with the alterations contemplated in the existing places of worship, 4,527 additional sittings will be provided, 3,113 of which will be free. Certificates of the completion of the works in twenty-two parishes were examined and approved, and the board issued orders to the treasurer for the payment of the grant awarded in each case. Previously to the execution of the works (which included the erection of twelve new churches and chapels) the provision of church room in these twenty-two parishes, which contained a population of 119,934 persons, was 25,210 sittings, 8,497 of which were free; to this very insufficient accommodation 6,939 sittings are now added, 5,304 of which are free.

SALISBURY DIOCESAN CHURCH-BUILDING ASSOCIATION.—In the space of seven years, 15 new churches have been built under the auspices of this society, where no church existed before; 14 insufficient or dilapidated churches have been taken down and re-built on an extended scale; 40 others have been enlarged by aisles or transepts; and by various means have been made to accommodate a larger number of parishioners; forming an aggregate of 69 churches which have received the aid of the Association during that short period.

ALLOTMENT SYSTEM.—At Beasted, Kent, last Tuesday week, on the rent day of the holders of parish allotments, the most cheering evidence was supplied of the grateful character of the poor under any circumstances of considerate and kind treatment. The rents were paid punctually, although at the rate of 40s. per acre. The gentry of the neighbourhood gave a supper to the tenants, who number upwards of forty. The best cultivated allotment, as far as manual labour was concerned, was one whose occupier could not obtain employment during the greater part of last spring. His spare time was devoted to the better cultivation of his allotment, which amply repaid his exertions by an abundant and excellent crop.

IMPROVEMENTS AT WINDSOR CASTLE AND TOWN.—Capt. Tucker, of the royal artillery, and a company of the royal sappers and miners, have been engaged for the last six months in a survey, under the direction of the Woods and Forests Office, with a view to provide for the better drainage of the town and castle. The expense, it is stated, will amount to 30,000l., of which the Government propose to provide two-thirds, if the inhabitants of the borough will raise by rate the remaining 10,000l.

IMMENSE IRON MINE NEAR BALTIMORE.—*The Baltimore Sun* says:—"We have the satisfaction to announce that an immense iron mine has been discovered, extending along the shore, as well as some distance into the river. The outer edge of the mine has been walled up, and large quantities of ore have been raised, which good judges pronounce to be equal in quality to any that has been discovered in the United States. The ore is almost as heavy as iron itself, and will of course yield largely. A large engine has been erected, and it is expected that operations in smelting will be commenced about Christmas.

THE IRON TRADE.—At a meeting of the Yorkshire and Derbyshire iron-masters, held at the Tontine Inn, Sheffield, on Thursday, an advance of 15s. per ton was declared, with a further rise before Christmas.

Mr. Slaney, one of the commissioners appointed by Government to inquire into the health of the population of large towns, and who recently paid a visit to Birmingham for that purpose, has made a statement of the result of his inquiries to an influential meeting of the inhabitants of Shrewsbury, at which the Mayor presided. The object which was sought to be accomplished by the labours of the commission was to improve the health of the working classes by an efficient system of drainage, by a better plan in the erection of dwellings, and by a plentiful supply of water. The pernicious habits to which many of the poor were addicted, arose in a great measure from the absence of those comforts in their houses which drove the poor man to the beer shop, or the public house, and frequently ended in loss of health, and the pauperism of his family. Mr. Slaney pointed out the advantages which arose from ventilation and cleanliness, as a means of contributing to health, a striking example of which was supplied in the metropolis; for while at the west end, where the streets were wide and clean, and the drainage good, the mortality amounted to only 2 per cent., in the east end, where the population lived in crowded streets, courts, and alleys, the mortality was 4 per cent. The mortality of the entire kingdom averaged 2 per cent., or 1 in 50; and the worst town in England was Liverpool, where the mortality was a little more than 3½ per cent., arising from the want of drainage and ventilation, and to the large mass of the population who inhabited cellars. In one district the mortality was 4½ per cent., while in another it was only 2 per cent.; and he had no doubt in some parts of the town it exceeded 5 per cent. Mr. Slaney stated that the average mortality of Birmingham was a little more than 2½ per cent., while in Wolverhampton (one of the worst towns he had visited) it was 3, and in some parts 4 per cent. It was considered that all towns were unhealthy where the average exceeded 2 per cent. The average of Walsall was nearly 2½ per cent., and Dudley and Shrewsbury were the same. The inquiries of the commission were also directed to the proper ventilation of the schools of large towns, and to the establishment of public walks, and a fund was voted by parliament for making grants for purchasing open spaces of ground for the recreation of the inhabitants.

EXTERNAL ASPECT OF OXFORD.—In one of the most fertile districts of that Queen of the Seas whom nature has so richly blest—whom for centuries past no footstep of foreign armies has desecrated—whose trident bears away over a wider circle than ever did the sword of the ancient mistress of the world—lies a broad green vale, where the Cherwell and the Isis mingle their full clear waters. Here and there primeval elms and oaks overshadow them; while in their various windings they encircle gardens, meadows, and fields, villages, cottages, farm-houses, and country-seats in motley mixture. In the midst rises a mass of mighty buildings, the general character of which varies between convent, palace, and castle. Some few Gothic church towers and Romanic domes, it is true, break through the horizontal lines; yet the general impression, at a distance and at first sight, is essentially different from that of any of the towns of the middle ages. The outlines are far from being so sharp, so angular, so irregular, so fantastical; a certain softness, a peculiar repose reigns in these broader terrace-like rising masses. Not that the Gothic pinnacles that point up into the sky are in themselves inconsiderable; the tower of St. Mary's is inferior to but few of the third order. But they all appear less prominent than either the horizontal lines or the copular form, which here and there rears its head; whether it be from its great variety or its more perfect harmony with the style of the whole, that the latter arrests the eye more than the former. The principal masses consist of the colleges, the university buildings, and the city churches; and by the side of these the city itself is lost on distant view. But on entering the streets, we find around us all the signs of an active and prosperous trade. Rich and elegant shops in profusion afford a sight to be found nowhere but in England, although side by side, it must be owned, with the darkest contrasts of misery and depravity. But the stately houses of merchants, retailers, craftsmen, and inn-keepers, with all their glitter and show, sink into a modest, and, as it were, menial attitude by the side of the grandly severe memorials of the higher intellectual life; memorials which have been growing out of that life from almost the beginning of Christian civilization. They are, as it were, the domestic offices of these palaces of learning, which ever rivet the eye and mind of the observer, all beside seeming perforce to be subservient to them. Oxford, indeed, has no manufactures of consequence. The sweating, sooty, grim industry of the day offers to the Muses nothing but her previously finished produce, without forcing on the sense the thousand offensive consequences of its creation. The population, moreover, has a tranquil character, making it seem to be far less dense than in other flourishing English towns, and, in fact, the noisy whirling streams of human creatures that hurry along the streets of London, Manchester, Liverpool, and Birmingham would be ill-adapted to the architectural and historical character of the place. Yet there is nothing herein to suggest the idea of poverty or decay. What strikes the eye as most peculiar, is the contrast between the fashionable and varied dress of the more active and busy townspeople, and the ancient, severe, and ample ecclesiastical costume of the "gownsmen," who may plainly enough be seen to be the ruling spirit of the place. Everywhere, indeed, wealth and rank are sure to meet with outward signs of respect; nowhere more surely than in England, and from tradespeople of the middle classes. But perhaps in all the world it might be hard to find so many forms, evidently the stately representatives of the genius of the place, as are the fellows and masters of the colleges at an English university. It is a peculiar type, propagated from generation to generation. The university towns have happily escaped the lot of modern beautification, and in this respect harmonize with the colleges. Each of the larger and more ancient colleges looks like a separate whole—an entire town, whose walls and monuments proclaim the vigorous growth of many centuries; in fact, every college is in itself a sort of chronicle of the history of art in England, and more especially of architecture.—*Huber's English Universities*.

EARLS COURT, BROMPTON.—Beautiful villas and a splendid square, styled Thurlow-square, are being built in the Earls Court Road, on the estate of H. B. Alexander, Esq., and under the direction of Mr. Basevi, the architect. Mr. Holmes and other builders are engaged in the works.

HEALTH OF TOWNS.—Mr. Chadwick, the secretary of the Poor Law Commission, with Mr. Smith, of Deansston, have been in Sheffield prosecuting inquiries under the above commission. It is said that the result, so far as it goes, is startling.

ATMOSPHERIC RAILWAY.—Daily trips are now being made on the Atmospheric Railway from Dalkey to Kingstown, and the speed is frequently not less than 60 miles an hour.

Professor Lee, the greatest of modern linguists, acquired his chief knowledge of languages whilst working at his trade as a carpenter.

THE GREEN-MAN INN, CORNER OF BELL-STREET,
EDGEWARE-ROAD.

HENRY TOVEY, Surveyor.
110, Albany-street, Regent's-park.

If you deem the above worthy of your notice, the insertion of the same will much oblige your obedient servant,
FAIRPLAY.

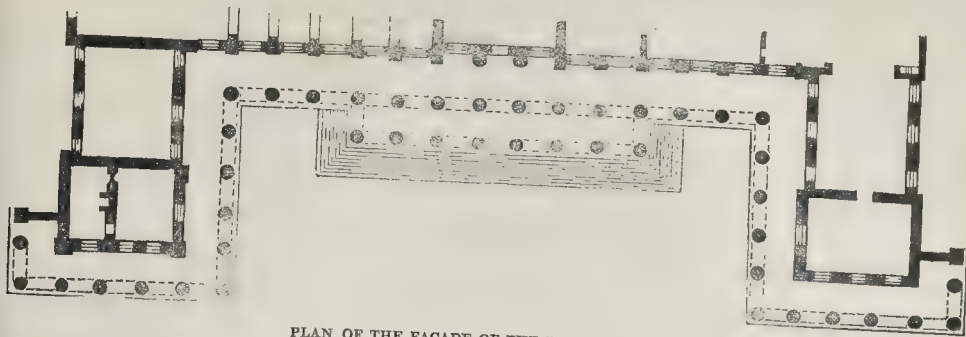
COMPETITIONS.

Earl of Leicester's Monument, at Holkham, cost 4,000 guineas.—R. N. Bacon, Hon. Secretary.
Dec. 20.

"R."—It is difficult for us to get at the whole particulars in such cases as he adverts to; but it is desirable, and we will try. If he will furnish us with the information that falls in his way, he will greatly oblige us. We are glad to have our attention called to it, and will make some inquiries.

of an unhappy temperament, and shew it in his bearing, is this a reason for decrying the acknowledged and large share of merit in his work? Few men, we will undertake to say, could have "got together" such a work as his *Encyclopædia*. Never mind his waspishness, and better still it were to

. May be had of most respectable Stationers, and of the Manufacturers, 23, Church-street, Spitalfields, London.
A Sample of each Size will be sent by Post to any part of the Kingdom on receipt of Postage Stamps equal to the amount.



PLAN OF THE FACADE OF THE BRITISH MUSEUM.

THE BUILDER,

NO. XL.

SATURDAY, NOVEMBER 11, 1843.

THE BRITISH MUSEUM.

SIR ROBERT SMIRKE'S conduct in this business leaves him with scarcely one to defend him; he exposes too much upon his friends, and involves them in backing and apologies which a proper consideration on his part would not agreeably spare them from. The public, we are to judge from what is said by all its organs, by every authority on matters of art, have well-nigh lost all patience, and are abandoning themselves to the extreme of begrin and disappointment; and truly, if we are to view the Plan before us, with a contempt of the elevation now publishing of the shops, as pretty correct expositions of what Sir Robert Smirke is about to give to the nation in return for its good-humour and confidence for so many years, for the thousands he had the disbursement of in the British Museum, we must turn our own backs upon it, and say we can keep his company no longer. We shall not expend any store of criticism upon it. The thing is wanting in dignity, in character, in every thing except the t effete and outwrought mannerism; a pedic and pediment as of the end of something stuck at the side of something, and the whole hemmed in as if two neighbour proprietors had taken possession, or broken a command that had enjoined an undisturbed ground space upon which Sir Robert had relied for the off his building. Then there is the range of hooking-office or counting-house windows, dignified by a screen façade of iron.

such botching and patching! we have no patience for it. *The Civil Engineer and Architect's Journal*, to the courtesy of whose conduct we are indebted for the Plan now used for illustration, has a long and strong article on the subject. *The Engineer, Architect, and Surveyor* devotes a portion of its space to it in the same spirit; the *Art Union*, as usual, is besieged with letters obnoxious; the *Athenæum* exonerates in the same strain; the *Specimens* and other general papers, as distinguished from these of the class, have entered on and used the matter in an anxious spirit; so we are justified in speaking of the public as we have done, and we are also justified what we have said on the topic in our numbers, in resolving to carry into

effect what we had hoped would have been spared us, namely, the publication of Sir Robert's elevation as *given out*, and not contradicted by any counter-print, and another elevation embodying the views and principles which, taking all circumstances into account, and considering the integrity of the structure, we would submit, *ought to be carried out*.

It is in this way that we prefer to exercise our privilege of criticising and commenting on another's works. Something more than merely taking exceptions, or pointing out loose general principles of design, is required of us, and this we shall carry into effect, therefore, in No. 42. We propose to give these Designs in *comparison*, and to accompany them by such remarks at length, such an account of the whole matter pertaining to the Museum, and Sir Robert Smirke's connection with it, as will enable our readers to form a right estimate of the respective merits of both Designs, and in particular of Sir Robert's, and his conduct in the whole affair.

WESTMINSTER BRIDGE.

THE "Engineer, Architect, and Surveyor" of last month has an interesting engraving shewing Mr. Barry's proposal for Westminster Bridge, to bring it into harmony with his design for the "New Palace," as the Parliament Houses are now termed, and it also contains Messrs. Walker and Burges' and Mr. Barry's disquisitions in the shape of replies and reports. We shall present our readers with all they will require, to judge of this matter at an early stage, meanwhile we may content ourselves with saying that we cannot compliment either party upon their performances; if any thing, however, Messrs. Walker and Burges seem to have the best of it. Both revert to authorities, as if they were afraid to utter dicta of their own, when their reputation ought to be sufficient authority for any thing they may choose to hazard as of their own conviction,—otherwise they have badly aspired before and been unwisely trusted. In Mr. Barry's design for the bridge, there is somewhat too much of what we term "Wren's Gothic," and a solecism as regards the parapet, which, as coming from such a man, is inexcusable. The parapet of the bridge is made the exterior cornice, at least if we are not misled by the engraving. Mr. Barry is aiming at a flat, *suppressed* composition to break in with the "New Palace," and appears to us to be committing the same mistake as in the palace itself. The general expression is that of horizontality—long stretched and stratified lines—and only made into Gothic by elaborate details stamped on the surface as if to designate the

style, much after the fashion of the old painters who would append a label to their pictures, stating "This is a man," "This is a horse," and so on. There are some points of good thought in the bridge design, especially as regards the structure of the arch; the curvature of each limb of it being necessarily slight, he has thrown length into the *voussoirs*, so as to compensate for the want of wedge form which a quicker curve would generate. The discussion as to the merit of a Gothic arch for a bridge appears hardly to have been turned on the right drift by either party; an arch for bridge traffic is exposed to very different strains to that of one covering in a door or window-opening in lieu of a lintel, and the line of argument would vary accordingly: we think it does not so sufficiently in this case.

BUILDING MATERIALS—GRANITE.

WHAT so fitting as that, in approaching the subject of building materials, to be pursued through a series of articles, we should take up, as first in the division of building stone, that first and primary of the products of the rock and quarry—GRANITE? We will not lay down any arbitrary rule for the treatment of our subject, for we believe, if we were to do so, it would be less inviting to our readers than a sort of half-desultory, half-systematic mode; we believe that in giving our own, and inviting our readers' attention to these things, in the way in which they arise to attract it in the ordinary course of business, that the end of profitable information may be best answered. Men immersed in the active engagements of commercial and trading life cannot turn aside to engage in abstract or abstruse investigations, and we never knew of a practical people which did so. It was wisely ordered among the ancients, by that school of philosophers which obtained the name of the Peripatetic, that they should discourse of learning as they walked, and in this country, with equal fitness, men require to do so as they work, to lay their hands upon the material, and simultaneously, as it were, to discuss and acquaint themselves with its properties.

Neither shall we, in thus handling our subject, pursue a scholastic method, we shall the rather aim at the reverse; we shall note or recite the facts as we have them in active array before us, and then return, as it were, to inquire as to the rudiments. In treating of granite, for instance, we shall give a kind of *workday* review on the site of our labours, and select one particular species of the material to descant upon, first, as to that which relates to it in ordinary and peculiar, and afterwards as to granite generally.

The granites of Aberdeenshire, including

those of Peterhead, have long been known and highly appreciated in various public works; the grey, or blue, being used extensively for paving the public streets, as well as for building purposes, and the red granite of Peterhead in the formation of the works at Sheerness Yard. In the construction of Waterloo Bridge, the late Mr. Rennie, though attached to his native granites, was compelled by the difficulty of obtaining a sufficient supply of blocks of the requisite dimensions within the period assigned for the work, and at any reasonable cost, from the quarries in Aberdeenshire, to resort to the quarries in Cornwall, and thus another quality came to be introduced into the metropolis.

The various qualities of the superior granites were, however, brought under public notice when a material was required for the new London Bridge, and after a variety of experiments, of which we may afford some information in a future article, the grey granite from Aberdeen, and the Haytor granite from Devonshire, were decided to be superior, and recommended for that work by the Royal Society, who had undertaken the investigation; the result of which was that one façade of the bridge was executed in Aberdeen granite, and the other in granite from Haytor.

The facilities obtained for the introduction of granite in various ways have, since that period, made it available in many of our public buildings, amongst which may be enumerated the Goldsmiths' and Fishmongers' Halls, where it is used for the plinths, and in the Westminster New Prison; in the latter building the pediment is formed of one block, weighing no less than twenty-nine tons, and other blocks of enormous dimensions were at the same time supplied from the works then existing on Dartmoor. Subsequently, the extensive quarry at Foggin Tor in Devonshire (upon the line of the Plymouth and Dartmoor Railway) was opened by the Haytor Granite Company to an extent which has reduced to certainty the facilities for obtaining blocks of almost any dimension, within a very limited time after order, and at a moderate price. It has been used in many places, but we need only refer to the beautiful Graving Dock at Woolwich, completed by Messrs. Grissel and Peto, under the direction of Messrs. Walker and Burges, (the government engineers), and the Nelson Memorial in Trafalgar-square, by the same contractors, under Mr. Railton, to attest the reputation of this superior granite. It is close grained, a quality for which the northern granites have been esteemed, and it is uniform in texture and appearance. It is also free from the defect of what is termed "horse tooth," so much objected to in the first granites introduced from the Haytor Company's quarries in Devonshire. We could point out many instances of the advantage of using granites in architectural works as well as in those of the engineer. If the plinth of our cathedral of St. Paul had been of granite, how different would have been the appearance it would now present, as well as the curb in which that beautiful railing (the first specimen, by the way, of cast-iron railing) is imbedded. These remarks are applicable to the curbs for railings in all our squares and areas, and the plinths of every public building; nor should it be less regarded as an article of superior durability and beauty for steps (for which it may be obtained of great lengths) at the entrance of public and private buildings.

The late Sir Jeffrey Wyatville employed granite extensively for steps and landings in the entrances at Windsor Castle, and it may

be seen in its various qualities at some of our cemeteries, particularly at Kensall Green, where a tomb, now in the course of erection by Charles Oldfield, Esq., for his own family vault, has a base in a single stone 10 feet 6 inches square, and 2 feet thick in the centre, which was procured, after a short notice, from the quarry at Foggin Tor.

The works at this quarry we have recently had an opportunity of visiting; they are now on a magnificent scale (which we shall describe more at length in a future article), and after a vast expenditure to the company, they may be said to be covered with the machinery termed "jemmies," similar to those now employed for fixing the stone at the New Houses of Parliament, and some other public buildings,—so that blocks which present themselves of dimensions suitable to any order which is lodged at the quarry, may be transported immediately from any part of the rock, without waiting for the operation of what may be termed "clearing," and so be forwarded at once to their destination.

It is not our intention at present to enlarge more particularly upon the advantages which present themselves for procuring this material, and the certainty of all the subsequent operations of labour being brought within a limited estimate; but we understand that the contractor, as well as the architect and engineer, will find that such objects can be attained without any of the risks with which the performance of such work was formerly attended. In one other respect the advantage of using granite should not be overlooked: where stones of porous quality are introduced for the facing of public buildings, the damp which is imbibed from the substratum is so completely checked by the use of a granite plinth, that it may be said to be essential to durability. And this plinth, or it may be a mere sill course, could be applied under the direction of a skilful designer with great efficiency as to the general character of the structure. But as to granite architecture, if we may so speak, at which, with other branches of the subject, we have given occasional side glances in the progress of this article, we must reserve ourselves, as we explained to be our intention at setting out. We shall have to shew that granite and every other material has a peculiar expression or idiom, which it is important to be acquainted with for the end of right design, and, in fact, that this understanding of the subject is of greater consequence than many things to which more importance is usually attached.

TRINITY COLLEGE, PERTH.—We understand that the plans for this institution (to be erected on the estate of Cairnies, about eight miles north-west of Perth) have been finally approved of, and that the buildings will be commenced in the spring. The plan is in the English collegiate style of architecture, and does great credit to the talent, taste, and skill of the architect, Mr. Henderson. The buildings, when completed, will form a spacious quadrangle, with a bell-tower and chapel separate. The west front is to contain the entrance gate, and residences for the warden, sub-wardens, and tutors; the north is to contain the class-rooms and dormitory; the east, the hall and library; the south front is to be an open cloister. In the meanwhile, it is proposed to execute only the portion of the building necessary for opening the school department, and the theological part of the institution will not be in operation for some time. The college will contain about 250 boys, who are to reside within the building, as at Eton, and to be otherwise educated as in that great English seminary. The building is to be constructed of a very fine durable stone, which is found in great abundance upon the property, and a quarry of which has been opened, and is already in operation.—*Perth Courier*.

VENTILATION AND WARMING.

MR. DAY'S LECTURE.

ON Wednesday night last, we attended a lecture given by Mr. Day, in the Hanoversquare Rooms, on the subject of Ventilating and Warming Buildings, Ships, &c. We were greatly pleased to see so large an attendance, and particularly so to find that many ladies were present, proofs of the growing popularity of this important subject. Mr. Day's lecture was plain and practical, and after going over a general sketch or review of his subject, he entered into an exposition of his own particular plans, which he had the good sense and honest candour to avow was one object of his undertaking the task he was engaged in. He did not trouble his auditory with much of theoretical disquisition, but contented himself by adverting to the well-known deductions of those who have philosophised on the subject; such as relate to the quantity of air required for respiration, the changes it undergoes in respiration, and the deleterious effects arising from the frequent inhalation of one atmosphere. He said little on the subject, but his opinion appeared strongly, we may say decidedly, to bear against the practice now advocated and adopted by several of our first engineers of bringing in the air at the top and taking it out at the bottom of the room; in fact, he asserted it could not be done without a waste of power; by which, we suppose, he means also, that it cannot be done with true economy. We dare not say so much, and we think it would puzzle himself to account for some phenomena or atmospheric action relating to natural currents, which the subsequent part of his lectures gave an insight of. However it is not for us to dispute, especially with a gentleman who has so successfully operated in many cases of difficulty. His practical exposition referred to the forced regulation of currents of air, warm or cold according to the season. The supply is introduced at the floor through perforations in it, or in the skirting board, &c., and it is drawn off at the ceiling by the aid of a cylinder and a revolving fan on the principle of the Archimedeal screw, kept in motion by a weight in the same way as the old roasting-jack. This fan revolving, carries or draws the air upwards, and the place of the air drawn off is supplied in exact proportion by the cold or warm air-duct under the floor. The experiment was ingeniously illustrated by the glass model of a room, and with smouldering or half-burnt paper placed on the end of the supply tube, a dense smoke was presently seen, like the rising of a mist, all over the floor of the room, slowly and gradually ascending to the ceiling, and passing off by the apertures, above which was in work the ventilating fan.

Of four classes of chimney nuisances he spoke of the remedies.

The 1st arising from an imperfectly formed flue.

2nd. From sluggish draft.

3rd. From downward draft, and,

4th. From gusts of wind acting occasionally.

Various remedies exist for the three first named, such as pertain to the regularity of the supply of air to a room, as well as the alteration of the flue; but the famous specific, we may call it, in plain, honest meaning, for the last described defect, is the wind-guard of Mr. Day's invention. It was shewn by various experiments to be an instrument perfectly adapted to the end when rightly applied, about which he sketched out directions—in fact, that whether the wind blew from this or that quarter, or up or down, it was a beneficial agent in creating a draught for the smoke.

His plan for generating warm air is ingenious; a furnace and boiler, with air flues passing through the latter, communicating at one end with the exterior atmosphere, and at the other delivering it to the duct for warming the building. Mr. Day related that he had applied it with great success at Walmer Castle on the occasion of her Majesty's late visit thither.

We cannot go over more of the ground that Mr. Day occupied, or shew, as he did, the application of his plan to ships, mines, &c., but we can assure our readers that it was a valuable practical lecture. We wish some of Mr. Day's remarks could be borne in mind by many of his brother inventors; about the conclusion he said, with great modesty, that he set up no par-

ticular claim of extraordinary merit for the exercise of his talent and industry. He had performed a duty, and was, he thought, still discharging one in exerting himself to push forward the results for the benefit of the public, from which he of course might derive his own legitimate reward. Many, he remarked, were the inventors who complained of want of due patronage, but in many cases, he feared, the fault lay largely with themselves. We fear so too—but cold comfort lies in such a conclusion. We fear it, but we feel it more. We are resolved to give counsel in our best fashion to remedy it. It were as good to do this almost as to cure all the smoky chimneys.

ON ECONOMICAL COMBUSTION AND EVAPORATION.

BY MR. HENRY DICKES, FURNACE ARCHITECT AND ENGINEER.

(Communicated to the Pharmaceutical Society, October, 1843.)

A KNOWLEDGE of the chemistry of combustion can alone lead to the economical production and applying of heat from any kind of fuel. The only work in which this subject is thoroughly examined, both chemically and practically, is the excellent treatise on the "Combustion of Coal," by Mr. C. W. Williams, in which is pointed out the source of error in many of the expedients which have been contrived for "smoke burning," all of these being more or less deficient of the means for consuming the gaseous products of the fuel; while great ingenuity is displayed in their contrivances for excluding air and providing a mass of incandescent fuel in or over which the smoke is to be burnt, that smoke which is merely the result and evidence of imperfect combustion. These smoke-burning processes are generally abundant generators of carbonic oxide, and this flying off, becomes one source of waste, while the expenditure of heat in producing it becomes another, and the destruction of the furnace, in conducting the operation, a third, and most serious one to the manufacturer.

The leading feature developed in Mr. Williams's treatise is, that if gas in jets be supplied with air, or air in jets be supplied with gas, combustion will be perfect, and a smokeless flame produced. In close furnaces, the gaseous products of the fuel can only get air through the grate bars, the doorway, or some accidental inlet; but in no common furnace is the supply of air be adequate for the complete combustion of the gas. Mr. Williams proposes this needful supply through a perforated distributor, carrying the air into and mixing intimately with the large volume of gas, producing bright instead of dark smoky flame, and consequently the gas is burnt, and smoke prevented. From its near approach to the principle of the Argand lamp, this plan has been designated the Argand furnace; in the we see jets of gas thrown into air, in the latter, numerous jets of air thrown into an atmosphere of gas; stop ever so partially the admission of air to either, and smoke is instantly produced; both aim at obtaining extent of surface to secure better diffusion and more intimate union.

The crude, impure, coal-gas evolved immediately after each fresh charge of fuel, without any supply of air thus judiciously given, would, being only partially burnt, be wasted in the form of smoke, which, fouling the exterior surface of the vessel, considerably lowers its evaporating power, while at the same time, as a necessary consequence, much of the available heat of the gaseous fuel is lost, and dependence is only on that given off by the solid incandescent fuel. The efficacy of the plan now under consideration is placed beyond a doubt by the fact of 320 having been successfully tested during the last eighteen months for steam-engine furnaces, and the same arrangement put on board no less than twenty-five steamers, providing practically what we know to be correct in theory, and which is further confirmed by the testimony of Doctors Brand, Kane, and other distinguished authorities.

Next to the obtaining of perfect combustion, great attention has been paid by many to means for increasing the evaporative power of

"The Combustion of Coal," illustrated with coloured engravings, by C. W. Williams. 8vo. Second Edition. London, 1841. Pp. 184.

boilers. This Mr. Williams effects by studding the boiler plates with wrought-iron pins, made of $\frac{1}{2}$ inch round iron, and each 3 or 4 inches long; these are screwed into the boiler from the outside, or made slightly tapering and driven from the inside through holes drilled for the purpose, until they project within to only about 1 inch. This internal projection may be beaten down to a rivet head, thus providing for the easier cleaning of the boiler when incrustated with shelly deposit of carbonate of lime. The bottom of the boiler, together with the ends and sides exposed in the flues, may in this manner be bristled over with conducting pins 3 or 4 inches apart, giving an increased evaporative power up to 25 per cent., or more. A boiler of this description is an excellent absorbent of the heat, the flame and heated air impart their caloric to the pins, and these in like manner to the water, whereby ebullition is greatly promoted.

Another rapid and exceedingly ingenious steam generator is that invented by Mr. Andrew Smith, consisting of a cast-iron trough, in which a fusible alloy is kept at a temperature of from 400 to 500°; imbedded in this melted metal is a wrought-iron tube of 1 or 2 inches diameter, bent to a serpentine or zigzag form, and protruding at each end of the trough. The whole of this arrangement is inclosed in a furnace in which coal or coke may be burnt, presenting great economy of space from not being more than one-tenth the usual dimensions. Supposing one end of the serpentine tube to be connected with the steam-pipe of an engine, the other end would have attached to it a force pump, and as often as water is forced into the serpentine pipe, the whole is immediately converted into steam, and escapes under such pressure as is provided at the other extremity of the pipe. In this operation the force pump may be worked constantly, or at any stated intervals, as there is not the usual danger attending the absence of water in the boiler, which is perhaps the most striking and characteristic feature in this invention. The fusible metal melting at 300°, and taking up heat 32 times more rapidly than water, is a constant reservoir of heat, which the water forced through the bent tubing cannot exhaust, when properly proportioned to the work required. The foregoing remarks contain hints which it is hoped will be found interesting and useful to all who are concerned in pharmaceutical operations on a large scale, as pointing out means, both scientific and economical, for the production and application of heat, whether for steam power or otherwise. The object of these improvements is to obtain the combustion and heating effect of that gas which, in ordinary furnaces, is wasted, to impart to boilers that heat which usually escapes, and to produce the largest quantity of steam on a small scale of boiler and furnace with certainty and safety.

77, King William-street, City,
October, 1843.

IMPROVED STEAM GENERATOR.

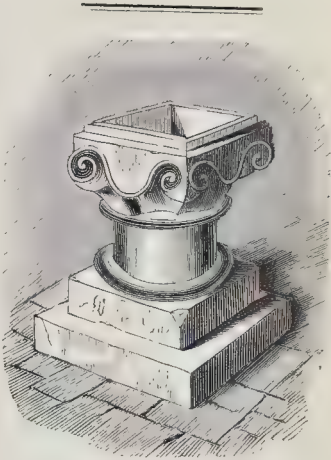
(Patented by MR. A. SMITH, Princes-street, Leicester-square.)

As an apparatus for the more rapid generation of steam for engines than can be effected by any of the variety of boilers hitherto invented, when the fire is merely in contact with the outside of the tubes or vessel containing water, was some two years since patented by Mr. Andrew Smith, but from the increase of business connected with the introduction of the patent wire-rope demanding close attention, the "steam-generator" has not been sufficiently brought before the public, and we believe is but little known. The principle is simple, but highly effective; instead of the fire acting at once on the vessel containing the water, a body of metal capable of dissolving at not less than 300° Fahrenheit, is employed as a medium between the fire and generating tubes. An iron vessel is set in connection with the furnace on the same principle as a common boiler; near the bottom a series of iron tubes run the whole length of the vessel, and forming one continuous channel, one end is connected to the force-pump attached to the engine, and the other with a series of steam receivers, all connected, and to which the safety-valve is applied in the usual way.

A compound metal in due proportions, consisting of bismuth, lead, and zinc, is placed in

the vessel in sufficient quantity to form a complete metallic bath, covering the generating tubes, but not to reach the receivers; this molten bath is generally kept up to a heat of about 500°, and the pump is so regulated to the size of the generator and power required, that at each stroke of the piston of the engine only sufficient water is injected into the tubes to supply steam for one revolution of the crank attached. On the injection of the water into the heated tubes, it is instantaneously converted into steam, passes into the steam receivers, and from thence to the engine cylinder, when, having performed its duty, the stroke of the piston injects another sufficient portion of water for the next stroke—thus keeping the receivers continually supplied, without an accumulation of more steam than is absolutely necessary for the proper performance of the engine. The great advantages afforded by this generator are, economy of fuel—less variation in the heat of the tubes, and, consequently, greater regularity in working—and the absolute safety from bursting, 1,000 lbs., at least, per square inch, being required to fracture one of the tubes, and should such circumstances by any chance occur, it would have no effect beyond the interior of the bath, and a new set of tubes could be inserted in a very short space of time. The small space occupied by this apparatus, in comparison with any of the old boilers, being about one-twentieth the usual size, is of much importance, and we recommend an inspection by all persons employing steam-engines.

By way of further comment, we cannot help considering this invention as one of the most ingenious and useful of the day. The economy of space is immense, and the equalization of temperature much more complete than has hitherto been attained—a point of extreme importance when the cost of fuel is taken into account.



FONT, PORTISHEAD CHURCH.

W. BENNETT presents his respects to the Editor of THE BUILDER, and has sent him the above drawing of the stone font, Portishead*, and should it be deemed worthy a place in THE BUILDER, it is quite at his service. He will please to make due allowance for any imperfection, when he knows it is from an unskilful hand. Should this find favour, he may try his hand again at a very good Norm doorway in Portbury Church, the next parish to Portishead.

Tring, 10th Month, 10th, 1843.

The *Presse Industrielle* mentions the accidental discovery of a mode for preventing the calcareous deposits being formed in the boilers of steam-engines. A sawyer of mahogany in the Foubourg Saint-Antoine, whose machinery is worked by steam, perceived a short time since, on opening the boiler to have it cleaned, that there was no depo it whatever, but that some mahogany sawdust had by chance been introduced. He has since then repeated the experiment, and found that in all cases the sawdust keeps the boiler clean.

* Portishead.—Parish in hundred of Portbury, Somerset, 8½ miles N.N.W. of Bristol, 566 inhabitants—a rectory.

BENTLEY'S PATENT PORCELAIN LETTERS.

"Come like shadows, so depart."
SHAKESPEARE.

WELL, and it may be asked by some of our readers, how do shadows come? We can recollect that in the days of plain painting and stenciling, they came not at all; and when Mr. Bentley made an advance upon the mode, shadows came only when the sunshine came; but so do people become adepts, and skilful, by long practice, in their particular art, that the very laws of nature seem to come under their control. And as Joshua could command the sun to stand still, so Mr. Bentley attained to a mastery of its attendant shadows, and actually nailed them to the wall, or screwed them to our sign-boards. Who, that does not remember the first administerings to our cravings in the wood and block-metal letter way? But then, bold and substantial as the style assumed to be, indicative of the well-to-do, as though we could afford the labour we mocked; and in imitating stones and marbles, there was the boast of the *basso relievo*, of generous cuttings away, instead of the mere cutting and notching in; still bold, we say, as the style assumed to be, the bold block-letter looked very lugubrious in a cheerless, sunless day; and even when the sun did shine, there were to be seen one-half these tenants of a street sleeping sulkily in the shade of one side, while those of the other looked jeeringly across, with brightly lit-up faces, and rich in the companionship of those friends in good fortune, telling *trystful* shadows.

Mr. Bentley, we suppose, had seen this, and taking active heed of the wants and denials of his progeny, wishing to be the impartial parent of all his lettered family, getting a trick or two perhaps from the Greeks, whose dandling of the shadows he might have heard of—or rather of their painting and tattooing them—Mr. Bentley, in the fulness of his heart or head, we care not which, determined that there should be no priority of privilege amongst those he had called forth, in fact that it should be a "republic of letters,"—all on terms of equality—every substance its shadow, and every shadow a substance: then came forth the family of *solid shaded letters*, and then was achieved their independence from the laws of a solar despot, upon whose smiles they had before so much depended, and beneath whose frowns they had sorrowed and had pined. But in time it came to be observed that there was another rule from whence the democracy of the alphabet had to be emancipated—a pettier, and, therefore, also, one which a less doughty champion might with full effect assail. The broad sunlight had been defied, and mere daylight made a stipulation, and eke the gas-limiting the sleep of letters to that of their betters—*men*—yet there was a spirit of *foul and filthy* province, one who sets her throne up with many of the same *kidney*, in crowded towns and cities,—“their name is Legion”—there was the murky and grim-visaged idol aping the powers of a God, and setting the stamp of his image upon all the fair things of Bentley's creation—soot, and filth, and grease, its agents, brooded on and about those objects of their lewd attachment, and all corrodingly, as all parasites do, into the heart and vitals of their victims—so wooden letters, all bedizened though they were with gold and colours, fell speedy victims to the foul insidious; and nothing but the furnace-ried were thought to be capable of withstanding them; thenceforth, we had the porcelain ABC, fused, and baked, and glazed, proof against the insinuations and assaults of the enemy in question; spruce, blithesome, and cheerful, in every aspect and condition, and sporting all the colours of the rainbow, with full immunity from the jealousy of all assailants.

But all was not done as yet; there was a superficiality at best in all these workings, and the refulgent light of science was invoked in behalf of the mystic and cabalistic signs. Isometry came to Mr. Bentley's aid, and between them was produced the subject of a patent. Isometry, which may be mistaken by some as one of those foreign gentlemen who make *communications from abroad*—isometry, whose name is not in the patent, had a principal share, however, in the next stage of pro-

gress, for dependent upon it, and through the efficacy of its rules, projection is given, and bits of metal plate, and then porcelain, assume all the aspects of depth and solidity.

How far all this may square with the dicta of modern crusaders against “pretensions” and “impositions,” we shall not now stand to inquire. Imitations of marbles and metals, but worse than all, imitations of shadows and substances, may excite their wrath, but invention must go on, and under it, the influence of exterior circumstance be gradually weakened, until innate existences are fully developed. We have heard of illuminated letters, but these are but the type of what we may expect to see, when inventive genius takes to giving the definition of the word. It will not surprise us to see our streets lit by *glowing metaphors*, and truly illuminated letters shining from the facias of our shop fronts, independent of daylight, as well as sunlight.

VALENCIA SLATE.

THE introduction of this material into the market, as it is now brought forward, will have an extraordinary influence on building commerce; the prices are so moderate as to compel the use of it in a hundred cases where other materials have been before applied, and also to suggest its application for a hundred new uses; it comes in a fully prepared state, sawn fair on both sides, and taken to a gauge of length and width. The objections which the first importations were exposed to, as being from the upper working of the quarry, are now done away with, as a superior solid quality is being obtained from the lower beds, the quarry being largely opened, and working on an extensive scale. $\frac{1}{2}$ inch slabs—and every body is now acquainted with the superior bearing powers of slate over all other descriptions of laminated material—may be had at the low price of 4d. per foot up to 6 feet by 3 feet 6 inches, $\frac{1}{2}$ inch 5d., and inch at 7d. So much is being done in slate, and so much remains to be done. So much of national prosperity is hinged upon the full development of the worth of our slate quarries, and so important is the question to art and industry, that we shall embrace an early opportunity of dealing with the question of “Slate Architecture,” as we propose to do with the granites, with iron, and other native products, convinced that by so doing we are pursuing the best course of practical patriotism.

VENTILATION.—Did people put proper value on ventilation of apartments, as regards health, it would be more attended to than it is, of which the following fact is a proof. Some years back no less a number than 2,944 infants, out of 7,650, died in the Dublin Lying-in Hospital, in the space of four years, within a fortnight after their birth. It was discovered that this circumstance arose from the want of a sufficient quantity of good air. The hospital, therefore, was completely ventilated, and the proportion of deaths was reduced to 279; so that out of 2,944 who had perished in the four preceding years, no less a number than 2,665 had perished (if not solely, nearly so) from the foulness of the air. Bed-room windows (others, of course) should be left open the greater part of the day, in all seasons of the year; no bed should be made for at least three hours after it has been occupied; and, previously to its being made, all the clothes belonging to it should be exposed separately to the air.

MINERAL WEALTH OF IRELAND.—It is not only in its agriculture that Ireland is susceptible of great improvement; almost every county abounds in mineral wealth; iron, copper, lead, silver, tin, antimony, and gold, are found in various districts; three former are rich ores, capable of being easily worked. Sulphur, cobalt, talc, ochres, gypsum, fuller's earth, marble, porphyry, granite, slate, and lime are abundant. The minor productions of the counties through which the railway (Dublin and Cork) would pass, have been thus specified:—Cork—Coal, iron, copper, lead, ochres, and potter's clay. Tipperary—Coal, iron, copper, lead, silver, talc, slate, and marble. Waterford—Copper, iron, green marble. Limerick—Coal, iron, copper, lead, slate. Kerry—Lead, copper, cobalt, and marble. Kilkenny—Coal, iron, marble, jasper, pipe-clay, and granite. Queen's County—Coal, iron, copper, and marble. Carlow—Talc, marble, ochres, and granite. Wexford—Coal and lead. Wicklow—Gold, copper, iron, tin, lead, sulphur.

NEW CHURCHES.

Penzance.—A new Roman Catholic chapel was opened at Penzance on the 26th ult.

Wrotham.—The new church here, to which we adverted in our last, is from the designs of Messrs. Whitchord and Walker; it affords accommodation for 500 persons; the plan is cruciform, and includes a chancel, nave, and transepts; the style is early English, with a large western tower. Its roof is of timber shewing internally the entire framing. The nave and transepts are fitted up with low pews and free seats, and the chancel entirely free from any encumbrance. The church is also without galleries, except the tower, which is to contain an organ and singers. The church is situated in a most romantic and elevated situation on the road to Plaxton, and the tower, which is 65 feet high, is visible for very many miles round. A very chaste and beautiful stained-glass window over the altar, the munificent present of the Rev. — Randolph, attracted universal admiration; it is of very elaborate design in imitation of the early English stained-glass, and produces an admirable subdued light over the whole of the chancel. A very handsome silver altar service has also been presented to the church by Miss Yates, of Fairlawn, and a stone font by Colonel Austen.

Swansea.—A new church in the early English manner, from the designs of Messrs. Wyatt and Brandon, architects, was opened here on the 26th ult. It is styled Trinity Church. It is 127 feet by 47, interior dimensions will accommodate 1,200 persons. Mr. Baker, of Bristol, was the contractor, under whom were Mr. Bird, the mason, and Mr. Crispin, carpenter; the cost 2,490*l.*, which was raised by private subscription.

Headless Cross.—A handsome church, after the Norman manner, by Mr. Harvey Eginton, of Worcester, was consecrated on Friday se'night. It is built of stone, and liberally adorned with carvings.

Oldswinford.—The new parish church, in the style of the 13th century, was opened on Sunday se'night. Stained glass and rich tracery adorn the windows; 5,000*l.* has been spent in its erection, raised from voluntary subscriptions and grants from the Incorporated and the Worcester Diocesan Societies. It contains 1,487 sittings, of which 784 are free.

SCHOOLS.

Hereford.—An attempt is being made to divert upwards of 6,000*l.*, the funds of the Scudamore charity, to building and endowing schools for poor children, in the city of Hereford. The bishop, we understand, is opposed to it.

Agricultural Colleges.—The establishment of this most important class of institutions is now being advocated with renewed energy. The *Wiltshire Independent* has a lengthened article on the subject in last week's number; allusion is made to the experimental farm at Templemoyle, Ireland. These things are inevitable results of the present tidal progress of events; nothing can hinder, nor much longer stay their introduction generally.

PUBLIC WORKS.

Harbours of Refuge.—In the Report of the Parliamentary Committee on Shipwrecks, it is recommended to appropriate a large sum from the national funds in the construction of harbours of refuge, particularly in the channel.

County Asylum, Lancaster.—The magistrates voted 8,500*l.* on the 27th ult. for the enlargement of the asylum.

Burton-on-Trent.—We understand it is in contemplation to make a canal from the River Trent to the principal breweries of this flourishing little town.

Victoria County.—We understand the Company of Proprietors for reclaiming the great estuary of the Wash below the ports of Lynn, Wisbech, and Boston (whereby upwards of 250,000 acres of land will be brought into cultivation, and a county of more extensive area than the county of Rutland will be established, to be called Victoria County), have determined not to apply to Parliament in the

ensuing session, although quite prepared to deposit plans and take other preliminary steps for that purpose.

After a long slumber and apathy, the country seems to be arousing itself to a sense of the necessity of action in respect of improvements and great building undertakings. We reported last week of Southampton, and this week we may refer to the long stagnant city of Coventry. The Estates Committee of the corporation have reported in favour of new water-works, it appearing that of upwards of 7,000 houses in that city, not more than between 300 and 400 have water laid on to them; they recommend, also, a public cemetery, the church-yard accommodation being the same now for upwards of 30,000 inhabitants as it was when Coventry numbered only one-fourth of this amount; the improvement and cleansing of the now filthy river Sherborne is also advocated; and as Coventry has lately become an independent assize town, it is recommended to build or otherwise provide suitable "judges' lodgings," &c.

The committee formed for the purpose of carrying into execution the proposed pier at Hythe have selected from among the numerous designs submitted to them, the plans of Mr. John Elliott, architect, of Southampton and Chichester, and the committee having called in the assistance of a civil engineer to report on the practicability and construction of the design so selected, have since awarded the premium to Mr. Elliott.

The Lords of the Admiralty are about to enlarge Woolwich dock-yard, and form a factory for the manufacture of steam boilers.

The interior of Winchester Cathedral is undergoing restoration under the superintendence of Mr. Richardson, who restored the Temple Church.

RAILWAYS.

Atmospheric Railway.—The complete success of this undertaking is now established beyond all controversy. For the last fortnight trains have been running regularly between Dalkey and Kingstown, from two till five o'clock, with the utmost punctuality and uninterrupted regularity. Some thousands of passengers have passed to and fro on the line without the slightest accident occurring. The trips were suspended yesterday for a few days, in order to enable the line to be opened the entire way from Kingstown station to Dalkey. The permanent way is laid—the rails are down, and in the course of a week or so the entire line will be opened. The Dalkey station is in a state of forwardness, and there is every prospect of the works being immediately commenced to extend the line to Bray.—*Dublin Paper, Oct. 27.*

Salisbury.—The survey of a line between Salisbury and Bishopstoke is now in progress, preparatory to applying for a bill in the next session of Parliament to join the South-Western Railway at the latter point.

New Branch Railway.—It is stated that a junction line from the Swindon station, on the Great Western Railway, to the Andover-road station, on the South-Western Railway, is in contemplation, and that surveys are now in progress. The distance we should suppose is about 40 miles.—*Railway Times.*

Le Journal des Chemins de Fer announces that the directors of the Rouen and Havre Railroad Company have concluded with M. Mackenzie and Brassey the most important contract ever made in France:—"The principal works on the Havre Railroad are the bridge of Rouen, seven tunnels of an extent of 6,500 yards, and a viaduct of 27 arches in the valley of Barentin, being 33 yards in height from the arch to the centre. These works will cost from 13,000,000fr. to 14,000,000fr. They are to be entirely completed in May, 1846. The embankment and the tunnels are contracted for at a discount of 20 per cent. on the prices paid the same contractors for the Paris and Rouen Railroad. The cubic yard of embankment to be paid 1fr. 25c. (1s. British), a superficial yard of tunnelling 88fr. (nearly 2l. British)."

Large numbers of men have been set to work on various parts of the London and Birmingham Railway, by order of the directors, at the different places where appearances of slips in cuttings or embankments present themselves.

BUILDING GROUND.

ROBINS V. PHILLIPS.

Measure of damages—Use and occupation.

M. D. Hill moved for a rule nisi to reduce the damage or for a new trial. This was an action for the use and occupation of a piece of ground which the defendant had verbally agreed to take of the plaintiff upon a building lease for 99 years; but upon the lease being tendered, he refused to execute it, or to have any thing more to do with the ground. The only evidence to shew that he had taken possession was, that shortly after he agreed to take the ground, he put up a board stating that applications for the renting of the ground were to be made to him, and that this board remained up a fortnight or three weeks. The present action was brought for five or six years' rent, and the plaintiff recovered a verdict for the whole amount. It was now submitted that he was only entitled to recover for that period during which it was shewn that the board was up.—*Rule nisi.*

PISCINA, PETERBOROUGH CATHEDRAL.

SIR,—I now forward you a sketch of a Piscina, in Peterborough Cathedral. I have not the exact dimensions, but the whole height is, I believe, about three feet.

This, as you will readily perceive, was originally a very delicate piece of workmanship, but I regret to say its beauty is now much impaired by the numerous lime-whittings to which it has been subjected. The curves are all worn off, and the tracery choked up with lime. It is a great pity that such worse than Gothic proceedings cannot be put a stop to; but it is too true in this as in many other matters, *i. e.* that which is every one's business is attended to by none.

I am, yours very truly,
W. H. J.



Piscina.



Section of Mouldings.

* Piscina.—A stone basin, or cavity, with niche, generally used as an altar for the use of the priest previous to the celebration of mass, &c. It was furnished with a pipe to carry off waste water. There were double piscinas.

ON READING STEPHENS' TRAVELS IN YUCATAN.

(From *Fulcher's Ladies' Memorandum Book and Poetical Miscellany*, 1844.)

WHERE are ye vanished, ye mysterious race?
Ye for whom history's pen hath found no place
In her proud page?

As the bright dew-drop from the noontide rays,
So are ye vanished from our eager gaze,

Sons of another age.
We know how Rome has lost her queenly crown,
How Athens' sons of glory have gone down;

Your halls and temples stand in ruined state,
In silent pride and desolate;

But where are ye?
Whose were the hands that rear'd with patient toil
The mighty piles that strew with wreck the soil

Of lonely Yucatan?
Vain question! in the sleep of death are bound
They whose proud vestiges alone are found;—

Alas for man!
The wandering stranger now with wonder sees
Your haughty fane o'ergrown with clustered trees,
Where scorpions brood.

The lonely Indian's axe now rings alone,
Where courtiers bent around a royal throne,
And thousands trod.

Then fare ye well, ye children of the past,
O'er whom oblivion's silent stream hath cast
Its mournful wave,

As the pure snow-wreath from the spring's soft
breath,
So have ye faded from your native earth,
And sought the grave.

H. D. S.

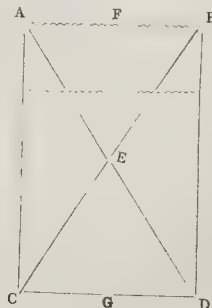
Correspondence.

PLAN FOR MEASURING INACCESSIBLE DISTANCES.

SIR,—The article which appeared in your last number, giving the details of a plan for measuring inaccessible distances, reminds me of a wonderful instance of intuitive knowledge of geometry evinced by a chief of one of the tribes of Western America, as related by Captain Marryat, in his new work, entitled "Narrative of the Travels and Adventures of Monsieur Violet."

I have transcribed the passage alluded to, as I think it will be perused with some interest by the readers of *THE BUILDER*.

"The most remarkable instance occurred when we were about to cross a wide and rapid river, and required a rope to be thrown across, as a stay to the men and horses. The question was, what was the length of the rope required; *i. e.* what was the width of the river? An old chief stepped his horse forward, to solve the problem, and he did it as follows:—He went down to the side of the river, and fixed upon a spot as a centre; then he selected two trees, on the right and left, on the other side, as near as his eye could measure equidistant from where he stood. Having so done, he backed his horse from the river, until he came to where his eye told him that he had obtained the point of an equilateral triangle. Thus, in the diagram, he selected two trees A and B, walked back to E, and there fixed his lance. He then fell back in the direction E D, until he had, as nearly as he could tell, made the distance from A E equal to that from E D, and fixed another lance. The same was repeated to E C, when the last lance was fixed. He then had a parallelogram; and as the distance from F to E was exactly equal to the distance from E to G, he had but to measure the space between the bank of the river and E, and deduct it from E G, and he obtained the width of the river required.



"I do not think that this calculation, which proved to be perfectly correct, occupied the old chief more than three minutes; and it must be remembered that it was done in the face of the enemy."



PERSPECTIVE VIEW OF A SUMMER HOUSE.

(From a Design furnished by a Correspondent.)

ON THE FAILURE OF ARCHITECTURAL COMPETITIONS.

No. 1.

I was some time since walking, with the assistance of my crutches, down a rather plebeian portion of the Holborn district, when my attention was arrested by an exclamation from a little boy to his sister—"Oh, Jenny, look at that poor blind man." I am too accustomed to expressions of pity and goodwill from the lower orders (as they are termed) to pay much attention to them, but there was something so ludicrous in the heartiness of the lad's sorrow compared with the magnitude of his blunder, that I could not help noticing his sympathetic remark. I am not blind—at least physically—but lame. His confusion of maladies was as laughable as his expression of pity was honest and sincere.

Such appears to be the error of the architectural profession with respect to competitions. They all see a defect—they recognize an evil, but, like the boy, they have not yet learned to distinguish things rightly. They cry out because of blindness when lameness is to be deplored. The progress of architectural common sense is slow, and they would bestow spectacles when crutches were a far more fitting and more serviceable gift.

We have been told, with great emphasis and pomp, that the prominent architectural evil of

the present age is the partial prevalence of the competitive system, and the unfairness of many of the committees when competition is adopted. With equal solemnity have we been assured that the public enlightenment will by-and-by remedy these defects, and, in short, that when the public best understand architecture, they will be best able to decide on the merits of its professors. In pursuance of this theory many and various projects have been propounded for the instruction of that very varying body. Unoccupied benevolence has almost exhausted itself in devising plans, and the result is that we are complaining more than ever, and seem in greater perplexity now than we were at the commencement of the inquiry.

Nor need this failure excite much surprise. Neither the two frequent absence of competitions, nor the partiality of committees, can very readily be avoided, while those competitions derive discredit from the unfairness with which they are conducted, or these committees deserve reproach for the assuming ignorance of their members. In very few instances have men of taste and education been called upon to decide on the merits of plans submitted by architects to a committee. The history of competitions is fertile in instances of partiality and ignorance—the best proof that the evil exists is the outcry against its prevalence.

It is not difficult to trace this current to its source. If sempstresses were to fix the merits

of machinery, the absurdity would not be greater than is every day committed by butchers and tallow-chandlers sitting in judgment upon architectural ability. The errors we might reasonably expect from the one are as naturally committed by the others, and in each case from the same cause—total ignorance of the nature of the duties required of them. One instance will serve to illustrate my reasoning.

Shortly after the destruction of the old Royal Exchange, designs were advertised for, and premiums promised to the successful candidates. The intended outlay was named, and the accommodation required defined. Numerous competitors sent in designs; indeed, great part of the architectural talent of London put forth its energies on this occasion. The Gresham Committee sat and sat again, they at last felt their helplessness, their total ignorance of all that was necessary to enable them to execute their task; there were too many candidates for the exercise of influence, the appreciation of merit was beyond their ken; they were utterly prostrated, without intelligence, and beyond information. With the desperation of despair, they caught at the aid that two or three architects most connected with the city, and who had not competed, might afford them; Sir R. Smirke, Mr. J. Gwilt, and Mr. P. Hardwick were the judges to whom the committee delegated their authority, and these gentlemen proceeded with all zeal to the execution of

their duties. But, as if enervated by the connection, they forgot the demand upon them for an enlarged and liberal criticism; they looked not upon the luxuriant imagination of Cockerell or the chaste consistency of Donaldson, they became learned upon steps and chimneys, talked of optics and expense, and awarded the premiums to plans which they pronounced it unadvisable to adopt. Finally, their opinions seemed to be in favour of Mr. Cockerell, whom they had not distinguished by a premium, and when they had vacated their chairs, and the committee separated at Christmas (1839), that gentleman's was generally supposed to be the fortunate design.

But the field was now narrowed, and armed with all the knowledge that an inspection of the designs of previous candidates could bestow, and all the information that friendly influence could command, a new competitor appeared to dispute the prize, Mr. Tite descended into the arena; his previous apathy had departed; the oracles had at length spoken, and now that his influence could be concentrated, Mr. Richard Lambert Jones was himself again. The battle of interest was to be fought, and the Gresham Committee revived in its pristine vigour. Accordingly, Mr. Cockerell and Mr. Donaldson presented their improved designs, and Mr. Tite his new one. Personal influence was resorted to, and no statement was too absurd, no absurdity too gross, and no grossness too contemptible for those who fought on the side of the new comer to adopt. They dwelt upon the expense of Mr. Cockerell's design, their statements were disproved; they disparaged its convenience, and, what must have been of far more importance in the civic eyes, its superior rental capabilities were demonstrated; they declared the model which Mr. Cockerell had prepared an imposition, in opposition to all the first architectural writers, and upon the authority of an anonymous builder; and finally, after an apparent competition, which the whole profession scouted as a fraudulent deception, they conferred upon Mr. Tite the high honour of the majority of their suffrages and their choice. They did not invite public examination; this time their partiality would have been too glaring.

Such was the competition. The merits of the different plans may be discussed at another time. What Mr. Tite has accomplished we now see, what Mr. Cockerell would have done with equal opportunities we can only conjecture. Their respective merits were not the grounds of the committee's decision, they have never been specified, for except that they were influenced by audacity and interest, the committee can make no statement.

And why was all this? Is any man hardy enough to assert that had professional men of scientific knowledge and gentlemanly feeling presided over the contest different principles would not have led to a different result? Or will any one contend that civic honours, shrieval gowns, and aldermanic chairs confer architectural ability, discrimination, or taste? He who declared a model an imposition upon the authority of a builder whom he dared not name, was either an ignorant charlatan, or he was something worse than a quack in propounding as a truth what, if he knew any thing upon the subject, he must have known to be false. Those who so implicitly submitted to his dictum share the odium of his ignorance or his partiality, and in either case knew not how to decide themselves or to maintain the decision which others at their request had pronounced for them.

I speak not in censure of this committee alone. From the very nature of things any committee formed under similar circumstances could not have been expected to act otherwise. It is not in their nature. Interest they see at work above, beneath, and around them. It is essential to their existence, the atmosphere they breathe; and, even admitting that taste and knowledge would do much to modify the evils of such a state of things, they have it not. The chandler and the draper, the saddler and the potato-salesman, limited in education, called because of their wealth, and esteemed according to their ostentatious display, are not persons most likely to arrive at a satisfactory conclusion, when imagination and science are the matters in dispute. From men such as these are civic and corporate dignitaries principally chosen; they may be honest, in-

dustrious, persevering, skilful in trade, learned in calculations of bricks and mortar, even fluent speakers, and keen solicitors at law, but they are not for all this men entitled to sit in judgment upon the abilities of an architect, since architecture requires the study of years, and they can spare from the pursuits of commerce scarcely a single day. In all corporations, and in every other case where wealth and influence are the recognized signs of ability, unostentatious merit need not hope for an impartial trial, for its judges have not the knowledge that would enable them to be just.

Nor are those, to whom the choice of architects in the less important local edifices is generally intrusted, more competent to decide in matters of this description. Grocers and cheesemongers, fishmongers and publicans, butchers and coal-dealers, form at the best but a poor committee of taste. Judges of construction, or arbiters of architectural merit, they neither are nor pretend to be, at least in their sober moments, when the fumes exhaled from servility and vanity are evaporated; but none will question their appreciation of influence, none dispute their keen perception of what may tend to increase their trade. The vote given to an architect may sell more sugar, or fish, or cheese, or meat, to his friends; they may forswear tee-totalism in favour of some friendly publican, or dash into the arena of fashion to reward some miniature Stultz. The merit of the design sinks into the extent of its author's connection, and the tradesman's ledger becomes the standard of the architect's ability. Too many of our public buildings vie in beauty, as in uniformity, with the money lies of account-books not to place the patrons of their existence beyond a doubt.

That there have been one or two instances of employers leaving plan and decoration to the discretion of their architect, so far as was consistent with their convenience, proves nothing against the general rule. Perhaps half a dozen houses in London have been

built under such circumstances, and when their novelty has ceased to excite wonder, it provokes contempt. People have become accustomed to the decisions of the haberdasher and the publican, and the gin-shop and the shawl-warehouse are the standards of their taste. I question whether the plate-glass of Everington and Hitchcock has not excited more admiration than the Alfred Life Office, or the Strand front of Exeter Hall. I am certain that the French Protestant Church was not deemed half so meritorious as the Aldgate facade of Moses the tailor, ere smoke and dirt had obscured its coloured gewgaws, and stripped its imitations of marbles alike of their polish and their glare.

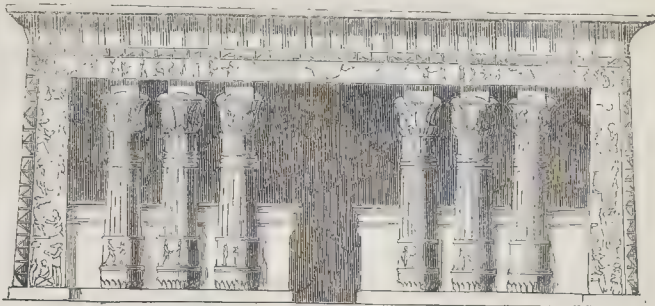
Nor have the fulminations of the Camdenists (who seem to have stood looking back upon the past until they have become rooted to the spot), aided by the vast influence of the clergy, with whose principles their views so well assort, been without their effect in ecclesiastical design. The school of Wren is forgotten, and that of Pugin is becoming popular: Christian and Pagan are the watch words. The Camdenists denounce every style but the pointed. Rectors and churchwardens are led away by their confident boldness, and architects, to gain patronage, bow to the churchwarden. The influence of example upon ignorance is again developed, indeed it would not be difficult to trace the slow progress of architectural invention to the operation of this principle. The cause and its effects act and re-act upon each other, fashion upon ignorance, and ignorance upon fashion. Similar principles work upon different materials, and the impartiality, and not the injustice of competitions ought to excite our wonder. Such will ever be the case while the public are ignorant of the true characteristics of architectural merit, and are still constituted its judges.

Can this evil be avoided? We shall see.

W. C.

(To be continued.)

LECTURES ON ARCHITECTURE AND ANTIQUITIES.*



VIEW OF THE TEMPLE OF LATOPOLIS, NOW ESNEH,

Referred to in No. 38, page 461.

LECTURE II.

THE most wonderful tombs which the hand of man ever raised to cover his mortal remains are unquestionably the pyramids. (A learned writer, Wilkins, *de Ling. Copt.*, states that in the Coptic tongue *pouro* signifies a king, and *misi*, a race, or generation.) These colossal structures, whose lofty summits seem lost amid the obscurity of time, and which appear to have been intended by their founders to endure to eternity, these astonishing masses have engaged the attention of all travellers by their air of antiquity, their imposing magnitude, and their strange destination. The pyramids are situated on the plains of Gizeh or Jizeh, near Cairo, and of Saccarah; the latter would be considered wonderful were they not greatly surpassed in size by those of Gizeh, where are the three grand pyramids (there are about twenty altogether) which bear the names of the kings of Memphis, who are supposed to have erected them; the largest is

called after CHEOPS (the Chemmis of Diodorus), the second CEPHRENE (the Senusphis of some writers), and the third and smallest, MYCERINUS, the son of Cheops, who was brother to Cephrenes. The chronology of the ancient Egyptians is involved in so much obscurity, that it is impossible to draw a satisfactory conclusion as to the date of the pyramids from the conflicting statements of different writers. Whilst some would place their date (as Mr. Wilkinson) at more than 2100 years B.C., Lord Lyndsay considers the pyramids as the work of the shepherd kings; and whilst some, again, place their date at the time of the Israelites being in bondage, about 1550 B.C., others bring down the reigns of the three kings to the ninth and tenth centuries before the Christian era. The Arabs and the Turks considered them the work of the Pharaohs, the pyramids being called by the former *Dyebel Pharaon*, Pharaoh's mountains, and by the latter *Pharoen Doglary*.† Ancient

† That delightful writer, the quaint old Fuller, observes, "the pyramids, dotting with age, have forgotten the names of their founders."

and modern travellers differ very widely as to the dimensions of the great pyramid, which

"Lengthens in air, and ends among the stars,
While every other object shrinks beneath
Its mighty shade, and lessens to the view."

YOUNG.

A general idea of its vast size may be given by stating that Inigo Jones laid out Lincoln's Inn-Fields to give a notion of the area covered by the great pyramid, which is about 11 English acres.

I shall now give the account of Monsieur Grobert, who was *Chef de Brigade d'Artillerie* of the army of Egypt, who in order to correct the misrepresentations of other travellers devoted much attention to the measurement of the great pyramid, and has given a table of the height of every course of stone, of which there are 205: these courses vary in height from 1 foot 7 inches to 4 feet (French feet); he makes the whole height 437 feet 2 inches (Fr.). Three courses are buried in the sand, which give 11 feet more. He then speaks of the difficulty of ascertaining with precision the dimensions of the base of the pyramids, which arises from various causes, accounting also for the discrepancies observable in the accounts of different travellers. Among these causes are the shifting of the sand, the broken state of some of the courses, and not the least important, in the interruption frequently occasioned by the Arabs of Bahira, who are irreconcilable enemies both to Christians and to the tribes which dwell near the Nile; to these he adds, the excessive heat of the sun, and the clouds of sand, which are raised in great quantities by the whirlwinds. Not dismayed, however, by these formidable obstacles, he proceeded to take his dimensions along the apparent base and likewise along the real base; and adopted a very obvious method, which was not to measure the base of the pyramid itself along the courses, which from the inequality of the stones was hardly possible, but he drew a line parallel with each face of the pyramid, and by measuring this line, he found the base of Cheops to be 723 feet (French), that of Cephrenes to be 655 feet, and its height 398 feet, and the base of Mycenius 280 feet, and its height 162 feet. After speaking of the fatigue of ascending and the danger attending it, from the situation of many of the stones (in which all travellers agree), he describes the prospect afforded to a spectator when he had reached the summit of the great pyramid:—"What a spectacle! on the right are the profound Deserts of Lybia, with some Arabs flying in the distance; before him is the winding Nile, and the plain covered in times of yore with the magnificence of Memphis; on the left are Kairo and its lofty fortress, and the inundated plains of Belbeis; beneath his feet the most ancient monument in the world." The fronts of the pyramids are found to be placed exactly to the four cardinal points, the entrance has always been found near the centre of the north face, and the passage proceeding down from the opening to the chamber is always at the same angle, 27°. "If then," says Dr. Russell, "nothing more were apparent than the exact position of those buildings in reference to the four cardinal points of the compass, it would of itself be sufficient to stamp the character of the Egyptians, at a very remote age, as connected with the pursuits of practical astronomy."

The pyramids of Gizeh are solid, with the exception of the space occupied by the small chamber in the very heart of each pile, and the galleries leading to it. According to Thevenot, this chamber in the pyramid of Cheops is 32 feet long, 16 feet wide, and 19 feet high. The expression of Josephus that the Egyptians employed the Israelites in erecting the pyramids, "they set them also to build pyramids" (Antiq. B. 11, c. 9.), renders these structures of peculiar interest, and it will not be a waste of time to make a few observations on the subject. Joseph, the wise and discreet viceroy of Egypt, honoured by Pharaoh and respected by the people, died 1635 B.C., at which time "the children of Israel were fruitful and increased abundantly, and multiplied, and waxed exceeding mighty, and the land was filled with them." (Exod. i. 7.) The next verse is the key to all the subsequent hard-hips of the Israelites, but it does not seem necessary to read it as occurring immediately after the death of Joseph, for it is hardly to be supposed that the benefits of his

wise administration would be so soon forgotten. "Now there arose up a new king over Egypt, which knew not Joseph." This would seem to imply that a considerable time had elapsed from the death of Joseph to the accession of this sovereign, who is generally supposed to be Chebron, or Amosis, who commenced the eighteenth Diospolitan dynasty, B.C. 1575, or eighty-four years before the Exodus. "Therefore did they set over them taskmasters to afflict them with their burdens. And they built for Pharaoh treasure cities (v. 11), and they made their lives bitter with hard bondage, in mortar, and in brick, and in all manner of service in the field." (V. 14.) There is an expression of the psalmist, "I removed his shoulder from the burden; his hands were delivered from the pots." (Ps. lxxxi. 6.) The Septuagint, Vulgate, and other versions give the word "mortar-baskets" for "pots." Josephus states that the Israelites were employed "to cut a great number of channels for the river;" these being the means by which the masses of stone were conveyed from the Nile to the spots on which they were to be used. The bricks made by the Israelites were dried in the sun, and the pyramids of Saccarah are composed entirely of sun-burnt bricks, whilst the internal parts of the pyramids of Gizeh are said to be of the same materials, the outer part or casing only being of stone in layers or courses. We have no proof that the Israelites were not employed by their taskmasters to work in stone. Ancient writers, among them Herodotus and Diodorus Siculus, state that the Egyptian monarchs employed no native Egyptians on their great works, but engaged the labours of captives; and the latter historian observes that Sesostris inscribed on his temples, "No Egyptian had a hand in this structure." When the Israelites murmured in the wilderness, and lusted after the flesh-pots of Egypt, they cried, "We remember the fish which we did eat in Egypt freely; the cucumbers, and the melons, and the leeks, and the onions, and the garlick." (Numbers, xi. 5.) And we are told by Herodotus that he saw an inscription on the outside of the great pyramid which recorded that the sum of 1,600 talents in silver (equivalent to 200,000*l.*) was expended to supply the workmen with vegetables only, and he mentions three sorts in particular, the radish, onion, and garlick, or, according to some, leeks, garlic, and parsley. Well might Pliny, alluding to the wasteful extravagance of building the pyramids, call it "*Regum pecunia otiosa ac stulta ostentatio.*" (Lib. i. xxvii. c. 12.) The haughty monarchs who reared these stupendous tombs doubtless imagined that their embalmed bodies would be safe from intrusion; but notwithstanding the care with which they were closed from without, and the deceptive passages within, their last home has been invaded, and the coffin and the mummy of the mighty Cheops himself are now in this island, which was perhaps uninhabited when he lived and reigned over millions of men. I will conclude this desultory sketch of these singular monuments of human pride by an anecdote, which, it is hoped, will not be deemed out of place. At the battle of the pyramids in 1798, Bonaparte exclaimed, "Soldiers! from the summit of yonder pyramids forty ages behold you."

To this address Lord Byron alludes in his "Age of Bronze"—

"Egypt! from whose all dateless tombs arose
Forgotten Pharaohs from their long repose,
And shook within their pyramids to hear
A new Cambyzes thundering in their ear;
While the dark shades of forty ages stood
Like startled giants by Nile's famous flood."

The celebrated statue of the sphinx is of colossal size; according to M. Ripaud it rises 38 feet from the knees to the top of the head; it is sculptured out of one entire rock, on which it stands, and resembles the negroes of Ethiopia. The remainder of the body, about 100 feet in length and 40 feet in breadth, is buried in the sand; between the paws was found a small temple, and it is imagined that a communication existed between the sphinx and one of the pyramids. (See view No. 2 of the sphinx.) The wonders of ancient Egypt, its labyrinths, with their 1,000 halls, almost staggering our belief, its obelisks, its tombs, its lakes, its various interesting remains, are so vast, so astonishing, as to require a whole volume to be written upon them, neither would less space do

justice to the archæology of Egypt, so interesting in her customs, her knowledge of the arts and sciences, more particularly of music, agriculture, and astronomy, as well as in her mythology, to which Greece and Rome are so much indebted; well, therefore, may Egypt be styled in the language of the poet,

"The queen of nations and the boast of times,
Mother of science and the house of gods."

YOUNG.

Besides all this, it is impossible to separate the history of Egypt from that of the race of Israel, from the time when the Father of the Faithful went down to sojourn there (Gen. xi. 10), until the infant Messiah found in it a refuge from the wicked intentions of Herod: "Out of Egypt have I called my son." (St. Matt. ii. 14, 15.) The prophecies which relate to Egypt are probably among the most mysterious in all Scripture, from the circumstance that many have yet to be fulfilled, but enough has been accomplished to shew that the rest is delayed, not forgotten. When we read that Egypt is called "the land shadowing with wings" (Isaiah xviii. 1), how appropriate does this epithet appear to those who are acquainted with the architecture of her temples, in which the winged globe is so conspicuous. And in a country where every necessary of life was absolutely dependent on one single object, how emphatic is the threat, when the Almighty "shall shake his hand over the river, shall smite it in the seven streams" (Isaiah, xi. 15); "the reeds and flags shall wither, the paper reeds by the brooks, by the mouth of the brooks, and every thing sown by the brooks, shall wither, be driven away, and be no more. The fishes also shall mourn, and all they that cast angles into the brooks shall lament, and they that spread nets upon the waters shall languish." (Isaiah xix. 6-8.) And if for her oppression of the chosen race, Egypt has become "utterly waste and desolate, from the Tower of Syene even unto the border of Ethiopia" (Ezek. xxix. 10); if it has become "the basest of kingdoms" (v. 15); and if for many ages it is true that there has not been "a prince of the land of Egypt" (Ezek. xxx. 13), we may be likewise sure that the prediction also will be fulfilled, "In that day shall there be an altar to the Lord in the midst of the land of Egypt, and a pillar at the border thereof to the Lord." (Isaiah xix. 19.) And the rapid progress of events and onward march of civilization in the East are doubtless hastening the advent of that day when "there shall be a highway out of Egypt to Assyria. In that day shall Israel be a third with Egypt and with Assyria, even a blessing in the midst of the land, whom the Lord of Hosts shall bless, saying, Blessed be Egypt my people, and Assyria, the work of my hands, and Israel my inheritance." (Isaiah xix. 23-25.) Of the prediction, "that there should be no more a prince of the land of Egypt," Bishop Newton remarks, "As is the prophecy, so is the event. For not long afterwards, Egypt was conquered by the Babylonians, and after the Babylonians by the Persians, and after the Persians it became subject to the Macedonians, and after the Macedonians to the Romans, and after the Romans to the Saracens, and then to the Mamelukes, and is now a province of the Ottoman empire." We now leave Africa to consider some of the ancient cities of Asia.

BABYLON has been celebrated for so many ages on account of the descriptions given by early writers of its magnificence, that we may well be allowed to contrast its former state of splendour with its present appearance of desolation. As was observed before, Nimrod is the first recorded monarch in Scripture, and remembrance has been handed down to the present time, not only in the Bible, but in the tradition which still assigns his name, to the ruins which occupy the site where he founded his Babel. The celebrated Tower of Babel is supposed to have been erected within 200 years after the Deluge. The confusion of tongues occurred in the time of Peleg, "for in his days was the earth divided." (Gen. x. 25.) Now there is no mention in Scripture of the age to which Nimrod lived, but tradition has assigned 500 years as the term of his reign. It is not impossible, therefore, that the patriarch Abraham lived at the same time with him.

Abraham was born 1296 B.C., Peleg was born 2247, Nimrod reigned 2334 B.C. If so, this will account for a singular tradition which

"Et septem gemini turbant trepida ostia Nilii."—VIRGIL.

has come down to the present time, and is still believed by the Arabs. Before I mention it, it is necessary to state that it is generally allowed that Abraham's father, Terah, was not merely an idolater, but that he made images for worship, whence the name *Teraphim*, and that Abraham himself was an idolater until his 50th year. This opinion will receive confirmation from a passage in Joshua (xv. 2, 3), "And Joshua said unto all the people, Thus saith the Lord God of Israel, Your fathers dwelt on the other side of the flood (meaning the Euphrates) in old time, even Terah, the father of Abraham, and the father of Nachor, and they served other gods; and I took your father Abraham from the other side of the flood, and led him throughout all the land of Canaan." Now Masûdi, the Arabian historian, states that Nimrod introduced the worship of the heavenly host, and that Abraham, who was educated in the religion of the Sabæans, but taught by the Angel Gabriel to turn to the adoration of the true God, having ridiculed the gods of his people, was ordered by the incensed Nimrod to be thrown into an immense furnace, out of which he came unhurt. Now D'Herbelot gives a curious extract from the author of a book entitled *Milerm*, who took Ali for his guarantee: "Nemroud having caused Abraham, who refused to acknowledge him as the sovereign master and god of the world, to be thrown into a furnace, from which he was surprised to see him emerge without having suffered the least hurt from the fire, said to his courtiers, 'I will go up to Heaven, and see this God so powerful of whom Abraham speaks.' His people represented to him that Heaven was very high, and that it was not very easy to reach it, but Nemroud, not heeding their advice, commanded that they should build him a tower as high as was possible. They were three whole years about it, and Nemroud having ascended to the summit, was very much surprised to find on beholding Heaven that it was as far from him as before; but that which caused him the greatest surprise and confusion was to learn the next day that the tower was overthrown. However, not repelled by this strange event, he built one still higher and stronger; this experienced the same fate as the former, and he then formed the mad design to reach Heaven in a car drawn by four of those monstrous birds called kerkes, of which ancient authors have given a fabulous account. Nimrod, as may be supposed, failed in this as in his former attempts to scale heaven. The author then goes on to state that Nimrod, not being able to carry into effect his impious project of making war upon the Almighty in person, still continued to exalt himself as a God, and ill-treated those who did not acknowledge his divinity, and that it was for this cause God took from him, by the confusion of tongues, the greater part of his subjects, and sent gnats upon those who remained with him as a punishment, and that one of these little insects made its way into Nimrod's brain, here increasing in size from day to day, it caused him intolerable agony for 400 years, the Almighty, it is added, thus wishing to punish by one of the smallest of his creatures him who had boasted himself to be the Master of the universe." (D'Herbelot, tome iii. p. 32.) It is generally supposed that Nimrod is the same as Belus, whose image was set up by his son Ninus, and worshipped as a god under the name of Bel; and that this is the Scripture *Babel*, and *Baal-pegor*. The time when Ninus founded Nineveh is fixed 2059 a.c., and therefore either he or his father, Nimrod, or his son, the celebrated Semiramis, erected the great city of Babylon. To this great princess, indeed, the place was indebted for its chief significance. Herodotus says that the city is 480 furlongs (or sixty miles) in circuit. It follows this statement. Other writers give its extent lower; Ctesias makes it 360 furlongs, Quintus Curtius 368, Strabo 385, and Plutarch 365. Authors differ also as to the height and breadth of its walls; Herodotus and Ctesias make them 300 feet high and 75 feet broad; Quintus Curtius makes them 150 feet high, and Strabo only 75, and both these writers make their breadth 32 feet. Now, these apparently irreconcilable statements may be accounted for if we admit that Herodotus de-

scribes the city of Semiramis, and that afterwards as improved by Nebuchadnezzar, and that later writers speak of it after it was captured, and its walls reduced in size by order of Cyrus and Darius. "The broad walls of Babylon shall be utterly broken." (Jer. li. 58.) Of its vast extent we have a right to presume that ancient writers spoke correctly, when modern travellers find a difficulty in exactly affixing to the ruins they have seen the descriptions of early authors from these great masses spreading over an immense space of ground. Before proceeding further, lest any one should be tempted to consider the descriptions of

ancient writers merely as splendid fictions, too vast for man ever to have carried into effect, I will only point to existing realities as a proof that no impossibility attaches to those which are no longer extant. The pyramids, which are the mightiest efforts of any yet attempted, and the great wall of China 1,500 miles long, traversing hill and dale in its progress, are sufficient to shew what can be accomplished by the unlimited command of incalculable wealth and multitudes of human hands, the two great means, as once before observed, which were employed on these occasions.

G. R. F.

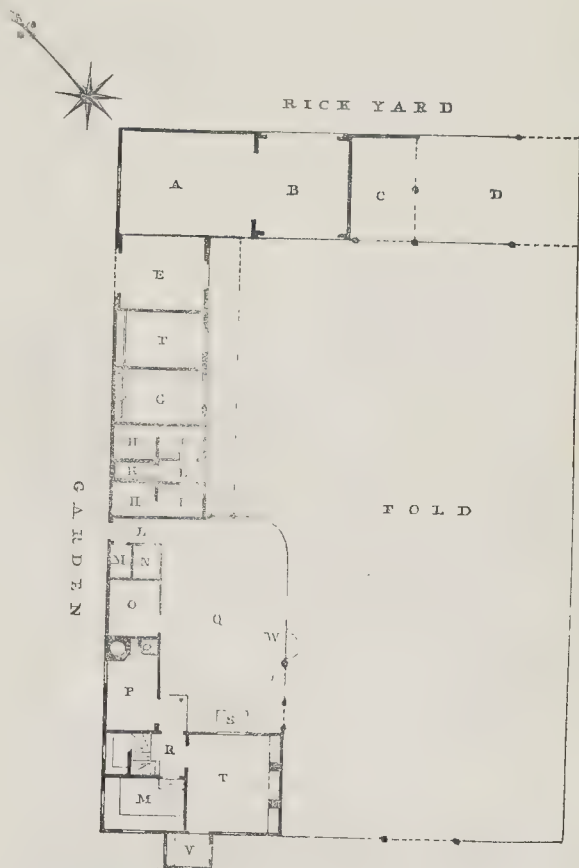
PLAN FOR A FARMSTEAD.

TO THE EDITOR OF THE BUILDER.

SIR,—I beg to give you my idea of a small farm, which if you think worth your insertion in *THE BUILDER*, be pleased to do so at your convenience.

It is proposed to carry up the house (except the brewhouse) two stories, with store cellar under living room. The cost would be £2344.

A CONSTANT READER, AND WELL-WISHER OF "THE BUILDER."



- A. Barn Bay.
- B. Thrashing floor.
- C. Open shed.
- D. Small fold.
- E. Cart implement shed.
- F. Stable.
- G. Cow shed.
- H. Pig bed.
- I. Run.
- K. Cistern.
- L. Passage.

- M. Dairy.
- N. Ashes.
- O. Coals and wood.
- P. Brewery.
- Q. Court.
- R. Back entrance.
- S. Rolling way to cellar.
- T. Living room or kitchen.
- U. Pump.
- V. Porch.
- W. Cattle-trough.

MODE OF CLEANSING BUILDINGS.—A report made some years since by M. Chevalier to the French Academy of Sciences, on the expensive and injurious process of cleaning ancient buildings by scraping, suggested scrubbing the walls with brushes steeped in water mixed with hydrochloric

acid, in the proportion of twelve ounces of the latter to a pailful of the former; first rubbing the wall with a dry brush to remove all extraneous matter, and finishing the operation with simple water. This method is adopted in France with success.

This presumption recalls to mind a passage in Isaiah, where he said in thine heart, I will ascend into heaven, I will exalt my throne above the stars of God; I will ascend the heights of the clouds; I will be like the Most High. (Isa. xiv. 13, 14.)

Miscellaneous.

A CHINESE PUBLIC GARDEN.—In the centre of a serpentine sheet of water there is a rocky island, and on it a large temple of two stories, fitted up for the accommodation of the wealthy public. Pillars of carved wood support the roof; fretted groups of uncouth figures fill up the narrow spaces; while moveable latticed blinds screen the occupants from the warmth of the noonday sun. Nothing can surpass the beauty and truth to nature of the most minutely-carved flowers and insects prodigally scattered over every screen and cornice. This is the central and largest temple. A number of other light and aerial-looking structures of the same form are perched upon the corners of artificial rocky precipices and upon odd little islands. Light and fanciful wooden bridges connect most of these islands, and are thrown across the arms of the serpentine water, so that each sequestered spot can be visited in turn. At a certain passage of the sun, the main temple is shaded in front by a rocky eminence, the large masses of which are connected with great art and propriety of taste, but in shape and adjustment most studiously grotesque. Trees and flowers and tufts of grass are sown and planted, where art must have been taxed to the utmost to procure their lodgment. In another part of the garden there is a miniature wood of dwarf trees, with a dell and waterfall; the leaves, fruits, and blossoms of the trees are in proportion to their size. Tortuous pathways lead to the top of the artificial mountain, each turning formed with studied art to surprise and charm, by offering at every point fresh views and objects. Flowers and creepers sprout out from crevices; trees hang over the jutting crags; small pavilions crested with the white stork, their emblem of purity, are seen from almost every vista, while grottoes and rocky recesses, shady bowers and labyrinths, are placed to entrap the unwary, each with an appropriate motto, one inviting the wanderer to repose, another offering quiet and seclusion to the contemplative philosopher. —*Closing Events of the Campaign in China, by Captain Lock.*

ALTON TOWERS.—Magnificent preparations are making at Alton Towers by the Earl of Shrewsbury, for the reception of his Royal Highness the Duke of Bordeaux. As the arrival of his Royal Highness will take place after nightfall, a temporary porch, designed by Mr. Pugin, the Earl's master of the works, is being erected, and will be illuminated by an infinity of lamps. The whole line of galleries dedicated to the arts and antiquities, viz. the armoury, with its mailed knights and blazoned banners; the picture gallery, with its splendid paintings; the octagon, with its sculpture and ancestral achievements; the Talbot gallery, with its ensemble of all that is gorgeous in pictorial, heraldic, or decorative art—forming an unrivalled vista of 500 feet in a straight line—will be brilliantly illuminated. In the centre of the Talbot gallery will be placed a splendid bust of his Royal Highness, by Tenerani, the eminent Italian sculptor.

A branch railway is about to be constructed to connect the town of Newbury with the Great Western Railway at the Pangbourn Station.

Mr. Rastrick, the engineer of the Brighton Railway, is now engaged in extending the survey for a railway from Worthing to Chichester, in connection with the present branch line from Brighton to Shoreham. We understand that the whole of the landowners and the Brighton Company are favourable to the project; and should the plan be carried into effect, as well as that for a line from Brighton through Lewes to Hastings, and that for connecting the latter place and Bye with the Dover line, all which projects are under favourable auspices, the short distance of eighteen miles from Portsmouth to Chichester would be the only gap in a regular coast line from Dover to Southampton.

Steel, when tempered so as to be very hard, becomes brittle. The steel chisels and tools with which artificers now cut and shape the metals, as they formerly did wood, require to be exceedingly hard; but they thus lose in regard to the extent of their elasticity, and hence are frequently broken. Cast iron, which is much harder than malleable or wrought iron, is very brittle, while soft iron and steel are the toughest things in nature.

Mr. W. Middlemore, of Birmingham, has given the liberal sum of 100*l.* to the Society of Arts and School of Design in that town.

AERIAL SHIP.—It is rather dangerous (says the *Sud*, of Marseilles) for a journal to make itself the vehicle of one of those pieces of news whose character necessarily is calculated to awaken the scepticism of most readers: we therefore deem it right, in giving the following account, to state that we do not make ourselves responsible for its truth in any way: we merely repeat what has been related to us by a person whose veracity has been hitherto unimpeached. Our informant affirms that a party of engineers are at this moment engaged at Marseilles in the construction of an aerial machine, the principal of whom, at Italian, has resided long in England (the classic country of modern industry), in which he has studied the elements of the theory which he is now attempting to put into practice. The platform of their experiments is situated at Notre Dame de la Garde, and we are told that the attempts of the aeronauts have not been unattended with success. Their machine represents a bird in shape: the wings, composed of a light frame of wood-work, are covered with silk, and are about to be fixed to the body of the machine. Three or four more weeks will suffice to bring the work to perfection. Paris, we are told, is to be the first place honoured by the venturesome party, who hope to accomplish their flight in four or five hours. The time of day fixed for their departure is the evening. No one is to be admitted to partake the dangers and assured triumph of the favoured five, but a young lady, who has lately become the wife of one of the party. This last circumstance crowns the interest created by this extraordinary account, of which, we repeat, we do not assume the responsibility.

ENGLISH ANTIQUITIES.—Some workmen employed in removing mud from the moat of Weoley Castle, near Birmingham, found a dinner plate of silver, from which a portion had been lost, as if melted away by fire. It bears on the rim a crest, and on the back the name of the maker, "Stephen Lawrence, Drury-lane, London," the word "London" being under a shield emblazoned with a crown rose. Several coins of Edward III. and of Edward I., a spur and spear head, with fragments of ancient pottery, have also been found among the few remaining ruins of the castle.

MECHANISM OF PIANOS.—In one of Messrs. Broadwood's most improved six and a half octave pianofortes (for which we believe a patent has been taken out), the mechanism connected with the "action" consists of about 3,800 pieces of ivory, ebony, cedar, sycamore, lime-tree, mahogany, beef-wood, oak, pine, steel, iron, brass, lead, cloth, felt, leather, and vellum. Every one of these has to be fashioned with the most scrupulous exactness, and as scrupulously adjusted to its place. Many of the pieces are not more than a quarter of an inch square, some even less. The qualities of all the varieties of wood are closely studied, in order to determine their particular aptitude for the different parts, and it is thus that so many as seven or eight kinds are used in the "action" alone. One kind is preferred, because slender rods made of it will not warp; another kind because the grain is straight; a third because it is hard and smooth; a fourth because it is soft and smooth; and so on. Some of the rods are as much as three feet long, and only a sixth or a seventh of an inch in thickness.

PRESENT STATE OF THE IRON TRADE.—Eight furnaces, making 690 tons weekly, have been blown in since the 25th of September, and if about six more are added to this number, it will include all that are likely to be put in operation in Staffordshire until some further and considerable improvement takes place in the price of iron.

IRON WORKS.—The mills and forges at Merthyr are again in full operation. The late rains have materially benefited both masters and men. —*Cardiff Advertiser.*

At Boston, on Saturday last, an information was laid before the mayor and other magistrates, against Mr. Thomas Knowles, for having erected two tenements with end-walls of only four inches and a half thickness, the local act requiring them to be built nine inches. The penalty of 5*l.* in each case was suspended, in order to give him the opportunity of amending the building—it is intended to enforce the law in every case, and it is only to be regretted that the enactment is not general instead of local.

YARMOUTH.—We are glad to be able to correct an error in our last week's number, which arose from extracting from the local papers. The estimate of the cost of the internal improvements of the gaol is about 900*l.* This is exclusive of the cost of the buildings of the House of Correction and the building sites for the same.

WORKSOP MANOR HOUSE.—The building materials were sold on Tuesday last, by direction of his grace the Duke of Newcastle, for 20,000 guineas. It is said that the original cost of the mansion was upwards of 300,000*l.*

SELF-MADE MEN.—Columbus was a weaver; Franklin was a journeyman printer; Niebuhr was a peasant; Sextus V. was employed in keeping swine; Rollin was the son of a cutler; Ferguson and Burns, Scottish poets, were shepherds; Æsop was a slave; Homer was a beggar; Defoe was apprenticed to a hosier; Demosthenes was the son of a cutler; Hogarth was an engraver of pewter pots; Virgil was the son of a baker; Wolsey was the son of a butcher; Gay was an apprentice to a silk-mercer; Ben Jonson was a bricklayer; Porson was the son of a parish clerk; Prideaux was employed to sweep Exeter College; Akenside was the son of a butcher; Pope was the son of a merchant; Cervantes was a common soldier; Gifford and Bloomfield were shoemakers; Howard was apprenticed to a grocer; Halley was the son of a soap-boiler; Richard Arkwright was a barber for a number of years; Belzoni was the son of a barber; Blackstone was the son of a linen-draper; Buchanan was a private soldier; Butler was the son of a farmer; Canova was the son of a stone-cutter; Catherine the First of Russia was born a peasant; Captain Cook began his career in the merchant service as a cabin-boy; Curran was the son of poor parents; Sir Humphrey Davy was the son of a carver; Dodsley was a stocking weaver; Drake was the son of a shepherd; Hunter was apprenticed to a carpenter; Falconer was the son of a barber; Haydn was the son of a poor cartwright; Herschel was the son of a poor musician; Johnson was the son of a bookseller; Lord Tenterden was the son of a barber; La Fontaine was the son of an overseer of woods and forests; Milton was a schoolmaster; Parkes was the son of a small grocer; Pizarro was employed to keep hogs; Pollock was the son of a carpenter; Allan Ramsay was the son of a miner; Raffaele was the son of a peasant; Richardson was the son of a joiner; Shakspeare commenced his career poor, and as a menial; Kirke White was the son of a butcher.

MODEL FARMS.—It is in contemplation at Carmarthen to establish a model farm, after the manner of Lord Ducie's and other similar establishments in England, for the advancement of agriculture in the district. W. Williams, Esq., M.P. for Coventry, has promised a subscription of 200*l.* for this purpose. —*Welshman.*

BURY ST. EDMUNDS.—Several feet of the ashlar or stone casing, with a portion of the rubble core, have fallen from the top of the south-east angle of the Norman Tower, the concussion shaking the houses on both sides of the tower, but happily doing no injury to any one. —*Bury Post.*

DIFFERENCE BETWEEN GRAY AND WELSH SLATE.—Who shall say that there is no poetry in a builder's soul? we could bring abundant proof to the contrary—as what shall be said to this? A Lancashire craftsman of that ilk was describing to a gentleman the respective merits of grey or flag slate, and his Welsh or Westmoreland cleavings, which we give in his own peculiar phraseology:—"Ah, Sir," said he, speaking of the grey, "Thy'll lie whisht, while th' wind goes mad."

THE HIGHEST HOUSE IN ENGLAND.—By a recent survey, it has been ascertained that the Travellers' Inn, on the summit of the high mountain pass over Kirkstone, leading from Windermere to Ulswater and Patterdale, stands on an elevation of 78 feet higher above the level of the sea than any other inhabited house in England.

FALLING OF A HOUSE.—On Wednesday last, a house in a forward state of erection, at Hart's Lands, belonging to Mr. Gibbon, being just ready to receive the roof, fell with a tremendous crash. Fortunately, the men employed in the building were not there, or, in all probability some lives would have been sacrificed. It appears that it had been run up too fast, and the heavy rains on the two previous days, added to a sandy soil for the foundation, produced the catastrophe.

On Thursday week, as some men were engaged in erecting a new pinnacle on the church at Tamworth, one of them fell from the top of the ladder, and his head was completely dashed to pieces. He has left a wife and five children.

A poor mechanic at Bristol, of the name of Bacon, has invented a pump and fire-engine, which, for compactness and power, is unique. It draws water at 22 feet from the surface, and throws to a great distance. Its cost is about 20*l.*, and it possesses an hydraulic power equal to a large engine worth 170*l.* or 180*l.* An experiment was made last week in the presence of several scientific men, and gave satisfaction.

SALES OF TIMBER IN THE COUNTRY.—The *Stanford Mercury* of Friday, the 3rd instant, contains advertisements of twelve timber falls, to which buyers are invited.

WINDSOR DRAINAGE.—The inhabitants have refused to co-operate in the outlay required for draining the town and Castle.

NATURAL CURIOSITY.—Recently, while the workmen of Mr. Harvey, of Glasgow, were cutting a log of Honduras, of about 19 feet and 22 inches in diameter, they were surprised to find, in the very centre of an otherwise excellent piece of wood, about 15 feet from the root, a hollow of 4 feet long by 9 inches wide, and tapering down towards the bottom. In the centre of this space they were still more astonished to discover what had been an entire hive of bees, with plentiful remains of bees, beeswax, and a number of large cells, in each of which the honey in a solid state, something similar to the kernel of a nut, is still entire. On the discovery being made, Mr. Harvey paid attention to cut the log carefully around, and to preserve every portion of the wood which contained the hive, and it is now exceedingly interesting to trace the winding path of the bees all along the edge of the log as long as its growth would permit, until at last they were fairly enclosed by the growth, and their industry put an end to for ever. Very little seems to be known of the age of the mahogany, but we should suppose that the tree in question may be about 300 years old.

ANCE BLUNDELL.—On Monday, the 16th ultimo, the foundation-stone of a new school was laid. At the ceremony there were present, besides Thomas Weld Blundell, Esq., and lady, and chaplain, the Blundell family of Crosby Hall; John Vaughan, Esq., of Courtfield, and lady; Miss Cordova; the Very Rev. H. Brewer; Rev. Mr. Brown, &c. Mr. Mackrell, of Bootle, is the contractor. The following, with other memorials, was deposited:—"D. O. M. Lapidum primum hujus Scholæ posuit Domina Teresa Weld Blundell a. salut. 1843, die 16a Octob. Gregoria 16a Petri sedem tenente, Victoria regnante, Reverendissimo domino Georgio, Episcopo Holmense districtum Lancastrensem gubernante, Dom. Ignatio Greenough O. S. B. pastoralium curam exercente, Architecto I. L. Scoles. Hanc Scholam sexaginta libris sterlingis annalibus dotavit Carolus Robertus Blundell, arm. pro ejusdem erectione situm dedit Thoma Weld Blundell, arm. pœcunias suppeditavit Martinus Billington, Fulco. proficiat Deus, et benedicat in honorem nominis sui."

WORK FOR CHURCH BUILDERS AT HONG KONG.—It is said that the only places of worship in Hong Kong are a Catholic church and an American meeting-house.

It is said that prior to the passing of the Reform Bill, there was in Cornwall or Devonshire, in one of the snug little boroughs of that period, a learned Theban residing, who had been mayor during the period of the French war, when an invasion of our coasts was dreaded, and that when instructions were received by him from government that he should put the fortifications of his borough into proper condition, he was sorely puzzled to make out the meaning of the word; he conferred with the ex-mayor, and was little better for their united cogitations. The joke runs that some wags relieved him by explaining that one fortification meant two twentifications.

DURATION OF THE PYRAMID.—The reason of the duration of the pyramid, above all other forms, is that it is most fitted to resist the force of gravitation; thus the pyramids of Egypt are the oldest monuments in the world.

CRICKETS AND BLACK BEETLES.—"A Manchester builder," writing to the Editor of the *Manchester Guardian*, says, "the principal cause of these insects abounding in houses is, that the kitchen flags are generally laid upon common cinders. If black sand from the iron foundries be made use of, nothing will live amongst it; as I have proved by many years' experience."

A CHEAP GREEN PAINT.—Gas tar mixed with yellow ochre makes an excellent green paint, well adapted for preserving coarse wood-work and iron rails.

The bridges of Paris have been nearly all externally repaired and cleaned. The Ponts d'Austerlitz and Louis Philippe have had their wood-work repaired; the Pont Rouge has been reconstructed; the Pont Carrousel has been freshly painted; and the Pont Royal and the Pont de la Concorde have been cleaned and arranged with Roman cement.

It is proposed to raise the sum of 50,000*l.* on the principle of a Tontine, for the completion of the plan of the Prince's Park, Liverpool, begun with so much spirit, and at so great an expense, by Mr. R. V. Yates.

The alterations in Chester Cathedral, preparatory to the erection of a new organ, have commenced.

No! is a useful word—be not afraid to use it. Many a man has pined in misery for years, for not having courage to pronounce that little monosyllable.

Iron and platinum are the only metals that can be welded.

TENDERS.

AMOUNT of Tenders delivered for building three third-rate houses in William-street, Islington-fields, for Mr. Clayton, the size of each house 26 feet by 17 feet, consisting of two kitchens, shop, and parlour, one and two pair stories, area 2 feet 6 inches wide, and two vaults 6 feet deep in front of the house, an area 2 feet 6 inches wide, and garden ground 6 feet wide, with fence walling round—same at back. The houses to include papering, and every other thing complete, stoves only excepted.

Lucas	£1,456
Gerry	1,197
Macey	1,125
Nessey	1,100
Peck	985
Brighton	977
Dennis and Price	925

The tenders were opened in the presence of the parties.

TENDERS delivered Friday, November 3, for three houses, to be built opposite the Sutton Arms, Holloway.—Mr. Sherwin, Surveyor.

Dingle	£1,197
Clarey	1,125
McGill	1,100
Peck	985
Brighton	977
Dennis and Co.	955

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which we flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding of papers from our country friends, or by any other means of notification of which they may choose to avail themselves.

BRITISH OAK TIMBER, &c.—14,000 loads of balk, 5,000 loads of plank, 400,000 British Oak Treanils.—Secretary of the Admiralty, Somerset House. Dec. 19.

BOSTON CHURCH, LINCOLNSHIRE.—Repairs and restoration.—Mr. Scott, architect.—Messrs. White and Lindsay, Boston; J. T. White, Hon. Secretary. Nov. 27.

SOUTH-EASTERN RAILWAY TERMINUS, DOVER.—Mr. Lewis Cubitt, 77, Great Russell-street; and the Chairman and Directors, London Bridge. Nov. 20. Building a Sewer, Basinghall-street, City.—Sewers Office, Guildhall.—Joseph Daw, Prin. Clerk. Nov. 14, 1843.

Building a Sewer, Eyefoot-lane and Taylor's-court, Bow-lane, City.—Sewers Office, Guildhall.—Joseph Daw, Prin. Clerk. Nov. 14, 1843.

NEW MARKET AND ENTRANCES, CARMARTHEN.—Mr. Francis E. H. Fowler, architect, 105, Great Russell-street, Bloomsbury; Town Clerk's Office, Carmarthen. Nov. 20.

ST. OLAVS CHURCH.—RESTORATION.—Mr. George Allen, architect, 69, Tooley-street, Southwark; George R. Corner, Vestry Clerk. Nov. 28. Paint ingredients.—Navy Department, Dockyards. Secretary of the Admiralty, Somerset House. November 21.

COOKING APPARATUS for 800 inmates, Bermondsey Workhouse.—B. Drew, Clerk. November 21.

COMPETITIONS.

District Surveyor for the metropolitan parishes of St. George-the-Martyr, and St. Andrew, Holborn-above-the-Bars, and the Liberty of the Rolls.—Testimonials to be sent in up to 30th December. Election next January Sessions.—C. H. Ellis, Clerk of the Peace.

Design for a testimonial to the late G. Clendinning, Esq., to be executed at Westport, at a price of 800 guineas.—Dr. Dillon, Infirmary, Castlebar, Mayo, 20 guineas, Jan. 1, 1844.

Premium of a gold medal or money for the best mode of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

LUNATIC ASYLUM, MELTON, SUFFOLK.—Plans, specifications, and estimates for enlargement.—John Henry Borton, Clerk of the Peace. Nov. 18.

SURVEY MAP AND APPORTIONMENT.—Parish of Thelbridge, Devon, 1,732 acres.—Mr. William Comins, Solicitor, Wetheridge-street, Crediton, November 16.

SURVEY MAP AND APPORTIONMENT.—Parish of Cornworthy, Devon, 2,200 acres.—Mr. John Elliott, Allmleigh, in Totness. Nov. 20.

Earl of Leicester's Monument, at Holkham, cost 4,000 guineas.—R. N. Bacon, Hon. Secretary. Dec. 20.

Surveyor for the Borough of Stamford. Salary 30*l.* per annum.—Richard Thompson, Clerk to the Commissioners. November 14.

WE beg to announce to such of our friends as were disappointed in obtaining impressions of No. 38, containing the large Engraving of the Infant Orphan Asylum at Wanstead, that having completed the reprint of that Number, orders sent to the Office will meet with immediate attention.

SUMMARY OF CORRESPONDENCE.

WOOD PAVEMENTS.—"A Constant Reader" remarks on the unsatisfactory and dangerous state of the wood pavements—a perfectly dry or perfectly wet condition being, as he remarks, indispensable to safe traffic by horses, and therefore the new sleeping machine which promised so much is hardly available, as he thinks, except in dry or summer weather. He suggests the Russian method of coating with pitch and gravel. Something must be done, and various remedies are proposed. We have one from a correspondent as to shoeing the horses, which will appear at the first vacancy. The Wood Paving Association may produce some thing valuable out of the competition, they have invited for a cleansing machine. We look with interest to some useful and practical solution of this vexing question.

"G. R. W." makes some very just observations in reference to the mischievous operation of the fiscal laws regarding windows. The tax on all windows above a certain number, being, as he remarks, a tax on public health, or upon light and air, the main constituents of health, and a tax most unjust in the rule of application, inasmuch as by taking the number of windows and not the superficial feet of glass, it gives the wealthy every advantage over the poorer and trading classes—the small window of the latter being assessed at the same rate as the large window of the former.

"An Architect and Subscriber."—In his comment on the Sussex Memorial design of Mr. Hanson, questions the propriety of so much ado in behalf of his late Royal Highness, and complains that the design falls very far short of what might have been expected from "a man of standing and character;" the skill and imagination of the design is much at fault, "coupled with his incorrect taste as regards proportion." The want of the mixture of various styles he likens to a man's uttering every alternate word in a different language, and that the opinion thus to be formed of his character is, that "all is vanity, pomp, and show, and egregious folly the principal ingredient." "What," says he, "is a particular style of architecture, but the symbol of the character of a nation? Where can he find out the sumptuousness and luxuriousness of the Roman—where the simple grandeur of the Greek—or where the beautiful frivolity of the pointed style?" "The architecture," he says, "is subservient to the sculpture, instead of the reverse. How the whole is cut up and defaced for the simple purpose of claiming originality, and how signally has it failed." He urges the more fitting character of the Choric monument of Lycabates—its "classic beauty, Greek simplicity, and imposing grandeur," and although he would not advocate the copying altogether the works of the ancients, he regrets our being so backward, that we must "look with awe and reverence upon them, and sorrowfully reflect upon our own want of invention and talent in designing." He concludes by disclaiming any pique against the author, or interest in the work, and trusts that whatever is erected may be "worthy of the architects of the nation to which we are endeared, and of the present palmy days of architects and architecture." We have thus with pains given the marrow of his critique, which must remain its due period for any remarks it may call for in reply.

WATER CISTERNS.—"J. Forster" recommends the adoption of superficial slate or lead cisterns at the tops of houses now in progress of building, instead of below stairs, or in the open air in the garden, exposed to freezing, provided the water supply be equal to the height. He has adopted the plan himself, laying on the water to each story, the first cost being inconsiderable compared with the comfort and convenience, the saving to servants, avoiding the running up and down stairs with jugs and pails of water, &c., and the supply of boilers on the upper story for warm baths, &c.

WOODEN PAVEMENT.—"Mr. Brodum Jones" writes in explanation and commendation of the plan of wood pavement pursued by the Metropolitan Company. The grand desideratum he deems to be the concrete foundation, composed of blue lias time and metallic sand, a matter we adverted to in treating of the Metallic Cement some weeks back. He describes the character of the block and mode of laying, dovelling, &c., enumerating the advantages, which consist of connection and a distribution of the effect of pressure and percussion, and that it withstands expansion.

TO OUR CORRESPONDENTS.

"E. B. T."—The exact height of the spire of Camberwell new church is 201 feet.

"TEMPLE CHURCH."—A Correspondent inquires as to the inventor of the oak stain, which he admires, in the Temple Church. We applied to Mr. S. A. Nash, of 79, Hercules Buildings, Lambeth, who executed the beautiful carvings there, but although he has an excellent oak stain of his own, which he is about to employ on some 30,000 feet of work in an old country church, he is unaware of the party inquired for, not having been in the Temple Church since the staining there was put in hand.

ADVERTISEMENTS.

SALES BY AUCTION.

To Capitalists, Builders, and others.—Important unreserved Sale of the third portion of about 35 Acres of exceedingly valuable and very desirable FREEHOLD BUILDING GROUND, land-tax redeemed, in a beautiful and commanding situation, between the town of Brentwood and the Eastern Counties Railway Station, in the county of Essex, within three-quarters of an hour's ride by railway of London.

MR. LEIFCHILD is instructed to offer for unreserved SALE, at Garraway's, on Thursday, Nov. 23, in various lots, an exceedingly beautiful PROPERTY, admirably adapted for the erection of villa residences or substantial houses, situate on an eminence, on each side of the splendid new road, which has been formed with great taste, regardless of expense, leading immediately from the Railway Station to Ingatstone and Chelmsford, known as the Queen's-road, commanding the most picturesque views of the surrounding country, which has long been celebrated as by far the most delightful part of the county of Essex, with agreeable walks and excellent roads in all directions. The land comprises about 35 acres which will be divided into lots suitable for private purchase, and is a fine healthy gravelly soil, with an inexhaustible spring of the purest water. The town of Brentwood contains a very well-endowed free grammar school, and the intermediate neighbourhood is rapidly improving. There are several other plots of Freehold Building Ground, situate on the Wharf road and the old Town-road; also two substantial brick-built Freehold Cottages, with gardens, and five plots of valuable freehold building ground, situate at Great Warler, fronting the high road leading to the permanent railway station, which will be sold at the same time. Full descriptive particulars of each lot are in preparation, and will be ready for delivery, ten days previous to the sale, at Messrs. Copland and Son's, solicitors, Chelmsford; Mr. Duncan's, solicitors, Brentwood; and at Mr. Leifchild's offices, 62, Moorgate-street.

IMPORTANT SALE OF MARBLE CHIMNEY-PIECES, TO BE SOLD BY AUCTION, A CHOICE AND VALUABLE STOCK of nearly EIGHTY MARBLE CHIMNEY-PIECES.

Of superior character and workmanship. This truly valuable Stock will be found well worthy the attention of Gentlemen, Architects, and Builders, both in town and country. It consists of Marbles of extraordinary beauty, and many of which are quite new in the London market, the designs and execution are also of a first-rate character.

* Particulars as to day and place of sale next week.

STONE MERCHANT'S WHARF AND PREMISES, PADDINGTON BASIN.

MR. H. BIERNS has received instructions TO DISPOSE OF, BY PRIVATE CONTRACT, the GOODWILL AND LEASE of a very commodious WHARF AND PREMISES, having a capital water frontage, neat residence, counting-house, workshops, show-room, stabling, and sheds; together with two powerful cranes, and every other arrangement for carrying on an extensive and lucrative trade. The business has been long established, and is only disposed of in consequence of the proprietor being fully occupied in other engagements. THE STOCK may be taken or not, at a valuation; but the goodwill, lease, fixtures, cranes, &c., will be included in the purchase. May be viewed by cards which may be obtained with full particulars, at the office of Mr. H. Bierns, 12, Dorset-place, Dorset-square, any morning before eleven. No written application can be attended to unless to parties not resident in London. A good opening for a north country Coal Trade.

IRON CASTINGS AND FORGINGS. GAS AND WATER PIPES, SHOP MILLARS, IRON RAILINGS, GIRDERS, FIRE BARS, &c.

THOMAS JOHN CROGGON, 8, Ingram-court, Fenchurch-street, and 77, Wapping-wall, London. SOLE AGENT TO "HIVE IRON WORKS, SOUTH SHIELDS," is prepared to execute every description of the above, on the most advantageous terms.

T. J. C. has a Stock of DRY HAIR FELT. This Felt, as a Covering for Boilers, on account of its non-conducting properties, effects a considerable saving of Fuel. Size of Sheets, 2 ft. 10 in. by 1 ft. 8 in.



By Her Majesty's Royal Letters Patent.

PATENT ASPHALTE ROOFING.

The above material has been used and approved by the Nobility, Gentry, and Agriculturalists generally, as a Roofing and Covering to sides of Farm Buildings; its advantages are—Lightness, Durability, and Economy. Being a non-conductor, it has been proved an efficient "Protective Material" to Plants, and is now in use at the "Royal Horticultural Society's Gardens, Chiswick."

THOS. JOHN CROGGON, 8, Ingram-court, Fenchurch-street, London.

TO BE LET AND ENTERED ON IMMEDIATELY.

SAW MILLS with EXTENSIVE BUSINESS PREMISES, in full work, with the ENGINE and MACHINERY in good order. For particulars apply to Mr. Bray, auctioneer and estate-agent, 259, High Holborn.

CAITHNESS (Castle-hill) PAVEMENT.

ORDERS for this well-known material, which can be procured in any quantity in PAVING, LANDINGS, &c. (Tiled, or with natural faces), to be addressed to Messrs. Freeman, Stone Wharf, Millbank-street.

VALENCIA SLATE.—THE ATTENTION OF BUILDERS IS REQUESTED TO THE NEW MODE

in which this material is prepared for the market. Prices, for the various thicknesses from half-inch to six inches, with each face and the edges accurately dressed by machinery, will be found extremely moderate, and may be obtained by application at Freeman's Wharf, Millbank-street, where a large Stock may be seen.

TO ARCHITECTS, BUILDERS, AND OTHERS.

T. STIRLING'S GENERAL SLATE AND PATENT FILTER WORKS, removing from 37, Commercial Road, Lambeth, to Belvedere Wharf, Belvedere Road, Lambeth, near Waterloo Bridge. Slating from 20s. to 24s. per square. Cisterns, warranted to stand, 3s. per foot cube. Slates, to the trade and others, or for exportation, very low. Has on hand and for sale the true Patent Slates, as well as Welsh, from all the best quarries. The Trade and others supplied with Slabs. Good 1 in. to 1 1/2 inch Paving from the Cornish Quarries, at 9d. per foot, square, laid complete.

PORCELAIN LETTERS FOR SHOP FRONTS, &c. CAUTION.—W. G. BENTLEY,

of 234, High Holborn, begs to caution the Public, as several mistakes have been made as to the true Patent Letters. Some persons imagine that those vulgar bright blue letters that are smeared with gold, are the Patent Porcelain. They are merely Plaster Letters, which turn black, and are only fit for Money Shop Signage.

THE PATENT PORCELAIN LETTERS are only to be had at 234, High Holborn.

BASTENNE BITUMEN COMPANY,

Office, 31, Poultry. The Directors of this Company beg to call the attention of ARCHITECTS, BUILDERS, and others, to the very beneficial results attendant on the use of BITUMEN in the erection of buildings, &c. Its application as a FLOORING will be found eminently useful. It is also valuable for numerous other purposes, more particularly where the object sought for is the EXCLUSION OF DAMP AND VERMIN.

Scale of prices per foot square—
1 inch thick 8d.
2 inch thick 7d.
3 inch thick 6d.

Works not measuring 400 feet, 1d. per foot square.

Roofing executed at 6d. and 7d. per foot square. Concrete is charged in addition according to the thickness when required.

Carriage and men's time are charged extra when works are executed beyond three miles from the General Post-office.

Bitumen 2/6 per ton, without grit.
Bitumen 2/5 per ton, with grit.

CHARLES F. TILSTONE, Sec.

GALWAY BLACK MARBLE QUARRIES.

MESRS. FRANKLIN, sole Proprietors of these well-known and invaluable Quarries, which for the last thirty years have supplied the London Merchants, as well as Great Britain generally, Ireland and America, with this very superior Black Marble, beg to inform Merchants, Architects, Builders, and others, that the Marble is now ready for immediate shipment, either direct from the Quarries at Galway, or from the Depot of their various Agents, Blocks of this Marble, in lengths of from 1 to 15 feet, or of any size and dimension required, either for MANTEL-PIECES, TOMBSTONES, MONUMENTS, STAIR LANDINGS, DOOR-LINTELS, HALL PAVEMENTS, or any other purpose requisite.

They have also to acquaint the Trade and those interested, that they have slabs of this Marble constantly on hand, of all thicknesses and lengths (cut by their extensive Sawing Machinery erected at the Quarries), which are ready packed in cases and delivered free of breakage wherever directed.

The following appointed Agents have always a stock by them, on application to whom the Marble may be seen, and orders given direct, as other parties are representing an inferior description of Galway Black Marble from their Quarries, viz.

Messrs. Rogerson and Son, Pimlico, London.
Charles Parker, Esq., Bristol.
Messrs. Patrick Henderson & Co., Glasgow.
Messrs. Deouchy, Paris.
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Messrs. Franklin are also engaged in working extensive Quarries in Italy, consisting of Sienese, Black and Gold, Veined, Burdiglio, Siena, and Dove Marbles, and are having constant importations, orders for which, or any communication addressed to Liverpool, will meet immediate attention.

ROYAL ADELAIDE GALLERY,

LOWTHER ARCADE, STRAND.—ELECTRIC LELLS.—The feeding time of these animals is daily at Three, and every evening at Eight. Payne's Processes for the preservation of wood and for instantaneous painting of animal provisions will be explained in a lecture, by Mr. Maughan, every day this week, at Two o'clock. POPULAR LECTURES AND EXPERIMENTS are given every half-hour during the day, followed by the STEAM GUN, DISSOLVING VIEWS, &c. GRAND CONCERT, Vocal and Instrumental, every evening. LAUGHING GAS, Tuesdays, Thursdays, and Saturdays. THE ADELAIDE WIZARD, Monday, Wednesday, and Friday evenings.—Open Daily from Eleven to Five, and from Seven to Half-past Ten in the Evening.—Admission, One Shilling.

PARQUETS (INLAID WOOD FOR FLOORING), made of OAK and FANCY WOOD, are manufactured from 10s. to 15s. per square yard, in conformity with the Designs which appeared in "The Builder," October 14th and October 21st, and many others at No. 10, Berners-street, Commercial Road, East—A liberal Commission will be allowed to Builders and Agents.

PATENT GALVANIZED IRON

WORKS, Farnham-place, Gravel-lane, Southwark.—The Proprietors of the above Works, who are secured by an exclusive license from the owners of the several patents taken out to perfect this invention in each of the United Kingdoms and the colonies, beg to announce to the Public that they are prepared by their Patent Process (on M. Sorel's principle) of Zincing Iron, and thereby giving it an immoveable coating, which effectually prevents oxidation, to GALVANIZE any description of WROUGHT and CAST IRON WORK; also to supply Galvanized Sheet Iron, for Roofing, Gutters, Pipes, &c. The complete success of this process is now fully established, and in France several manufactures have been worked under the Patent for five years. The French government have taken licenses and established manufactures at Brest, Cherbourg, &c., which are under the direction of M. Sorel. Particulars will be given upon application to Mr. Porter, at the manufactory as above, and at 77, Cornhill.

COMMISSIONERS OF FINE ARTS' REPORT ON THE MEANS OF PREVENTING DAMP IN WALLS.

THE DIRECTORS OF the SEYSSSEL ASPHALTE COMPANY have much pleasure in recommending to the notice of Architects, Builders, and others, the application of the ASPHALTE OF SEYSSSEL as the only effectual prevention of DAMP rising in WALLS.

J. FARRELL, Secretary.
Seyssel Asphalte Company, Stangate, Westminster-bridge.

The following account of its application is extracted from "The Appendix to the Commissioners of Fine Arts Report," page 18.

"In 1839 I superintended the construction of a house of three stories and a half. The foundation of the building is constantly in water, about 191 inches below the level of the ground-floor. The entire horizontal surface of the external and internal walls was covered, at the level of the internal ground-floor, with a layer of Seyssel Asphalte, less than half an inch thick, over which coarse sand was spread.

"Since the above date no trace of damp has shown itself round the walls of the lower story, which are for the most part painted in a grey stone colour. It is well known that the least moisture produces round spots, darker or lighter, on walls so painted. Yet the pavement of the floor, resting on the soil itself, is only about 24 inches above the external level, and is covered only 191, at the utmost, above that of the sheet of water.

"The layer of Asphalte having been broken and removed, for the purpose of inserting the sills of two doors, spots indicating the presence of damp have been since remarked at the base of the door-posts."

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can be provided with flattened Crown, flattened Sheet, and the patent Sheet Plate, Lists of which, showing the price for any Square, from 14 by 12 to 40 by 30 of Heat and Second quality, will be sent (gratis) upon receiving the address. Builders, Glaziers, and others having to Contract, sending a copy of their specifications, with a list of dimensions to R. COGAN, will receive by return of post the lowest prices for all qualities and sizes of Crown Sheet-Glass and Sheet-Plate, &c. Glazing estimated for if required.

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THE BUILDER,
NO. XLII.

SATURDAY, NOVEMBER 18, 1843.

WORTHING NEW CHURCH.
(Important Case for Builders.)

COURT OF BANKRUPTCY—OCT. 6.
IN RE JOHN ELLIOTT, BUILDER, &c.,
CHICHESTER.
(Before Commissioner Sir C. H. Williams.)

The Brighton Herald of last week contains a long and full report of a most interesting inquisition in the above-named affair. We had wished to have transcribed the whole of it to our paper, but perhaps it would only have justified the occupation of two or three pages. Unfortunately, these cases are no novelty; yet we seldom find public attention paid to them; and if it were more frequently, should obtain a cure for the frightful evils of the building system which it reveals. Sometimes it has come to be notorious among us that such building engagements do any thing but do to the reputation and the fortune of their owners; in nine cases out of ten the ruin of the builder is associated with some church or chapel; and respectable tradesmen, in London particularly, have their suspicions awakened immediately on being applied to to supply materials to a builder who has entered into such a contract. Cheap churches, where the job has to be filched all out of the builder, or dear ones, where the job has been on the opposite side with a builder on the committee, are all we meet of—and these latter as one to one hundred of the former—only now and then, in cases of "feudary between," do we hear of a church entirely to the satisfaction of all parties concerned. There is something rotten in the system, not only regards the church, for workhouse and all public contracts reveal the same; but the general standard of morality is, we think, on a low scale. Cunning gentlemen, like the Rev. Mr. Davison perhaps, who have "knack" in these things, with the reputation of being very hawk-eyed, which in other means very suspicious, are thrust forward to thrust themselves forward, to shew skill in cutting and paring down before a contract is made, reducing the builder's estimate to the lowest possible straining of his industry and confidence, and afterwards enjoying and watching to the turn of a screw or driving of a nail.

In this case at Worthing, we have one of the most striking examples of an evil system. We do not intend to enter into any further impassioned denunciations of any kind; it is the system we have to reprobate. Mr. Elliott and Mr. Davison were in the wrong, at least it appears so to us, and we are quite amused at the simplicity of the learned bankruptcy commissioner, when he expresses his opinion on matters which, if his attention, had been paid to some others in high station like Mr. Davison, were properly directed, he would find fault every day; but we shall proceed to give our readers such portions, or a summary of the examination, as will enable them to form a proper understanding of it.

October 6.

Rev. Peter Wood, rector of Broadchurch, and the Rev. Wm. Davison, perpetual curate of Worthing chapel, appeared in answer to summonses, to give evidence touching the payment of a large sum of money to be due by them to the bankrupt's es-

tate, and the withholding of which money was assigned by the bankrupt as the sole cause of his bankruptcy.

Mr. M. Chambers appeared for the assignees; Mr. Ogle for the witnesses.

Mr. Davison was the first witness examined. He states that there was no committee, and from Mr. Wood's evidence on a subsequent day, it appears that Mr. Davison acted as his "secretary, and particular friend." Mr. Davison says, he first became acquainted with Mr. Elliott through "a letter, written to Mr. Wood by Mr. Tomkins, respecting him, accompanied by the drawing of a church he had built. At the first meeting with Mr. Elliott, Mr. Wood and myself were present, and certain plans, which had been prepared for the proposed church, were shewn to Mr. Elliott, and the amount for which such a church could be built was discussed. Mr. Wood mentioned the sum which he thought such a church would cost, and Mr. Elliott said he thought he could build a church like that for such a sum, 3,000*l.* was the sum named."

After this, it appears, a considerable time elapsed before Mr. Elliott was applied to again. Meanwhile tenders were procured from other builders, but the amounts were too large for Mr. Wood's inclination. At length it was settled with Mr. Elliott to build a church of equal accommodation to that proposed by Mr. Wood's plan, for the sum of 3,000*l.*, and this was afterwards increased, during the negotiations for a contract, and before the church was commenced, to 3,500*l.*

At length the plans and specifications are made complete, and copies deposited with the Incorporated Society; but almost immediately after the commencement of the works, it would appear that alterations were made upon a scale and conducted in a manner to constitute a new structure, in which that embraced in the plans may be said to have been enveloped or swallowed up.

Hear the history of one set of changes, and the fruit of intermeddlings, not that we so much quarrel with the intermeddlings, as with the absence of that right spirit which first directs justice in our engagements; but the meddling came at the wrong time and in a wrong spirit.

Mr. Davison is asked by Mr. Chambers, "Does the book of plans, now produced, shew the church now erected?—No; it does not. There have been alterations. The view of the church fell into the hands of the Camden Society, and a very bitter article appeared in their publication."

"Were these alterations made at the suggestion of that society?—They were made at the suggestion of the Camden Society, of Mr. Wood, and Mr. Elliott, and they were altered accordingly."

"Then Mr. Elliott altered the church sometimes to please himself, sometimes to please Mr. Wood, and sometimes to please the Camden Society?—No, Sir. These alterations were made under a specific agreement. These alterations consisted in the introduction of stone piers and arches, raising the clerestory, and inserting windows therein, and an alteration of the form of roof, previously sanctioned by the Incorporated Society."

So much for high pitched roofs to keep us in the fashion of architecture, as high-crowned hats one day, and low crowns another, are regulated by the caprice of the *coiffeurs*; but to proceed.

The works were begun in October, 1840, but it was not till the month of April, 1841, or after that, that the agreement was signed. This agreement was put in evidence, and "handed

up to Sir C. Williams, who, observing that there was a marginal note, in writing differing from the body of the agreement, inquired of the witness how it came there, and to whom the initials W. D. belonged? The witness answered that the marginal note was added by himself. His Honour observed that he had never met with such a case before,—that a witness to such an important document as this, should think of adding a clause in a marginal note, which placed Mr. Elliott completely at Mr. Wood's mercy. If Mr. Elliott had agreed to such a clause, the proper course would have been for him and Mr. Wood to have put their initials to it; and it was in no respect binding on Mr. Elliott. Mr. Davison explained that it was usual to have such a clause in agreements, and that he considered it an omission that ought to be supplied."

Mr. Elliott, it would appear, was disposed to place in Mr. Davison the same amount of confidence as that reposed in him by Mr. Wood, and to make him, in fact, their mutual referee; but we shall hear as we proceed how Mr. Davison discharged the duty he undertook—an onerous and extremely responsible duty we will admit, and therefore requiring in that respect, gentleman so much the more scrupulous an adherence to the rules of justice as affecting both parties—Mr. Elliott as well as his friend Mr. Wood. In truth, we can clearly perceive that if Mr. Davison had been properly disposed, he could have saved both parties and himself the immense amount of trouble and disgrace which the affair has occasioned. Mr. Elliott goes on conferring with Mr. Davison as to alterations, meanwhile proceeding with the works, and no specification concluded on; in fact, keeping these things open as it were until Mr. Davison should have made up his mind fully as to what the church should be, and then, to crown all, signs the agreement as prepared by Mr. Davison's directions, putting himself wholly and absolutely at the mercy or caprice of that rev. gentleman.

Mr. Davison's *cleverness* or "knack," as his friend Mr. Wood describes it, does not seem to desert him even in the Court of Bankruptcy; but we find it running in rather a questionable track when he is admonished by his Honour "not to evade the questions put to him;" the end of his examination had reference to the agreement.

Again, when Mr. Chambers says—"Look at this blank page, and tell me if there was not, at that time, pencil writing on it?" "Yes, Sir, pencil marks on it, which remain to this day."

"Were not the words, which have been rubbed out, as follows:—'In case of any dispute arising respecting the works, the same should be settled by reference to some third person, mutually appointed by the Rev. P. Wood and the contractor?'" "They remain there till the present day, but it was not written by Mr. Elliott before the papers were brought back to me; and you will find similar remarks elsewhere that were discussed by us at the time."

What comment, let us ask our readers, would they have us make upon all this? Shall we, as the commissioner observed on the second day's examination, referring to the interlineations and the marginal note, say *it is as gross a thing as we have ever seen in our lives*? or shall we not rather carry our minds beyond the mere actors in this affair, and its incidents, and consider what "*grossness*," what viciousness it is that admits of every-day practices of this nature, where not Mr. Wood alone is one of the *tolerably well disposed* men who put his business into the hands of a dextrous friend "cunning at fence" and at driving a bargain—where not Mr. Elliott alone comes forward, anxious for business, confiding and well-intentioned—where not alone Mr. Davison plumes himself, as he would seem to do, on his adroitness, and out of all this comes so much mischief; but where men of this varied mould, and purposes and incidents of the like stamp, are constantly in action? The little *peering* and confined view that limits itself to the fable and loses sight of the great moral, has no remedy for such things as these, and Bankrupt Commissioners, with all their courts and forms, will fail for the remedy.

Not but that the honest indignation of Sir C. H. Williams, bursting forth on the impulse of the moment, may have its weight, and make its way into other minds to turn to a general consideration of the subject; but there requires a physician trained or gifted for the purpose and the times—deeply scrutinizing into the cause of these moral maladies, and prescribing remedies of larger efficacy than patches and plasters, and the *whitewashings* of a Bankruptcy or an Insolvent Court. Men that are only swayed by a fear of the exposure of their malpractices or the loss of reputation have no high standard of moral excellence in or before them, and we fear that a great bulk of our traders are being reduced to this. But how is it? Who are their schoolmasters, and in what normal academy have the masters themselves been trained? The Davisons, and the school in which the Davisons are trained, want reforming altogether, and we must begin with the schools. Suspicion is the atmosphere that surrounds their site—the warm rays of a sound and generous confidence alone can dispel its cold and cheerless mist. Are our builders to be ruined by this trafficking? ruined we mean not only in pocket, this is the lesser of two evils—ruined in character and reputation. Depend upon it, this system of hard competition and huckstering will not do; it is a plant of that same climate of suspicion, it may be *sharp*, and *prickly*, and thistle-like, and have its admirers, but there are comelier fruits and a comelier stock in confidence. The value of work is known, and it has its ratios of value according to the talent of the workman. When shall we attain to that time when *measure and value* will determine the just due of the workman, and when the choice will depend upon his known trust-worthiness and skill, rather than upon his sharpness or keenness in striking a bargain? Not till then shall we make return to the better days of England's sound, commercial, and trading policy.

It is deposed by Mr. Elliott, in his examination on the second day, in the following words:—

"The first agreement, dated 19th October, 1840, was prepared by me on the understanding which existed between Mr. Wood and myself. I left that agreement with Mr. Davison in the morning of the 19th, at Mr. Wood's, at Broadwater. I returned there in the afternoon, and after dinner signed that agreement with Mr. Wood. When I signed it the interlineations that now appear were not there—at least I never saw them. The marginal note, I believe, was in pencil, but I paid no attention to it, neither should I have signed any agreement with such a note forming part of it, as I had always refused to allow of any surveyor being placed over me; and I would beg to refer, in confirmation of this statement, to a letter (produced) written by Mr. Wood to the secretary of the Incorporated Society in February, 1843, stating that 'Mr. Elliott had refused to allow the appointment of a surveyor over him, considering that it would be derogatory to his character as an architect, and that Mr. Davison had, therefore, been named to superintend the work.' Some months after this, Mr. Davison mentioned to me that Mr. Wood had expressed a wish to have this agreement put into a legal form. I said I had no objection. Mr. Davison then added, 'Mr. Wood has appointed me his referee,' and I said, 'Perhaps you will act for me too.' He hesitated some moments, and then said he would. I added, 'Well, Sir, as you are now referee for both of us, I will leave it to you to get such a paper drawn as you may think fair between us,' Mr. Davison said he would get such a paper drawn up, and afterwards sent me a letter (produced) stating that he had sent such a paper, and which he believed would be conformable to our understanding. This letter was accompanied by a draught of the proposed agreement. I wrote an answer, stating to him my objections to certain clauses in the document, particularly to one giving power to Mr. Wood to appoint a surveyor over me, and also to a clause by which 500*l.* was to be forfeited if the church was not completed by a certain day, assigning as a reason that the making of the large bricks was an experiment; that its success depended on the state of the weather, and that therefore it was unreasonable to ask for such a stipulation."

Mr. Davison denies the receipt of the letter containing the answer; and the commissioner

remarks, "I don't believe there is a builder or architect in the kingdom who would have signed an agreement with such a stipulation."

Heaven bless him! Why, the thing is done every day. That a penalty of 500*l.* may be an unusually large sum to amerce the defaulter in, may be true; but every one conversant with building contracts knows how it has become a part of the formulary to fence and hedge in the contractor upon such specialities, such supererogatory provisos, where, if matters pursued their right course, it would be enough to leave these points to a common understanding between the parties. So doth *law* encumber justice in her progress, and render her hardly to be known in the company of rascalions who dance attendance in her courts.

Mr. Elliott's examination proceeds:—

"The Commissioner:—What is the difference between the amount you claim and that which has been paid to you?—Between 2,000*l.* and 3,000*l.*

"Mr. James, who appeared for Mr. Chambers: In the agreement you signed at Mr. Bennett's office, did you find stipulations which were in the draught agreement sent to you by Mr. Davison?—It's quite a different thing, Sir. By this agreement Mr. Davison has the power to order me to do any thing he pleases—he or his nominee to set a value on such work, and he or his nominee to be final arbitrator in case of dispute.

"Mr. James then proceeded to point out to the commissioner the stipulations inserted in the agreement which did not appear in the draught sent for Mr. Elliott's approval.

"The Commissioner observed, with reference to the power of Mr. Davison to appoint a nominee, that it was a most preposterous thing, as he might have appointed Mr. Wood's groom. But the evil was, Mr. Elliott had signed this paper.

"Mr. James: Yes, but we shall upset it. (To witness.) When you signed the agreement, you did not know it contained this stipulation?—I did not. I own I acted foolishly—most unwisely in signing this agreement without due examination; but I considered that Mr. Davison was acting for me as well as for Mr. Wood, and that the objections I had made had been, as Mr. Davison assured me, attended to. You will see that the agreement requires a very attentive perusal to see its bearings, and I was completely thrown off my guard by Mr. Davison's statement.

"Mr. James: Such a one-sided agreement I never saw. No builder would have been safe under it. (To bankrupt.) This has been the cause of your ruin?—Yes, Sir.

The entire cause of your bankruptcy?—Yes, the sole cause.

"Sir C. Williams: The only question is, whether you should have signed such an agreement.

"Mr. James: But there was one agreement signed previously, and in signing this other, bankrupt considered that he was only confirming the first. There was misrepresentation.

"Sir C. Williams: In equity you would succeed—in law, I think not.

"Mr. James: We will try it at law.

"Sir C. Williams: Certainly, fraud vitiates every thing. A harder measure I never saw meted out to any one than has been meted out to this man. Every stipulation is to his detriment—not one to his advantage.

"Sir C. Williams (to bankrupt): This was the first time you ever entered into a building contract?—Yes, Sir."

And we hope it will be the last. We wish every such man could be brought to such resolve.

Well, this is to be the end of it. The lawyers are to have their play in the business, unless the kind, the unusually kind and considerate advice of the commissioner is to have its weight. The Rev. Mr. Wood seems to be a well-meaning man, and disposed to accede to his Honour's recommendation for an amicable settlement; but Mr. Elliott has got into the hands of his assignees, and his prospects are blighted. What he may have deserved for his imprudence it is not for us to say—his fate may be a warning to many others; but Mr. Davison has most to wipe out, and he may do it, by an effort to redeem the young man from the position into which he has been thrown by trusting his inexperience in the issue, with Mr. Davison's more calculating and cautious policy.

* Mr. Bennett, the solicitor for Mr. Wood.

PROSSER'S WOODEN RAILWAY.

LAST Tuesday, we attended to witness some experiments and the working of a locomotive carriage on a piece of the wooden railway near Vauxhall Bridge. It will be recollected that we gave insertion to a paper on the subject page 474, wherein the peculiarities of the plan were detailed, with a glance at its merits and advantages. In railway economy it may be classed as we would class the spring tax-cab amongst gigs, or the market coach amongst *swell drags* of the days of four-in-hand; it is a thing for homely use, where the bolder advantages of the iron road may not be aspired to, may be called the *via media* between the plan of many sanguine persons who have vainly tried to introduce the steam carriage on common roads, and that most perfect of our present knowledge, the iron rail-road above mentioned. For this reason we are glad to see it and to calculate upon its utilities.

It has for a long time been matter of serious consideration with many, as to what would be the effect upon large tracts of country shut from participation in the benefits of immediate connection with the great trunks of railways now constructed, and it was apprehended indeed we may add it has turned out, that some excluded districts have seriously felt the inconvenience.

Prior to the introduction of the iron road the country had attained to a pretty general equality in the character of the then ordinary roads. The art of Mr. Adam had been acquired by all having the superintendence of road-trusts, from the little country parish to the Parliamentary commission line of London to Holyhead, and similar. Our coach system partook of the same general plainness, and, whether on cross-road or grand turnpike, little was to be discerned difference, and little to be felt. But now, that speed which resembles its movements, steam locomotive has run a race towards perfection, and all its appliances are brought to the favour of certain grand lines of transit, thus, the comfortable equality of condition which we had been preparing to sit down to a permanence was disturbed. It cannot be denied. Many a time the remark has been made before us, that such and such a line projected railway, some branch from a respectable, but now declining market manufacturing town, would never pay. answer has almost invariably been—"But it pay to be without it?"

So long, however, as the only alternative appeared to be a common turnpike, or an ordinary railway, the prospects of improvement to places were very remote. The stern voice of necessity even would be powerless to commingle the capital, and provided the funds could be secured for the construction of the road, the question of wear and tear of engines would obtrude itself upon the consideration, to do more on the undertaking. It is with some satisfaction, therefore, that we see a midway source, a cheap mode of constructing the road, and one promising to secure greater durability to the engines in working upon wooden rails, that may be constructed of beech or other native woods, running through an agricultural district, following the moderate undulations of a country, and its side cutting occupying no ground for embankments or cuttings, easy to construct and to repair, from the resilient character of the wood, flitting less injury by percussion to the engine that traverse it, than is done upon iron rails uniting all these advantages, although it falls short of the perfect plan, it is still that proximate one which the necessities of the case appear to call for. At all events, we greatly desire to see the experiment tried fully and fairly, and we doubt not that an answer will speedily offer itself.

A rumour was on foot at the meeting where we have adverted to, that a line was surveyed, and every probability of its being adopted; the present experimental line is one-tenth of a mile in length, but, as explained in our pages previously, it is well devised, putting the doubtful points regarding ascents and curves to the test, and it offers also a rule whereby to judge of the effect of wear upon the rails. Up to last Saturday, the engine, which, it should be observed, is united to a senger carriage, had traversed the line upwards of seventeen thousand times, and there were

visible signs of deterioration. Our readers may collect the description of the carriage before even, and we take this occasion to substitute another term for one used at that time for the second set of wheels; they are there called antichion wheels, and described as being placed on bevil axles. We would rather term them side and safety wheels, for they guide the carriage, and restrain it to the rails, whose edge is under command, and in the event of an axle or bearing wheels giving way, these come in use to bear the load, and carry it on till the progress can be safely stayed.

The driving or bearing wheels are without flanges, and obtain the full grip of the sole or upon the rails; this, it will be understood, gives greater power to make an ascent than can be commanded on iron rails, where the surface in contact between the wheels and the rails is so small; one part of the experimental line is at the top of Holborn Hill, and although a very short length, yet it serves to shew something of measure of power in such cases.

One great advantage that we have not yet mentioned is the less noisy character of the running upon wood than upon iron rails; and we may be noted that inasmuch as the road may be compared to one great frame or wooden lining, of longitudinal and cross sleepers, it presents an aspect of security and simplicity of construction. Common carpenters of the country would be well equal to it, and for the towns, the revenue would be no gainer by the substitution of native for foreign timber, but a landed proprietor would, therefore this might be regarded as one of its least recommendations, and we trust we have said enough to attract the active attention to the whole subject of one of those who, like that body, are deeply interested in it.

Mr. Paine's process of charging the wood with solutions of lime and iron, forming an indurated compound, has been adopted; this is a double preservation, first, against decay, and next, as it intensely hardens and binds the wood, against the wear of abrasion; it secures a third advantage, which is a better surface for the wheels. It has in some of the respective merits of iron, stone, and wood, and avoids the individual defects in application of each.

THE CARPENTERS' BENEVOLENT INSTITUTION.

I have seen it recently stated in the public press that a grand bull-fight had been enacted, and that the youthful Queen of Spain and her court were present, the end being to raise money towards the erection of a church; and this is quite familiar in this country with balls, and fancy fairs, for similar objects. I have, therefore, then, may we not trace a ready connection between a theatrical performance and the Carpenters' Benevolent Institution,—is it not a fact that is resolved upon? The Surrey Theatre is engaged for next evening, for the benefit of this expeditionary society, when a nautical entertainment, with other entertainments, are to be given.

I have before addressed ourselves to the subject of recommending this institution to the notice of our readers and the whole building of it can only renew what we have so often said and mark out this occasion as one in which a twofold gratification may be comprehended under one act of charitable sympathy. It is perhaps hardly the word, for who can be amongst us whether of himself or his connection he may not require the aid of that buttress in later days which in the present is assisting to build up? We call upon those who can afford to spare a night to give their presence on this occasion, to make up a company of dramatists enjoy the privilege of representation in this house.

APPLICATION AND INTENT OF THE VARIOUS STYLES OF ARCHITECTURE.

WHEN employed by its authors and inventors, the architecture of Attica and Ionia is faultless. The separate members of the building have a definite relation to the whole. They are aggregated by affinity and connected by opposition. Each one is in its destined place; no one is extraneous or superfluous; all are characterized by fitness and propriety. Grecian architecture is a composition of columns, which are intended to assemble themselves only in the form of a Grecian temple. They seek to enter into no other combination. Beauty and elegance result from their union. The long unvaried horizontal line of the entablature rests in stable tranquillity upon the even ranging capitals below, and the conical shafts are repeated in unbroken symmetry. The edifice is perfect in itself.

The Grecian temple may be compared to a single crystal, and the laws by which it is constructed are analogous to the process of crystallization. Disturb the arrangement of the primitive molecules of the crystal, and they will set into a misshapen fragment. Increase the number of these crystals, allow them to fix themselves upon each other, and their individual regularity will be lost in the amorphous mass. Thus, in the Grecian temple, the component parts have settled themselves into a shape of perfect harmony, such as is required by their integral figure, but it is a shape which cannot be varied in its outline nor can it be changed in its proportions. Neither does it submit to be annexed to any other. Every attempt which is made to blend the temple with any other design, produces a lame and discordant effect. We must reject the arch, the noblest invention of architectural science. Porticos cannot be duplicated. Doric columns cannot be raised in stories. No window can open into the cell. No wing can be added to the right or to the left which does not at once convince the observer that it has no real relationship to the centre which it obscures.

How could any other result be anticipated? The sacred architecture of Greece admits of no habitable interior. A cell of narrow dimensions, lighted by an aperture in the roof, and intended to contain a single statue, is the only chamber which can be placed within the walls of the temple. We are not required to enter into the fane. It is a monument which we are to contemplate from without, and which appears in its pride when considered as a portion of the surrounding landscape. The chaste columns and pure sculptures which are now mellowed by the hand of time to a sad and sober grey, originally shone with all the splendour of the East. Every moulding was distinguished by strongly contrasted colours; and the snowy whiteness of the Parian marble was concealed beneath the glowing layers of gold, azure, and vermilion. In the opinion of the Grecian architect, his building was seldom more than the framework of his sculpture. He never intended it for social worship. A temple was a shrine upon which decorations were to be

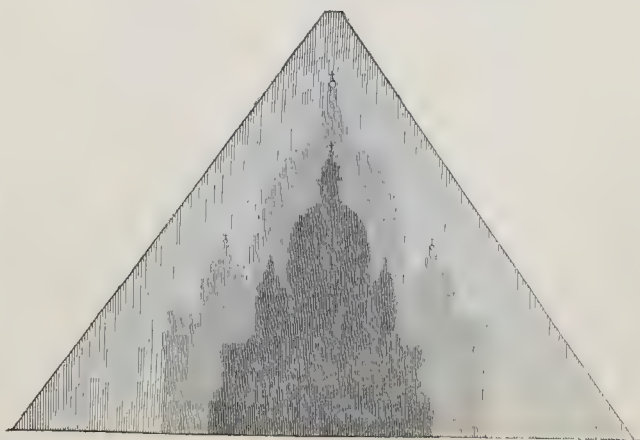
displayed. The altar flamed before the portico. The votary was to offer up his sacrifice in the hypæthrum, looking around to the woods, the purpled hills, and the circling horizon.

From the science of its mechanical execution, aided by the transcendent skill of the sculptor, the beauties of the design of the Grecian architect are doubly enhanced. As masons, the Greeks carried the art of building to the highest excellence. The Grecian architect possessed the means which his mind required. His elements were few. Scarcely any variety of structure was required from his art. He placed a larger number of columns around the more sumptuous edifice, and a smaller number around the more humble structure: he raised the temple and the tomb. His career was definite; he saw the end of it. He was required to perfect, rather than invent. Grecian architecture submits itself to the judgment, and the judgment is satisfied.

Such were not the labours of the Gothic mason; he stops frustrated, but not in disappointment. Neither the quarries of Pentelicus nor the chisel of Phidias could assist him. Rude materials and still ruder hands were all that he could command. His architecture must depend upon its innate character and significance. The cathedral is to be considered rather as a forethought than as a finished specimen. It exhibits the effort that has been made to embody those abstract ideas of solemnity and grandeur which could not be fully realized or accomplished by human power. Still the effect has not failed; Gothic architecture appeals to the imagination, and fancy half supplies the deficiencies of the material scene. A Gothic building has always the charms of mystery, it always appears to be larger than its actual dimensions. The mouldings, the pillars, the arches, always create receding shadows; and to the mind, the idea of space arises from a succession of shadows, just as the conception of time results from the succession of ideas. In the earlier Gothic styles, the management of the aerial tints was studied with remarkable skill. The mouldings are all undercut, and the curves are almost invariably of the higher order; and the limbs of the apertures are marked by carrying the mouldings above the level of the wall. A small fillet also often runs down the front of the lesser columns. By these artifices all the forms of the building are brought out, *painted*, as it were, in *chiaro scuro*; for the minute linear projections catch the light and heighten it, and the undercutting deepens and mellow the shade.

Daylight is courted by the Gothic architect. The lines and masses of the roofs, buttresses, and transepts, the ascending pinnacles and towers, are marked and defined by the full blaze of noon, which falls upon them and contrasts itself with the freshness of the apertures, and the darkness of the walls which are behind the sunshine. Gothic architecture seeks to exclude the sight of middle earth. Its genius delights in quadrangles, cloisters, and porches; in piles which expand and close round the spectator, leaving him nought to contemplate but themselves and the sky.

Q.



Relative Proportions of St. Paul's, London, St. Peter's, Rome, and the Great Pyramid of Egypt.

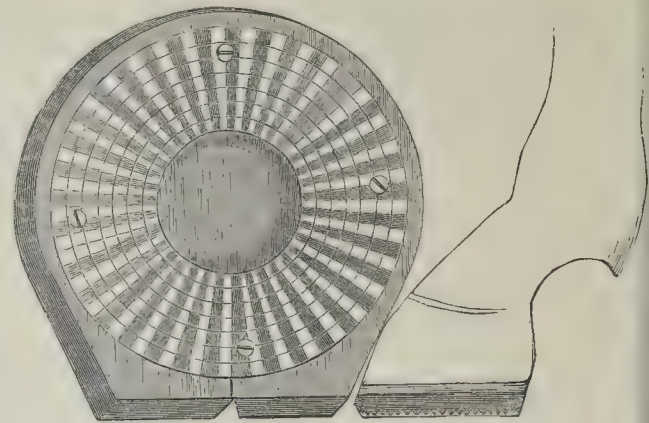
LIVERPOOL DOCKS.

Two weeks ago, we gave information of the intention of the Dock Estate Committee, under the advice of Mr. Hartley, the eminent engineer of the port, to make great enlargement for the reception of a certain class of vessels, and we did so with a feeling of gratification at the prospect it held out of large employment for building artificers. We are not now called to consider the matter as less promising in this respect, and therefore it may be urged against us that we ought not to interfere on any other ground; that so long as a plan was likely to be acted upon to ensure the expenditure of a large sum of money in building operations, it made no matter to us how, or by whom it was spent; that whether the docks were to be built on the Liverpool side of the Mersey, as was then reported by us, or on the Cheshire side at Birkenhead, occupying Wallasey Pool, now announced as projected, it mattered nothing to builders, or us who represent them. We see things, however with a different eye, and beg to demur to this line of reasoning; this is not the first occasion for our insisting upon the necessity of the architect and builder exercising a higher and nobler than the mere selfish faculty of the shop; he must feel the dignity of the citizen, and, seeking to enjoy his privileges as such, must not shrink from the performance of its duties.

It is in this spirit that with us he will join in a view of this subject of the Liverpool *versus* the Wallasey Pool Docks. It is undoubtedly in a bold spirit that the latter project is conceived, and if carried out, would probably lead to an expenditure of almost incalculable amount in docks, roads, warehouses, streets,—in short, a city,—but all is not gain that appears such. Liverpool will probably lose in a ratio corresponding with the other's gain; and so far, many would argue, the matter would be balanced. But it is not so; great cities cannot suffer loss and decay without peril of decrepitude and death; and what compensation would it be to call into life new interests, if it can only be done at the expense and cost of swamping an old and important one? Let us put the case strongly, and, we admit, in an extreme point of view,—let us suppose that half a million men could be called into being, and set to flourish among us as building craftsmen. If this, however, is to be done at the expense of the half-million now flourishing in that way, what humane, what sane man, would encourage such a proposition? Exactly so we view this Wallasey Pool speculation, and so, we trust, it will be viewed by the legislature. It would, if sanctioned, be a great practical working of the problem of "robbing Peter to pay Paul."

To those who do not know Liverpool so well as we do, it may be necessary to explain that the Mersey is not like the Thames, and yet not altogether unlike it. The Mersey is greatly wider and not to be spanned across by a bridge; the opposite shore of Cheshire cannot be united to that of Liverpool, as the opposite banks of the Thames are—in fact, it would be like a union at a point below—say of Gravesend and Tilbury Fort. Liverpool has had its millions spent upon its docks, and no one needs to be told of the general consequence and wealth of that town; any project, therefore, which threatens the impoverishment of the second city of the empire, must be regarded as threatening a national catastrophe, and we are surprised that it is not so viewed by all parties in Liverpool. We consider it would be more fatal to remove the docks of Liverpool in the way proposed, or to set upon an opposition interest, than it would be here in London to form a large dock accommodation at Greenwich or Woolwich for the same objects as the East or West India and St. Katherine's Docks.

Besides this, Birkenhead and Woodside, on the Cheshire side of the Mersey, are designed for different ends, now especially that Liverpool is made. They are formed for the country resorts of Liverpool merchants, as the appropriate counterpart of the busy and crowded resorts of traffic on the opposite shore. We do indeed sincerely trust that no scheme of so suicidal a tendency will be supported by the people of Liverpool. We know nothing of, and feel no interest in, any speculation, but for the reasons given we deprecate the farther prosecution of this affair, and hope speedily to hear of its abandonment.



HORSE-SHOE APPLICABLE TO WOOD PAVEMENTS.

SIR,—Permit me to offer to your readers a drawing (I cannot call it a drawing), but what I wish to represent is a shoe to fit the hoof, which being the broadest at the bottom, would require the shoe to open and close again, with a joint at the tip, and to fasten behind with a screw or rivet passing transversely through it, with a rim round it, to receive a plate or sub-shoe, which is marked circular with radiating lines, which I mean shall form teeth, or rather so many serrated or toothed projections, all

increasing in size at the base from the center but all to be of one height, so that being radiating, the inner ones will of course be more tapering than the outer ones. The screw which fastens the outer to the inner shoe, should be better arranged than my rough sketch represents, for you will perceive that one of them is shewn to screw exactly into the joint.

I remain, Sir,
Your humble and obliged servant,
THOMAS REEK.

MEMORIALS OF THE DEAD.

Is there, in this age of criticism and cavil, any reader of our Journal disposed to question the propriety of ascribing the earliest known efforts in architecture to commemorative purposes? If so, he is referred to monuments which still bound the horizon of time; those pyramidal masses erected in the first ages by a race who, in all things, aimed at perpetuating a name; the sons of Cush! who, in fulfilment of the divine fiat of dispersion, were scattered over the earth, but carried with them from Babel, predilections for vastness in structure exemplified in exact accordance with appliances induced by settled forms of government, and a cultivation of the arts.

The altar, the temple, and tomb, have always been objects of solicitude and of subsequent interest; and this, it would appear, not from mere caprice or influence of the inferior conceptions or faculties of our nature, but as resulting from an inherent and constantly operating law of mind. Jacob, while yet a wanderer in tents, consecrated by a pillar the first monument on record—the spot where reposed his beloved Rachael. Thenceforward may be traced the erection of monolithic memorials in the times and countries of the patriarchal families, while, perhaps, the Egyptian and other Eastern dynasties were already maturing and consolidating those astounding energies of which evidences remain, and in which we recognize the supremacy of feelings participated in by all mankind. The sculptured and painted tombs of the Thebais; the cavern sepulchres and rock-inscriptions of India and Persia; the Celtic cairn and barrow, and the tumuli of early contested battle-fields, are yet enduring proofs of the solicitude of the living to perpetuate the memory of the dead. With the motives and devices of the builders the vicissitudes of time have strangely interfered. The Eastern sepulchres, unfaithful to their trust, have yielded to the cupidity and desecration of the alien and stranger, while the rude Druidical mound still covers remains over which the wild flowers of two thousand summers have shed their blossoms.

No superstructure remains to mark the

burial-places of the Roman occupiers of Britain; but the funeral urn and broken tablet occasionally turned up prove to their modes of inhumation, and the sites where the precursors of civilization paid the tribute exacted alike from the victor and the vanquished. It does not appear that the Roman practice of burning the dead was ever adopted by the Britons, who preserved their ancient modes of interment, the body being enveloped in tenacious clay, and laid with the head towards the north. The Saxon rule, of a more permanent character, and contemporary with the establishment of Christianity, broke down the more barbarous native customs; while religion, pointing always to futurity, originated and cherished those ceremonies which satisfy the last resting place of mortality, and teach the living supplicant for grace a mercy to remember in his appeals those who have preceded him to the tomb. Few, if any, monuments of an enduring kind were erected during the early Saxon era; later, when religious houses had multiplied, the churches of great abbots were no doubt depositories of the remains of the kings and magnates of the land. The general dissolution which destroyed the structures overthrew at once the noblest examples of ancient skill, the best evidences of gradations in the arts of building and sculpture, and obliterated without remorse every vestige that piety or affection had consecrated to the dead. Subsequently, in parochial churches the tombs of founders or benefactors ceased to excite even the colder sensation of duty to their preservation, and numerous monuments of surpassing interest have been walled built over, or suffered to moulder to utter decay. In this department of antiquarian research, the best authorities agree that so much remains, still asserted to be those Saxon times and kings, prior to the tenth century, are spurious; *Gough*, an authority great weight on this subject, says the figure of Ailwyn, who founded Ramsay Abbey, A.D. 969, is one of the oldest genuine sepulchral monuments among us, and almost the only remains of that rich house, where it now lies neglected in a yard! It is habited in the kind of mantle, buskins, and pileus; the right hand holds two keys and a ragged staff, left lies on the breast; on the top of the Gothic arch, over the figure, is a representation of the angels receiving the spirit of the deceased Ailwyn is styled Duke, or Earl of the English, and Alderman of all England. The Cromwells converted the abbey house into

mansion, and this figure was taken out of a pond belonging to it in the time of Charles the Second; the head was broken off in the frost of 1745.

The Norman conquest established a purely military despotism, under which there was no scope for manifestation of the kindlier feelings in the erection of monuments; the few of the Saxon or mixed race who were still permitted to hold lands could not tell how long these possessions would remain to themselves or families; immense fiefs or baronies were consolidated, and put into the hands of the Norman leaders, who in several instances, as proved to us by Domesday Book, held thirty or forty manors. At that period all above the lowest rank were soldiers, and the sword alone constituted the gentleman; existing monuments of a corresponding date are therefore confined to kings, their families, and a few of the chief nobility and leaders, among which the most ancient are those of Gundreda, niece of the Conqueror at Lewes, William de Eincourt at Lincoln, Bishop Roger at Salisbury, and of the Veres, Earls of Oxford, at Earls Colne, Essex. The rule of the "strong hand," which especially characterized succeeding monarchs of the Norman line, and became even more oppressive during the struggle between Stephen and his contending barons, gave little encouragement to monumental sculpture, beyond examples similar to those already cited; but in the interval between the ninth year of the following reign (Hen. III.) to the tenth of Edward II., or from 1224 to 1316, a new occasion and style occurs in monuments of the Knights Templars, a religious order of laymen who had fought for the recovery of Palestine; and of a secondary class who had vowed and performed a pilgrimage to the Holy Land. This once powerful body, whose self-devotion was cherished and applauded throughout Christendom, grew immensely rich, and the obsequies of their dead were celebrated with little less than regal pomp; in contradistinction to the current practice of interring the remains of the great in abbey churches, the templar appears to have chosen, or his remains to have been claimed by the church of which he was the immediate patron, as well as lord of the surrounding domain, and to have conferred both sanctity and dignity upon the locality of his final repose. The Templars were usually, if not universally, buried cross-legged, in token of the banner under which they had fought, and completely armed; we may conclude that all such effigies, whether in niches, or in walls, or on table tombs, in complete armour with a shield on the left arm, and the right hand grasping the sword, cross-legged, and with the feet resting on a lion, talbot, or other animal, are of the date set forth.

About the middle of the reign of Edward III., estates and lands came to be more divided, and the possessors tranquilly settled upon them; again the memory of progenitors was cared for, many ecclesiastical buildings were raised, and resting places with memorials congenial to the devotional spirit of the time were provided. About 1350 came in the table tomb, with figures recumbent upon it, the hands joined in a praying posture, frequently surmounted by a rich canopy of stone; round the edges of these tombs, for the most part, were inscriptions on brass plates. The more humble gravestone laid flat on the pavement had sometimes an inscription cut round the border, and enriched with plates of brass; most of these stones have been depolished by the brasses which adorned them. Could the scourges of fanaticism and plunder have been averted, these memorials were well calculated to preserve the memory of the dead; brasses, in many instances, have served to hand down names and incidents through the generations of six hundred years; their great offence to Puritan eyes was the simple yet devout request that all who read would pray for the deceased, and that God would have mercy upon his soul; leaving it to be inferred that however elevated in life, he was in other respects but as ourselves. From about the year 1380 this mode of commemoration grew into common use, and remained so even to the time of James I.; but after the reign of Edward VI. we find the old square Gothic letter abandoned for the Roman capital, and the phrase *ora pro anima* omitted.

(To be continued, with illustrations of unpublished monuments.)

ON THE CONSTRUCTION OF ARCHES.

WHILE thousands of arches are annually turned in this country by bricklayers and masons, while the joiner is perpetually employed in framing casements for windows, and the general architect is daily projecting new models for buildings, mathematicians have tormented themselves in vain in pursuit of the best form of an arch. We have equations to curves presented to us, which are to produce wonderful effects, but fortunately, as they arise from the consideration of first and second fluxions, the practical builder understands nothing of the demonstration; and if he did, the difficulties in the way of forming the frame for the required curve would ruin all his scientific preconceptions. How then is it, that bridges are actually built, that they remain firm, and support immense weights? How is it that they are built by the most ordinary bricklayer; that a frame, united in the rudest manner, should prove adequate to its purpose? That scarcely any skill is necessary in forming the bricks to a particular standard? These questions, if they had occurred to the mathematicians who were composing their "principles of bridges, containing the mathematical demonstrations of the properties of the arches," &c. might have led them to contemplate the curve of the arch as of little importance, and to conclude that the theory of circular buildings depended upon other and very different qualities in their structure.

In glancing at the windows of every house, the arches of every bridge, or the entrances of every church in this vast metropolis, what is it that particularly strikes the eye in the position of the stones or bricks which form an unsupported curve? We see them placed differently from all the rest, and perceive that the centre stone or brick is the segment of an equiangular wedge, the stones or bricks adjoining them being also segments of wedges.

The theory of arch-building being thus deduced from the nature of the wedge, the equilibrium of arches is established either by adjusting the weights of the sections, according to the angles which are contained between their sides, supposed to be given quantities, or by supposing the weights of the wedges or sections to be given, and investigating what must be the angles contained by their sides; so that the pressures on them may be an exact counterpoise to the weight of each section, due regard being had to its place in the arch. The wedges are considered as perfectly hard bodies, independent of each other, and as acting solely by their own gravity, without cement or other fastenings. Thus, if we suppose a certain number of these segments of wedges placed in the form of an arch, or united in a straight line at their bases, as generally occurs at the tops of our windows, the weight of each section, by which it endeavours to descend towards the earth, is opposed by the pressure the sides of it sustain from the sections which are adjacent to it. If the pressure should be small, the wedge will not be supported, but will descend with greater or less obliquity to the horizon, according to its place in the arch. If the pressure should be too great, it will more than counterpoise the weight of the section, and will force it upward. The equilibrium of the entire arch will consequently depend on the exact adjustment of the weight of each section or wedge to the pressure it sustains, and the angular distance from the vertex.

Let us suppose an arch to be completed; let us next remove all the stones from one side, and apply a prop perpendicularly to the side of the key-stone, so that such prop shall as effectually support it, and, of course, the remaining part of the arch, as if none of the stones had been taken away. In this case, the existing side of the arch will be immovably fixed, and the key-stone be prevented from falling, by the resistance of the prop on the one side, and the abutment of the basis of the arch on the other. Half, therefore, of the weight of the key-stone will be supported by the prop, and half by the abutment. From the principles of the wedge, the half weight is to the resistance, or to the action of the prop, as the sine of half the angle of the wedge to radius, the angle of the wedge being the angle which the sides of the key-stone form, when they meet by subtenion. Hence the weight of the key-stone, and the angle of the wedge being given, the resistance of the prop is found.

Let us now suppose, that the stone next to

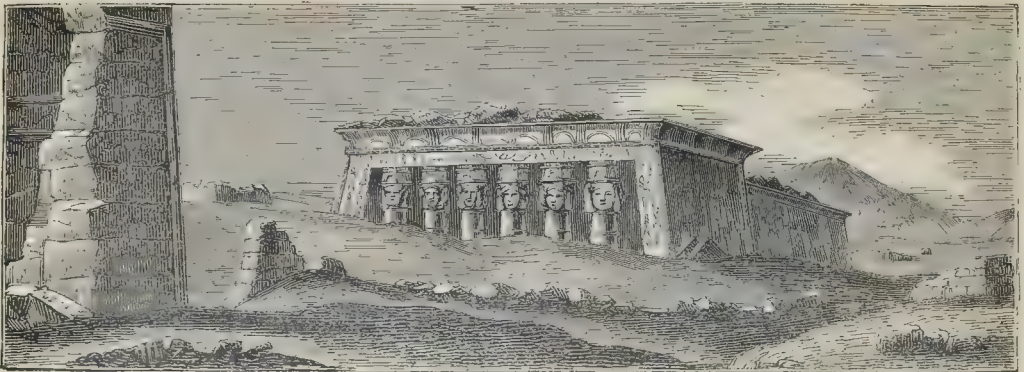
the key-stone, of which it made the abutment, is also removed, and that the remaining part of the arch is permanent; the prop, in this case, will not be efficacious, unless the key-stone, and that adjoining, be properly adjusted; and, to make this adjustment, we must have the weights of the key and the adjoining stones given, and also the angles of the wedges. The resistance of the prop, which acted perpendicularly to the side of the key-stone, being increased by the action of the latter, is to be resolved into two sections, the one perpendicular to the new abutment, and the other parallel to it; the latter being the efficacious part of the resistance to prevent the descent of the stone in the direction of the abutment. In the same manner, the second to the key-stone is to be considered as moveable, and so on; and, by a very elegant construction, the weights of each successive stone are determined; and the prop being taken away, and an arch similar to that on the other side of the key-stone substituted in its stead, the whole becomes an arch of equilibration. C. R.

YORK MINSTER.—Three massive doors have just been completed in Newcastle for York Minster. They are of the decorated or Christian style, and designed by Mr. Sidney Smirke, under whose direction the restoration of that splendid Minster is now drawing to a close. The three doors are alike, and measure 16 feet in height, and 64 feet in breadth. The upper part is full of rich tracery, supported by columns with capitals, embellished with Gothic leaves. The tops of the capitals are ornamented with figure-heads, out of which the hood mouldings spring, and terminate with exquisitely carved Gothic finials and crockets. In the centre of the arches are three trefoils, with shields, on which coats of arms may be put. The lower part of the doors is divided into six portions or arcades, the tops of which are decorated with crockets and finials, and between each compartment are beautifully carved pinnacles, springing from the heads of the columns. They have been executed by Mr. James Wallace, builder, and Mr. R. J. Scott, carver, and their elegant workmanship has been admired by all who have seen them.—*Newcastle Paper.*

REFORM CLUB.—On Monday evening at seven o'clock a trial was made between the celebrated inventions—the Bude and Farraday lights, fixed for that purpose in two of the libraries of the Reform Club. There were present Sir H. Webb, Bart., Captain Doran, Mr. Farraday, Mr. Barry, Sir E. Colebrook, Sir J. Doran, Dr. Holland, Mr. Nurse, &c. &c., and many gentlemen connected with the club. The result of the experiment was in favour of the Bude light as to the brilliancy of illumination, the perfect ventilation, and the freedom from heat. The Bude gives a light equal to 30 argands, and lights the room perfectly at every point. The Farraday light consists of 18 lights, and the smoke of the gas is carried off by tubes. The heat increased six degrees after the Farraday was lighted, and it is of a subdued tone and far from brilliant. It will thus be seen that the Bude has added to its fame by these experiments, the more by reason of both lights being great improvements upon the old system. The Bude, we believe, has been quietly but rapidly gaining in public estimation, and to the many public and private edifices which now possess it, the principal clubs will, doubtless, soon be added. During the experiments it was stated that the Farraday light was about four times more expensive than the Bude.—*Times*, Nov. 8th.

THE PLYMOUTH BREAKWATER.—The last stone of the lighthouse tower, at the western end of this stupendous sea-barrier, was set on Thursday last by the Rear-Admiral Superintendent of the dockyard, Sir Samuel Pym, K.C.B., who proceeded to the spot, accompanied by his secretary, Mr. Dent, and his flag-lieutenant, Mr. Potbury. Captain Milne, of the *Caledonia*, 120, was also present. The tower is 122 feet in height from the level of the bottom of the sea, and 56 feet from the level surface of the breakwater. It is composed of 31 courses of large blocks of dressed granite, the first of which was laid by the late superintendent of the dockyard, Vice-Admiral Warren, on the 22nd of February, 1841. The lighthouse is divided into five stories, in which are an oil-room, a store-room, a dwelling-room, a bed-room, and a watch-room. It has fourteen windows, seven of which are in the watch-room, the frames being constructed of bell-metal, as are also the outer doors. The lantern is the only thing now necessary to complete it for service, which it is expected will be ready to be brought into use early in the next year, when it will supersede the old light vessel, which has been moored in the Sound ever since 1813.

LECTURES ON ARCHITECTURE AND ANTIQUITIES.*



Temple at Tentyra, Upper Egypt.

LECTURE II.

DIODORUS SICULUS, who wrote 50 B.C., thus describes Babylon:—"Semiramis, who was naturally of an aspiring spirit, and ambitious to excel all her predecessors in glorious actions, employed all her thoughts about the building of Babylon, and having provided architects, artificers, and all other necessities for the undertaking, she employed two millions of men in building of the city. It was so erected, that the river Euphrates ran through the middle of it; it was surrounded by a wall 360 furlongs in circuit, and adorned with many stately towers, and such was the state and grandeur of the work, that the walls were of that breadth as that six chariots abreast might be driven together upon them. The height was such as exceeded all men's belief that heard of it, as Ctesias relates; but Clitarchus and those who went afterwards over with Alexander into Asia, have written that the walls were 365 furlongs, the queen making them of that compass that the furlongs should be as many as the days of the year. They were of brick, cemented with bitumen, in height, as Ctesias says, 300 feet, but as some of the later writers report, but 75 only, and that the breadth was but enough for two chariots abreast. There were 250 turrets, in height and thickness proportionable to the largeness of the wall. Between the wall and the houses there was a space of 200 feet. That the work might be more easily despatched, to each of her friends was allotted a furlong, with an allowance of all expenses necessary for their several parts, and commanded that all should be finished in a year's time, which being diligently perfected with the queen's approbation, she then made a bridge at the narrowest part of the river five furlongs in length. She built likewise two palaces, one at each end of the bridge on the banks of the river." The wall of one palace was 60 furlongs in circumference, and of the other 30, both of "well-burnt bricks," and it appears from Diodorus that a tunnel communication was made between the two palaces. "The river was turned aside into a reservoir, and a vault (15 feet broad, and 12 feet high to the springing of the arch) built across the old bed; the stream was then suffered to flow over the work in its old channel. She made likewise two brazen gates at either end of the vault, which continued to the time of the Persian empire. In the middle of the city she built a temple to

Jupiter, whom the Babylonians call Belus, of which, since writers differ among themselves, and the work is now wholly decayed, there is nothing that can be related with certainty concerning it, yet it is apparent that it was of exceeding great height, and that by advantage of it the Chaldean astrologers exactly observed the rising and setting of the stars. The whole was built of brick cemented with bitumen, with great art and cost. On the top were placed three statues of beaten gold, of Jupiter, Juno, and Rhea, with other splendid vessels, tables, and ornaments of gold and precious stones, weighing altogether about six Babylonish talents. But all these the Persian king sacrilegiously carried away, and length of time has either altogether consumed, or so much defaced the palaces, and the other structures, that at this day but a small part of this Babylon is inhabited, and the greatest part which lay within the walls is turned to pasture and tillage." (Diod. Sic. b. ii. c. 3.) We will now take the account which Herodotus gives of the temple of Belus: he states the square of the base at two stadia, or 1,000 feet, and adds, "in the midst a tower rises of the solid depth and height of one stadium (or 500 feet), upon which resting, as upon a base, seven other turrets are built in regular succession. The ascent is on the outside, which winding from the ground is continued to the highest tower, and in the midst of the whole structure there is a convenient resting-place. In the last tower is a large chapel, in which is placed a couch magnificently adorned, and near it is a table of solid gold, but there is no statue in the place." (Clio. 181.)

Strabo says that the sepulchre of Belus was a pyramid of one stadium in height, whose base was a square of like dimension, and that it was ruined by Xerxes. Arrian agrees in this particular, and both these writers say that Alexander wished to restore it, but that he found it too great a labour, for it is said that ten thousand men were not able to remove the rubbish in two months. Arrian calls it a stupendous and wonderful fabric, and states that it stood in the heart of the city. On the top of this wonderful pile was the statue of Belus 40 feet high, but which only appeared of the size of life from below. As a guide by which we may form an idea of the loftiness of this tower, it may be mentioned that the highest building in England is Salisbury Cathedral, whose spire is 404 feet high. (St. Paul's is about 368 feet high.) The statue of Belus will bring to mind one which far exceeded it, viz. the golden image set up in the plain of Dura by Nebuchadnezzar (Daniel iii. 1), which was 60 cubits high (105 feet).

Though Semiramis built so largely in Babylon, yet Nebuchadnezzar so enlarged and beautified it, that he may be said to have built it anew, and his therefore is the city whose

great circuit is given by ancient writers varying from 45 to 60 miles. To this glorious city the king is made to allude in the pride of his heart: "Is not this great Babylon, that I have built for the house of the kingdom by the might of my power, and for the honour of my majesty?" (Dan. iv. 30.) In fact, Babylon was more like a province walled in than a mere city, and we are not to suppose that it was all built upon, for a great part was devoted to raise corn; and in all eastern cities gardens mostly surround the houses, which therefore occupy but a small proportion of the area of the city. Among the wonders of the world were ranked the famous hanging gardens, which were raised by Nebuchadnezzar to gratify his wife Amyctis, the daughter of Astyages, king of Media. Quintus Curtius makes them 50 feet high. They were raised on pillars and contained a square of 400 feet each side, and were carried up into the air on several terraces laid one above another, and the ascent from terrace to terrace was by stairs 10 feet wide. A wall 22 feet in thickness surrounded the fabric. The floors of each of the terraces were laid in the following manner; on the top of the pillars were first placed large flat stones, 16 feet long and four broad, and over them was a layer of reed, mixed with a great quantity of bitumen, over which were two rows of bricks closely cemented together by plaster, and over all were thick sheets of lead, and lastly upon the lead was laid the mould of the garden. On the upper terrace there was an aqueduct or engine, by which water was drawn up out of the river for watering the garden.

We have seen the glories, the magnificence, the splendour of ancient Babylon, from which we may form some conjecture as to the wealth and power of her monarchs. But it appears that their pride, oppression, and impiety were equal to their power (Isaiah xiv.), and therefore it is that we find some of the most terrific denunciations uttered against this city that are recorded in Scripture; we will consider them here, and then see how completely, how triumphantly they are fulfilled in the appearance which modern Babylon displays to the traveller. The prophet Isaiah (ch. xiii. 19) says, "Babylon, the glory of kingdoms, the beauty of the Chaldees' excellency, it shall never be inhabited, neither shall it be dwelt in from generation to generation, neither shall the Arabian pitch tent there, neither shall the shepherds make their fold there. But wild beasts of the desert shall lie there, and their houses shall be full of doleful creatures, and owls shall dwell there, and satyrs shall dance there. And the wild beasts of the island shall cry in their desolate houses, and dragons in their pleasant palaces." Again, in the 14th chap., v. 23, "I will make it also a possession for the bitter, and pools of water; and I will sweep it with the besom of destruction, I will

* For her cruel oppression of other nations, Babylon is emphatically styled by the Prophet "the hammer of the whole earth." (Jerem. l. 25.)

† In the days of St. Jerome it was turned into a park for the kings of Persia to hunt in.

* Continued from page 485.

† In this discussion probably the pedestal is included, otherwise the statue would be out of proportion to the width.

the Lord of Hosts." In Jeremiah, ch. li., v. 25, we find, "Behold, I am against thee, O destroying mountain, saith the Lord, which destroyeth all the earth; and I will stretch out my hand upon thee, and roll thee down from the rocks, and will make thee a burnt mountain, and they shall not take of thee a stone for a corn nor a stone for foundations, but thou shalt be desolate for ever, saith the Lord." And in v. 37, "And Babylon shall become heaps, a dwelling-place for dragons, an astonishment, an hissing without an inhabitant." Again, at the 58th verse, "The broad walls of Babylon shall be utterly broken, and her high gates shall be burned with fire." Another remarkable prediction occurs in Jeremiah (ch. l. 24), "I have laid a snare for thee, and thou art also taken, O Babylon, and thou wast not aware;" and v. 38, "A drought is upon her waters, and they shall be dried up;" and "I will dry up her sea, and make her springs dry" (ch. li. 36). This last wonderful prophecy was fulfilled when Cyrus, after a two years' siege, despairing to take the city by assault, on account of its strength, turned the course of the Euphrates, and entered the city through the old dry channel. This event occurred at a time when the monarch and his nobles and the whole city were feasting in honour of Sheshack, one of their gods, when it was provisioned for twenty years, and the people gave themselves up to unbounded revelry. Jeremiah predicts, at chap. li. 39, "In their heat I will make their feasts, and I will make them drunken, that they may rejoice, and sleep a perpetual sleep;" and again at v. 57, "I will make drunk her princes, and her wise men, her captains, and her rulers, and her mighty men." Of the fearful manner in which their mirth was to be turned into sadness, and the suddenness of the assault, the same prophet foretells, "How is Sheshack taken, how is the praise of the whole earth surprised! One post shall run to meet another, and one messenger to meet another, to shew to the King of Babylon that his city is taken at one end." We are told by Herodotus that the extreme parts of the city were taken two or three days before the inhabitants in the centre knew of the assault. The whole of the predictions, indeed,

Isaiah and Jeremiah are truly wonderful, and run to great length; enough has been noted in reference to the fulfilment of the overthrow of this proud city; of its desolation and melancholy state of ruin we will now speak. After the capture by Cyrus, it never recovered its former state of splendour, but became from a capital only a tributary city, governed by satraps instead of its own kings. The garb was placed in it by Cyrus revolted in the time of Darius (son of Hystaspes), who besieged it for twenty months, and obtained possession of it by the stratagem of Zopyrus; on this occasion Darius crucified 3,000 of the inhabitants, and demolished the walls. Xerxes, when he returned from his expedition into Greece, seized its treasures, and destroyed the temples and idols of Babylon. Quintus Curtius states that when Alexander the Great came to it, it was only inhabited for the space of 90 furlongs, though its circuit was 368 furlongs. That mighty conqueror proposed to make it the capital of his empire, and began to repair it, but the works were stopped by his death, and the city being built shortly afterwards by Seleucus Nicator, who carried away with him the greater part of the inhabitants to people his new city, the ruin of Babylon was sealed; it soon became deserted, or, in the emphatic language of Scripture, "desolate, without an inhabitant." Benjamin of Tudra, a Jew, who wrote in the 12th century, says, "Ancient Babylon is now laid waste, but some ruins are to be seen of Nebuchadnezzar's palace, and men fear to enter there on account of the serpents and scorpions which are in the midst of it." Rauwolf, a German traveller, who visited the ruins in 1575, says that "the remains of the Tower of Babel are still to be seen, that they are half a league in diameter, so ruinous, so low, and so full of venomous creatures, that no one durst approach nearer than half a league, except during two months in the winter, when these animals never come out of their holes."

One of the most recent travellers in Chaldea is Captain Mignan of the East-India Company's service, and his account of the ruins of Babylon will be quoted. He considers an

immense mound which the natives call "El Mujellibah," or the overturned, to be the remains of the Tower of Babel, which was the opinion of the distinguished Major Rennell. He measured it carefully, and found the height to be 139 feet at the S.W.: where it slopes towards the N.E. to a depth of 110 feet. Its sides face the four cardinal points—the north side is 274 yards in extent, the south 256 yards, the east 226 yards, and the west 240 yards. The bricks measured 13 inches square and 3 inches thick, and many exhibited the arrow-headed character. Most of the bricks appear to have been baked in the sun; and Pietro della Valle, who visited Babylon in 1616, also says that "sun-baked bricks, in whose substance were mixed bruised reeds and straw, and which were laid in clay mortar, compose the great mass of the building; but other bricks were also perceived at certain intervals, especially where the stronger buttresses stood, of the same size, but burned in a kiln, and set in good lime and bitumen." (Travels, vol. ii. let. 17.) "On its summit there are still considerable traces of erect buildings; at the western end is a circular mass of solid brickwork sloping towards the top, and rising from a confused mass of rubbish. The chief material forming this fabric is a mixture of chopped straw with slime used as cement, and regular layers of unbroken reeds between the horizontal courses of the bricks. Thousands of owls and bats have filled the excavations made by the Arabs, and it is extremely dangerous to enter there on account of the numerous venomous reptiles." Again Captain Mignan observes—"The ruins which the Arabs, Turks, and Jews agree in calling 'Birs Nemroud,' meaning the towers of Nimrod, are conceived by Niebuhr, by Rich, and most travellers to be the Tower of Babel, or Temple of Belus. The total circumference of its base is exactly 722 yards. Its eastern face extends 168 yards in width, and only two stages of a hill are distinctly observable. The first measures in height 70 feet, whence the second sweeps irregularly upwards to the height of 120 feet, crowned by the ruin of a turret. This is a solid mass of the finest kiln-burnt masonry, the circumference of which is 90 feet. It is 190 feet from the foundation of the pile to the base of the tower, and from the basement of the tower to its uneven summit it is 35 feet. This tower-like ruin is pierced throughout with small square apertures, pro-

bably to preserve the fabric from the influence of damp. Many of the masses of brickwork are in a vitrified state, and turned completely black." In proceeding to inspect this ruin, Captain Mignan had to cross several pools of water from which he started large flocks of bitterns; this forcibly brought to his mind the predictions in Isaiah.

The "Kasr," or "the Palace," is considered by Captain Mignan to be the debris of the great western palace, for the ground on the eastern face of the ruin is low, soft, and indented, as if the river had wandered from its original course. Its form is very irregular, its length is 820 yards, its breadth 610, and its height about 70 feet. It is full of ravines, the work of the Arabs, who are constantly digging for the valuable bricks, for which they obtain ready purchasers in Bagdad and elsewhere. It is a singular fact that the bricks, which have the inscriptions upon them, are placed with the inscribed part downwards, as if they were never intended to be seen. The embankment which surrounds the Mujellibah is strewn with vestiges of old buildings, and embraces a most extensive area; not far from the centre of which stands a lofty elliptical mound, supposed to be the remains of the lesser palace. "It extends 325 yards in length, 125 in breadth, and 60 in height, and is composed of bright red-burnt bricks." In addition to the masses of ruins above described are many other mounds (if they may be so termed) of brickwork, which may sufficiently account for travellers not agreeing to assign the same pile to the Tower of Babel. One of these near the Birs Nemroud is 650 yards round, another 8 miles E.N.E. of Hillah, a modern town built from the ruins of Babylon (2 miles distant), is very similar in form to the "Birs," its circumference is 840 feet, and its height 75 feet.

These piles of burnt bricks, scattered over an immense plain, are the forlorn remains of ancient Babylon. "How hath the golden city ceased!" (Isaiah xiv. 4); "the lady of kingdoms" (ch. xlvii. 5) that said, "I shall be a lady for ever" (v. 7), that dwelt "upon many waters, abundant in treasures" (Jerem. li. 13); she is indeed rolled "down from the rocks," and made "a BURNY MOUNTAIN" (v. 25); she is become "a desolation, a dry land, and a wilderness, a land wherein no man dwelleth" (v. 43); and her "pleasant palaces" are full of "doleful creatures" (Isaiah, xlii. 22).

G. R. F.



Sphinx of Ghizeh (referred to in p. 484.).

Literature.

Loudon's Gardeners' Magazine for the present month is a double number, and contains, as usual, its full complement of useful matter. The article on "Comparative Physiology," by Mr. Lymburn, still continues, and will rank high as a paper of close and analytical research. "Dinbar Castle, its Gardens, and its Gardeners," by Peter Mackenzie, is also a continued paper, and it is highly practical and instructive. We give an extract to secure the benefit of the suggestions for our student readers:—

"One evening in summer when the labours of the day were past, when the lads in the bothy had partaken of their evening meal, and had rested themselves a little, their master came among them with his measuring-chain and cross-staff, picket staves, and arrows. He soon told them that the object of his visit was to give them a few lessons in land-surveying, and, though it was upon their own time, he hoped they would give him their attendance for a few hours, for he trusted it would be to their own advantage in after-life, when they would have charges of their own. All shewed their readiness to attend their master. They went into a pasture field, where they were to commence operations, and, although some of them knew a little of land-surveying already, yet he thought it would be as well to give them a few instructions relating to the geometrical figures in which pieces of land are commonly found to be; so, instead of giving his lessons on paper, which is a common practice, he marked off with his picket staves a large square, and shewed that by multiplying the base side by the perpendicular, the number of square links, or feet, or yards, would be found. After Bauldy had understood how to find the contents of a square, he next formed a parallelogram, and shewed that the area is found by multiplying the length by the breadth. He next formed the rhombus, and directed them to multiply the base by the perpendicular height, and they would find the area; he also shewed them the difference between the rhombus, and the rhomboides from the rhombus. He proceeded to the triangle, and shewed them various ways of finding the area; first, by multiplying the base by a perpendicular demitted from the opposite angle, half the product is the area; or, by multiplying the base by half of the perpendicular, or the perpendicular by half of the base. After the triangle he formed the trapezium, and, dividing it into two equal parts by a diagonal line, and demitting perpendiculars from the other angles and multiplying the diagonals by the sum of the two perpendiculars, shewed them that half the product is equal to the area. Next in order he described the trapezoid, the regular polygon, the circle, circular ring, segment of a circle, and the ellipse.

"When they were leaving the field the attention of Bauldy appeared to be fixed upon a beautiful Lombardy poplar that was growing near the place where they were. At last he said, 'Weel, master, I hae often wondered what the height o' that tree may be, but I dinna ken how to reach the top o' it.' 'But you may soon know the height of it, Archibald, without going to the top of it,' replied his master. 'The sun has not yet set, and the shadow of the tree is very distinctly seen upon the field, so that the length of the tree's shadow may be easily known.' He knew the length of one of his picket staves, and measured its shadow and also the shadow of the Lombardy poplar; he applied the rule of three to the three given numbers, and in a few minutes he told Bauldy that the height of the tree was about 70 feet. Bauldy thanked his master for the information he had given him, and added that it was 'a braw thing to bae lair, for it made them that made a gude use o' it like a different set o' folk altogether.' 'I am glad to see you, Archibald,' said the master, 'so desirous to obtain useful acquirements, and I hope the instructions you receive in the bothy will not be lost upon you.' 'My mind,' replied Bauldy, 'when I came to work with you, was something like the wild brier that ye brought frae the wood, that brought forth naething but single roses and dog-hips; but ye planted it in the garden, and ye put bud after bud upon it, and now it bears beautiful roses o' the Aurora, and the Elysian, and Isabella, and Amaranth, and Rosinella: and

every lesson that I receive I try to bud it in my mind, and few o' them dies; and when I get the name of a plant frae Sandy, or a lesson in arithmetic frae Colin, or the name o' a stane or an insect frae Wattie, I try to mind them a', and I pay them back sometimes wi' a sang, or, when they hae laid aside their books for a night, I give them a tune on the fiddle, and I am glad when I can tell them something about music that they dinna ken.' 'Well, well, get on with your knowledge and your friendships,' said their master, 'and may ye all be happy! So good night with you all; I hope we shall soon meet again.'"

The third paper is by Mr. Cruikshank, gardener at Lowther Castle, and is entitled, "Notes made during a Horticultural Tour from Lowther Castle, in Cumberland, to Exeter, in Devonshire." It is written in a nice style of narrative, full of active observation and profitable comment. We could extract from this paper also most appropriately and profitably to *THE BUILDER*; as the hothouses, stables, riding-house, and dog-kennels of Tidworth (the seat of Thomas Ashton Smith, Esq.) are adverted to; but we will confine ourselves to one of the first-mentioned of these structures, as being a marvel in its way.

"There is a house built here of the most extraordinary dimensions, for the purpose for which it was built, that I have ever seen. It covers a quarter of an acre and eight square yards of ground; 303 feet long by 23 feet wide, with a span roof, glass ends, and front sashes nearly to the level of the ground, and it contains 14,978 feet of glass. There are large folding-doors at each end. There is a gravel walk down the centre of this house wide enough for a lady to drive her carriage and turn round at each end of the house without going out of it, or in the centre, as may be convenient. The house is heated by hot water, and fitted up with stages sloping from each side; a trelliswork is fitted up all round the front and ends, and an immense quantity of peas and strawberries are forced in it with the greatest success; as Mr. Smith told me he had green peas every day if he wanted them, from the middle of December until they came in out of doors, and strawberries from the middle of February until they were fit to gather in the open air. The stages are filled with small greenhouse plants, geraniums, cinerarias, bulbs, and other winter flowering plants; and below the stages are grown sea-kale, rhubarb, asparagus, and salads of various descriptions, which afford an ample supply for the table. There are also trees budding at certain heights to suit the stages, such as cherries, plums, and apricots, the trees being planted in a border below the stage; but, as the roof is a fixture, they found they could not give the trees that rest which nature requires."

The Gardens and Scenery about Stirling, &c., are the subject of another excellent paper by the gardener at Blair Drummond; and in Article V. is described, the classical garden, designed after the manner of Mason, the poet, at Stoke Park, near Wind-or. Article VI. is a paper by Mr. Loudon himself, entitled, "Hints for the Improvement of the Town of Southampton," &c. There is much in this paper to which the reader will at once subscribe; it treats of the cemetery and burial system, as it exists and is proposed for that town—on cleaning out the bay—on the sewerage—on direction of streets, laying down useful rules for general observation in this respect, and glances at the architecture of the street buildings there, which we give in extract:—

"We have seldom seen a town where so many buildings have been recently erected, and so very little taste exhibited in them. With the exception of the buildings at the railway station, and the villa of Mr. Hoare at Shirley, we really cannot refer to one as a specimen of good taste. It is true our walks have been very limited, and we have not seen the Infirmary, but we have ridden through the continuation of the High-street. There are two Banks and two warehouses that are negatively good, because they do not offend by misplaced ornament, that is, ornament placed out of the regular order in which it ought to be introduced. To shew what we mean by bad architecture and bad taste, we shall take a street of six-roomed houses, viz. Bernard-street, lately built by an individual who could

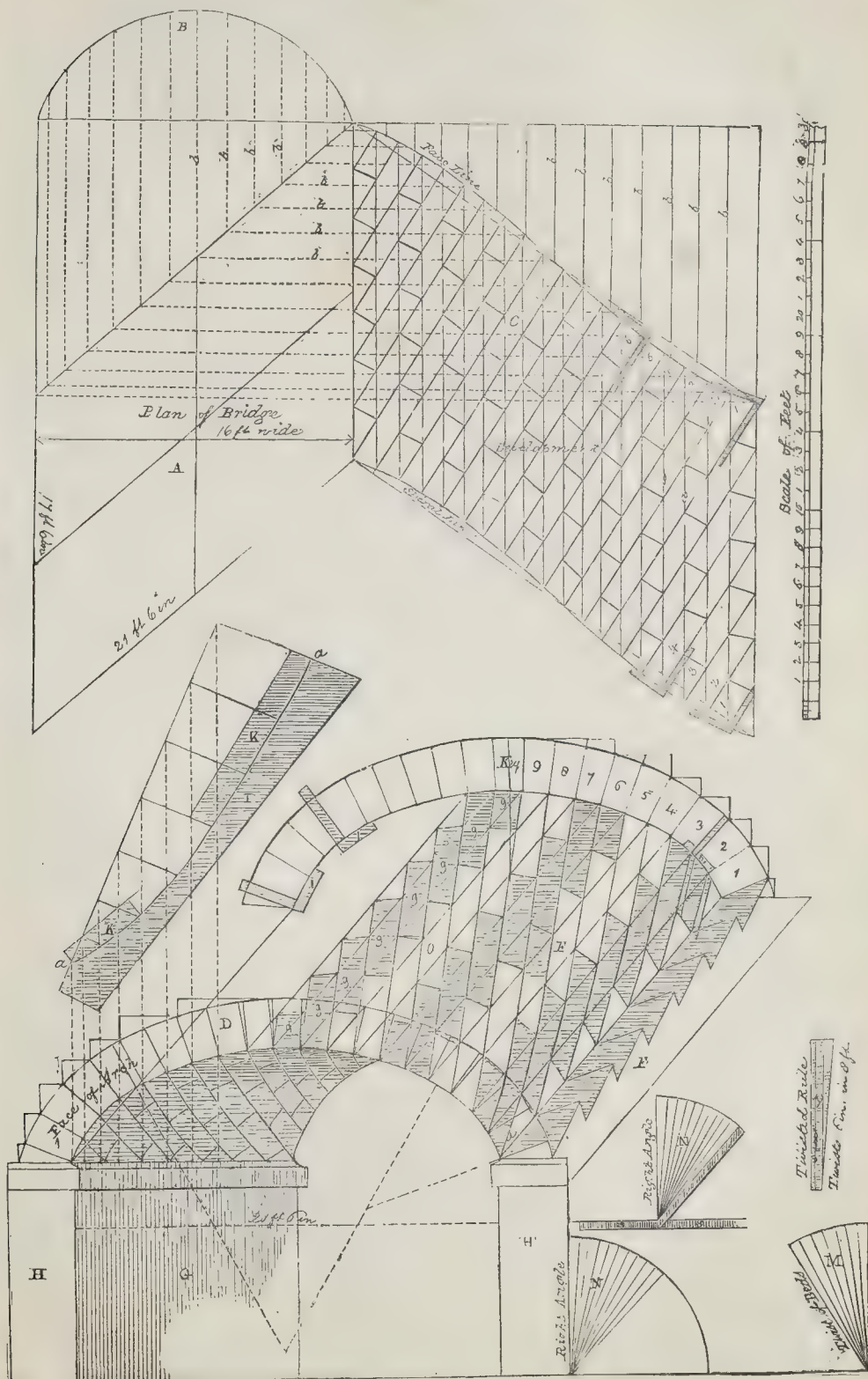
be under no control as to his elevations but that of his own wishes. The street is of a very sufficient width, being of one-third more than the height of the houses. The line of frontage is ornamented with pilasters supporting a small entablature; and in each of these pilasters there is a sunk panel which is surrounded with mouldings like those of a room-door or inside window-shutter. To sink panels in pilasters and ornament these panels with mouldings is to destroy altogether the simplicity and dignity of the pilaster, and to reduce it to the rank of a mere piece of joiners work. Before any pilasters were added to such an elevation, there ought to have been facings to the doors and windows. There is a certain gradation of architectural ornament in which alone it can be introduced with propriety. In every building, the first addition to what is merely necessary is architraves, that is, facings or finishings of some sort to the doors and windows; the second is the cornice or other termination to the walls which support the roof; and the third consists of the chimney tops. After this the expression of construction may be given to the walls by pilasters, piers, buttresses, or whatever is required for the architectural fiction that is to be adopted; for pilasters being originally square pillars of stone or wood of the full thickness of the wall, the spaces between them being filled in with materials that took no part in supporting the roof, the raising of the appearance of pilasters on the face of a stone or brick wall, in plaster or stone, is a mere fiction adopted to carry out the style. There is not, however, one architect in a score that knows his art scientifically, or can give a scientific reason for what he does."

PLAN OF A SKEW ARCH.

SIR,—In your number of *THE BUILDER*, Oct. 28th, there is a plan of a skew arch laid down for the working mason to work from, so as to be able from that plan to work the quoins and interior of arch. I shall not give any opinion upon Mr. Lindley's plan whatever. I offer to your notice a plain plan, shewing—First, how the development is got from the cylinder. Secondly, how the bed and end joints are got on the development; Thirdly, the arch developed, shewing how the stones lie in courses; Fourthly, shewing how the bevils are got to work the quoins, and where to apply them.

A, plan of bridge at an angle of 43 degrees. B, plan of cylinder on the square line. C, development of cylinder. D, face of arch on the skew line. E, arch developed, shewing how the arch stones lie on their beds. F, springer to arch, shewing springer notched to receive the ashlar courses. G, shews the abutment and a portion of the arch. H, face of each abutment. I is a section from a to a on the arch developed. K K are the round-faced rules for the mason to work the soffit of arch stone; the bevils I I work the soffit from the bottom bed; the bevils marked 2 2 2 2 the bottom one, on the obtuse angle, will work the face of No. 1 quoin; and the bevil above will work the face of No. 4 quoin, and the bevils on the acute side will work No. 1 and No. 6. The rule L is the twisting rule, it twists at 4 feet long 3 inches, and at 8 feet long 6 inches. M shews how the twisted rule is got. N N shews how each bevil is got to work the face and soffit on each angle, the bevil 3 3 on N will work the face and soffit on No. 1 stone, or face of arch, and so on to No. 2, by shifting the bevil to the next line, and all the rest are got the same way on the same side; the bevil S 3 on N is the bevil for No. 1 on the acute side of arch, and by shifting your bevil one line, it will give you the bevil for No. 2, and so on with the rest of the quoins. The arch must be divided on the spiral line, and the lines marked A on the development are to find the end joints and to lay down the principal in a proper manner; the lines marked B, above the development, and on the cylinder their intersections give the face line of arch on the development. The stones marked G are key-stones.

Sir, I fear my explanation is lengthy, and if you can make it more brief, you would oblige. I never offered any thing to the public press previous to this, and it is some four or five years since I either read any work on the subject or worked at one; therefore, I hope, if there are any defects in my sketch, some of the kind readers of *THE BUILDER* will put me right. G. S.



PLAN OF A SKEW ARCH.

THE MECHANICAL ARTS IN PERSIA.

About two or three years ago, Mr. J. Robertson, a civil and mining engineer, who had been professionally engaged in the service of the Shah of Persia, communicated to the Royal Scottish Society of Arts an "Account of the Mechanical Arts of Persia." Of these communications an abstract was afterwards given in the *Edinburgh Philosophical Journal*; and as the details are of a nature which are not commonly treated of in books of travels, we will here give a short notice, illustrated occasionally by references to the works of Fraser and Morier.

The art of carpentry, as understood in this country, can hardly be said to exist in Persia, the greatest effort in this department being confined to the construction of flat roofs of limited span. For forming these roofs a species of poplar is generally employed; but for other purposes oak, plane, and chesnut are used. Hard timber, of small scantling, is sold in bazaars, being brought thither from the forests on the backs of mules or camels. Morier states that in Persia "the people cut their trees about five feet from the ground, burning them a little, and then applying the hatchet;" and in another part he remarks that "their mode of felling the tree is susceptible of much improvement; for they first burn it towards the root (by which they injure the finest part of the wood) and then apply the axe."

As to the mode in which the Persian carpenter pursues his work, it is remarked that he follows the Eastern custom of sitting on the ground. Instead of a bench, a strong stake is driven down before him, leaving about ten inches above the ground; and upon this he rests his work, which he keeps steady with his feet. In the Royal Arsenal, however, English tools are used, and a better system of working has been introduced, under the superintendence of British officers; but in the native workshops the workmen are still to be seen squatting on the ground; and as all the tools are adapted for this mode of working, there seems but little reason to look for change, especially among a people who adopt new customs slowly.

Turning in wood is performed by a workman also seated on the ground; two stakes are driven down before him, a short distance apart; and an iron spindle, with a small drum attached, revolves between them. The spindle is passed through the wood which is to be turned, and, with the assistance of a bow-and-string, passed round the drum, is made to revolve rapidly. The bow is worked backwards and forwards, while the right hand holds the cutting-tool supported on a block of wood. By combinations of these two modes of working carpentry and turning, a large variety of domestic utensils are made in wood. Thus Mr. Fraser, in his journey to the northern provinces, came to a village where almost every thing was made of wood: "The gates, portals and all, were constructed of wood, and a wooden bridge was thrown across the ditch; the very domestic implements instead of being formed of earthenware or metal, were here made of wood. We saw trays, platters, cups, and bowls of this material."

In smith's work the Persians work only on a small scale, and with light and simple tools. The iron generally used is of Russian manufacture, brought by mules from the ports of the Caspian Sea. In the northern part of Persia, malleable iron is manufactured directly from the ore; and this description of iron has been long esteemed for making excellent horse-shoes and horse-shoe nails. As coal is almost unknown in Persia, the fuel used by the smiths is entirely charcoal prepared from hard wood. The smith stands when the work requires to be heated; but in finishing or making small articles he sits on the ground. The hearth is a small platform without a chimney, having a low wall on one side to prevent the bellows being injured by the heat. Anvil, bellows, hammer, tongs, and drill, form the smith's apparatus.

Working in stone is not much practised in Persia, owing to the buildings being formed chiefly of clay or brick. Grave-stones, mill-stones, and a few other articles, constitute the chief field for this operation. When the work admits of it, the stone-cutter sits upon the ground. The principal tools are, small double-pointed picks and mason-irons resembling large

nails, some pointed and some chisel-shaped. With these tools the stone-cutters work very slowly, and it is only after immense labour that they succeed in bringing a hard stone to the required form. For boring in stone the instrument is an iron rod steeled at the end, but instead of a chisel-point, the end is cut off flat. Two parallel regular grooves are cut deep across this face, and these are intersected by three others at right angles, thus dividing the end of the rod into twelve compartments. While boring, the hole is kept full of water; and while the rod is turned round gradually with the left hand, the blows are struck by a small hammer held in the right.

As the Persian houses are mostly built of brick, the art of brick-making is rendered one of some importance. A level space of ground having been selected near a stream of water, the grass and vegetable soils are carefully removed. The ground is then broken at one extremity of the prepared platform, and the easily pulverized clay is carefully passed through a small-meshed riddle, and placed in the hollow, while the stones and roots are thrown behind. When a sufficient quantity of riddled clay has been collected, a small stream of water is allowed to flow into the hollow, and the mass is brought to a proper consistency by treading. The prepared clay is now deposited in different small heaps upon the floor, which has been previously spread with finely-riddled earth. The moulds are formed of thin wood, without any of those projections or handles which are seen in this country. For the common-sized brick the mould is formed about nine inches square and one inch and a half deep; but larger bricks are sometimes required for paving courts and coping walls, for which another mould is necessary. The mould is placed on the ground, and the brickmaker, taking a part of the clay in his hands, places it loosely in the mould. He then dips his hands in water, and throws a little of it around the inside of the mould to prevent the clay from adhering to the wood. By a peculiar action of the hands the clay is then drawn from the middle and pressed firmly into the corners and round the sides of the mould; and the whole is afterwards levelled over by a dexterous diagonal stroke of the right hand. The mould is now lifted off the brick and placed to the right hand side, close to, and in the same line with, the brick already formed; and it is again filled up in the same way. Thus he proceeds, frequently washing the mould in water, till a straight line of bricks has been laid down, of many yards in length; a second line is then commenced, exactly the thickness of the mould, from the first; and the whole ground is finally covered with closely-arranged rows of bricks. In two or three days, when the level space has been covered, the first-made bricks become sufficiently dried to be handled; and the brickmaker now proceeds to place them upon edge in lines; in a day or two they are sufficiently hard to be removed, and are then carried to a convenient spot, where they are built up edgewise in form of a wall, one brick in thickness, with small openings between them for the circulation of air. When twenty or thirty thousand have been thus collected, they are removed to a kiln to be burned; or if sun-dried bricks be required, they are at once ready for use.

As there is hardly any coal in Persia, the kilns are heated in a singular manner. The kiln is a small vault, dug out of the ground, and surrounded by a wall of sun-dried bricks, having a doorway at each end for receiving the fuel. Over the vault are several narrow arches, in which the bricks are laid edgewise; and after a fuel of stable refuse, withered plants, and brushwood, has been laid in the vault and kindled, the doorways are closed. In two or three hours dense white smoke rises and escapes at two openings left in the arching, and new fuel is from time to time introduced; but when enough has been thus thrown in, all the openings are closed, and the kiln left for two or three days, till cold, at which time the bricks are found to be sufficiently burned. The bricks thus made have a fine red colour and considerable hardness. It is said that a Persian will prepare the clay and make two thousand of these bricks in a day.

The houses are built either of brick or of clay; if the former, a mortar of clay, chopped straw, and lime, is employed. While building, the workmen do not use a trowel, but lay the

mortar with the hand. The "bond," or mode of arrangement, is simple, as the bricks are square, and do not admit of a very varied arrangement. The mortar-joints are usually from one to two inches thick, and very irregular, unless in arches or doorways, when a good deal of neatness is often exhibited. As timber is scarce, brick arches and domes are common. The mode of making a semi-cylindrical arched roof, without centering, is very singular. After the side walls and gables have been erected, the curve of the arch is marked out upon one of the gables, and this is plastered over with the common clay mortar; a layer of brick is then stuck upon the mortar, and as the bricks are thin and light, they remain firm till the ring is completed, when small chips are pinned into the joints at the opposing ends. When one layer is finished, it is plastered over with mortar, and a second layer is stuck upon it in the same manner, and so on until the whole length of arch is finished. A similarly primitive mode is adopted in the building of domes.

Many of the walls of houses are built hollow, that is, the bricks being so large in surface compared with the thickness, they are so placed, some horizontal and some vertical, as to give smooth outer and inner surfaces to a wall, and yet be full of hollow spaces, whereby material is saved under circumstances where strength is not required. In building the flat roof for dwellings, beams of poplar are laid across, which support small laths. A coarse mat, made of reeds, is placed on the laths; over this a layer of furze; and over the furze a thick layer of clay. The top of the clay is made to slope gently, and is rendered impervious to water by being coated repeatedly with clay and chopped straw.

For houses built of clay the material is generally procured near the intended erection, and is brought to the proper consistency by mixing with water and treading with the foot. For walls a foundation is cut out as far down as the vegetable mould, and this trench is filled up with small stones and clay. The walls are built in courses of about one yard in thickness, each course being allowed sufficient time to consolidate before another is laid. The workman stands upon the top of the wall, and being supplied with pieces of clay by an assistant below, he elevates his arms and throws the mass forcibly down, treading the pieces firmly together with his feet. The layers are brought to the required "batter," and smoothed on the outside, by means of a flat-cutting spade. The heat and extreme dryness of the climate soon render a wall of this description hard and firm; they last a very long time, as rain seldom falls. Most Persian villages are surrounded by high walls of this kind, having flanking towers at every angle, and a rude ditch in front, from which the materials were excavated; and even the fortifications of the principal cities are constructed of the same material.

LUTON HOO.—The melancholy details relating to the destruction of this magnificent edifice must have been read with painful interest. Luton Hoo owed its magnificence to John, third Earl of Bute, who in 1763 purchased the unfinished mansion of Sir Robert Napier, and soon after resolved upon making a grand addition, in which the genius of Adam should have full scope, regardless of expense. The model adopted by the architect was the Palace of Dioclesian at Spalatro; and it is generally admitted that his design was worked out in a very masterly manner. Among the principal apartments, the ceilings of which were ornamented with the best efforts of Cipriani, the library was chiefly remarkable. The relative advantages of cast and wrought-iron girders for building purposes have been clearly shewn by the present catastrophe. While, with one exception, the cast-iron girders are still supporting the enormous masses of brickwork forming the cross walls, in the instance of a wrought-iron truss-bridge girder, which pinned the central to the eastern front wall, it has expanded from the heat, and carried with it not only the central wall, but brought out a portion of the eastern front, rendering it positively necessary to take down the whole. Mr. Topley, the surveyor of the Sun Fire-office, has estimated the cost of restoring the building at between 30,000*l.* and 40,000*l.*—*Times.*

Correspondence.

ANALOGIES IN LANGUAGE AND ART.

SIR,—I think it would be well for all who, highly admiring fine art, express themselves as anxious to see originality in design, and, in fact, a new style in architecture, to consider the subject in an unimpassioned manner, and the great difficulty of producing an original style, which shall at the same time please the eye of taste and be adapted to the requirements of modern life.

Style in building appears to me to have in its rise and progress a great similarity to language; plain, simple, and unadorned amongst rude nations, and acquiring beauty, harmony, and splendour with the advance of civilization. As I am not equally well acquainted with the languages of nations as with their arts, it will not be possible for me to point out minute particulars, in which a relation exists between them, but we may fairly presume that the language of any people will partake of and indicate the character of those who used it, and it is generally admitted that the architecture of a nation has also the national character impressed upon it; there should therefore, I may say there must be some analogy between them.

As civilization advanced, and intercourse with other nations became frequent, the language of each people would require fresh words and fresh combinations of words, to express newly-formed ideas, new discoveries, and new relations between objects; new terms for fresh inventions must of course be added, and names once familiar would cease to be used, as we see in our own language many words denoting what were once familiar objects now words, as the objects themselves are things of the past; such were fire-dogs, spinning-wheels, and such, I suppose, soon will be four-horse coaches; now this same course is run by the art of design, and in the same manner; as civilization advances and manners change, that which before pleased, no longer charms the eye of more enlightened man: new forms and new combinations throw the older into shade, and this change is gradual both in art and language. No violent transition, no sudden start from one point to another of this course, but the alteration is slow and gradual as the change of each individual from youth to age.

Language was the gift of God to man, and we must conclude that, not style indeed, but a taste and capacity for architecture were equally so; but as language varied with each climate, each locality presenting different objects to its inhabitants, so as to compel them to adapt their language to their habitation, inasmuch as the natives of the torrid zone could have no name for the productions of the frozen north, which probably for many generations remained unknown, and therefore words must be different in different lands, except where by chance the natives hit upon the same sound to express different objects, as the sailor found to his surprise when he heard the Frenchman call the crab a shoe (*chaux*), so in the same manner did climate and locality affect architecture, and as in language they produced different names, in architecture they produced different forms.

Now as each nation successively ceased to maintain an independent existence, its language and its art ceased to advance; in the state in which they then were they remained, that is as independent identities. Both their arts and language became blended with, and influenced those of succeeding races, but had no longer a separate existence. The Roman language and the Roman style influenced and left strong traces in the styles and languages of modern Europe, but mixed with and changed by those of ruder nations; and this mixture underwent continual change, and in architecture, gradually produced a style at once magnificent and well adapted to the manners of those who used it. But, unfortunately, as I think, this gradual change by which architectural style was always rendered conformable to the habits and customs of the nation, was suddenly interrupted by the revival of the old Roman system, which was adopted as implicitly as if our manners and wants had been the same as those of ancient Rome.

The difficulty of adapting this and the style of ancient Greece to modern buildings is continually felt, and the styles, as continually mutilated, fail to produce a good effect; just as we may suppose would have been the case with our language, if instead of continuing the use of a language, which by gradual change along with our changing manners, was always equally well adapted for our use, we had made a sudden transition to the use of the language of ancient Greece, or Rome. We should then have felt the same difficulty with our language as with our architecture. The classic styles in many cases certainly answer their purpose, and appear well adapted for particular buildings, as Greek and Latin answer for isolated inscriptions, or sonorous epitaphs, but cannot be generally applied. The

fronts of large structures shew the rich decorations of classic art, as the heroic epiphany, and the learned folio display the beauties of Latin elegance, but the house intended for use, and not for show, presents us with the plain vulgate of brick and mortar unadorned, as the book for general perusal gives us merely our own simple English.

It appears to me that any style of any date adopted by us must fail in many respects, in general application, in consequence of our habits differing so greatly from those of ancient nations; even the Gothic style of four centuries ago would, in many cases, be found now very inappropriate, so that we should have difficulty in adapting it to present circumstances, and in yet preserving its identity, just as we should be unable to make use of any language which has not by the addition of terms, and combinations of words, become suited to our present requirements. I think, too, that it would be as difficult to invent a new and complete style of architecture, independent of any that has preceded us, as to produce a new and independent language; time alone can effect this for us in both cases, unless some master-mind, some mighty genius shall arise to give us at once that which in former cases has been the work of many minds and many years.

It is probable that out of the various styles now in use amongst us, some new one will be evolved gradually, as out of the heterogeneous collection of Celtic, Saxon, Danish, Norman, and Roman languages our present English has arisen, but with this chance against us, that necessity compels the amalgamation of languages, whilst taste alone effects that of styles of art.

We moderns have, however, a great advantage on which to congratulate ourselves, which is, that in consequence of the great variety of present styles, and the multiform languages of this "babbling earth," we have so many more means of expressing our ideas and opinions.

Trusting that your patience will not be exhausted in reading this letter, I submit it to your judgment, with the hope that as I have already had to thank you for permitting me to express my ideas by means of your valuable journal, you will, if they meet with your approval, accord the same favour to my opinions.

I am, Sir, your obedient servant, D.

BRITISH ASSOCIATION OF ARCHITECTURAL DRAUGHTSMEN.

SIR,—Having lately had my "leisure hours" very fully occupied, I was deprived of the accustomed pleasure afforded by a quiet uninterrupted perusal of *THE BUILDER*, until I fell several numbers in the rear. I have, however, just overtaken you; and amongst the variety of interesting matter abounding in these recent numbers, I find in two places in the Correspondence, pp. 425 and 448, reference made to the Association of Draughtsmen, and in each case a recommendation to that body to advertise its rules and regulations. On turning to your advertising columns, your correspondents "Gratia Dei," &c. and "J. L. C." will see that their suggestion has been in some measure adopted.

The former of your correspondents is right in supposing that the association is intended to consist of members in all parts of the kingdom. It has already members in various parts of England and Scotland.

I may take this opportunity to remark how gratifying it is to observe the unanimous approbation with which this society is noticed, a circumstance which promises well for its complete success, an expectation which, indeed, cannot fail to be realized, where so much care has been taken in the framework, wherein considerable modification has taken place since its institution, as suggested by experience. In reference to Mr. J. L. C.'s communication, we doubt not but his becoming a member would prove mutually advantageous. In regard to an annual exhibition, there is good reason to expect that our next anniversary one will be worthy public attention; the last, or first, offered a very fair prospect of such being the ultimate form which it would take, although we deemed it prudent merely to feel our way on that occasion. The subscription drawings are forming a most valuable fund for reference, such as few individuals could readily bring together; and, indeed, constitute an important feature in the institution. Another, the helping of architects to assistants, and the latter to engagements, operates also advantageously, the applications for draughtsmen having been met so as to be generally satisfactory to both parties.

Trusting that eminent members of the profession will still further evince their approbation of a rising society, which has only such objects in view as tend to its honour,

I remain, Sir, yours very obediently,
JAMES WYLLSON, Hon. Sec.

Tenders.

TENDERS delivered 14th November, 1843, for building school-house at Kilburn, from the design of C. Mills, Esq., architect, 15, St. James's-square:—

Geo. Bird	£824	10	0
Haynes and Co.	803	0	0
Hicks	768	0	0
Lock and Nesham	764	0	0
Hermion and Son	750	0	0

The tenders were opened in the presence of the parties.

TENDERS for repairs at No. 20, Long Acre.—Mr. Angell, Surveyor:—

Burstall and Son	£342
Matthews, Newman-street	350
Gomm, Castle-street	350

Opened in presence of the parties.

TENDERS for the decorations and repairs of the Egyptian Hall, Mansion-house:—

	Enriching.	Extra-enriched ceiling.
Taylor	£873	£490
G. Cooke	1,035	441
Le Crane	1,092	665
Benford	1,171	685
Sanders & Wooley	1,244	492
Riper	1,260	468
Bishop	1,536	600
Burton	1,785	540

A Correspondent suggests that the general dimensions of the Building would be useful in the case of comparing the amounts of contracts, and that those who furnish the lists of tenders would oblige many readers by adding such information.

NOTICES OF CONTRACTS.

Thirty fathoms of Deal ends, or 200 stacks of Scotch Fir Wood.—Union Workhouse, Isleworth. G. Clark, Clerk, New Brentford. November 21, 1843.

Laying down York Paving, with granite curb; also granite channeling and paving crossings; and likewise for Macadamising the streets and roadways, parish of St. Pancras.—John Britton, 17, Burton-street, Burton Crescent.

BRITISH OAK TIMBER, &c.—14,000 loads of balk, 5,000 loads of plank, 400,000 British Oak Treennils.—Secretary of the Admiralty, Somerset House. Dec. 19.

BOSTON CHURCH, LINCOLNSHIRE.—Repairs and restoration.—Mr. Scott, architect.—Messrs. White and Lindsay, Boston; J. T. White, Hon. Secretary. Nov. 27.

SOUTH-EASTERN RAILWAY TERMINUS, DOVER.—Mr. Lewis Cubitt, 77, Great Russell-street; the Chairman and Directors, London Bridge. Nov. 20.

NEW MARKET AND ENTRANCES, CARMARTHEN.—Mr. Francis E. H. Fowler, architect, 105, Great Russell-street, Bloomsbury; Town Clerk's Office, Carmarthen. Nov. 20.

ST. OLAVS CHURCH.—RESTORATION.—Mr. George Allen, architect, 69, Tooley-street, Southwark; George R. Corner, Vestry Clerk. Nov. 28.

Paint ingredients.—Navy Department, Dockyards. Secretary of the Admiralty, Somerset House. November 21.

COOKING APPARATUS for 800 inmates, Berrymsey Workhouse.—B. Drew, Clerk. November 21.

COMPETITIONS.

District Surveyor for the metropolitan parishes of St. George-the-Martyr, and St. Andrew, Holborn-above-the-Bars, and the Liberty of the Rolls.—Testimonials to be sent in up to 30th December. Election next January Sessions.—C. H. Ellis, Clerk of the Peace.

Design for a testimonial to the late G. Clendinning, Esq., to be executed at Westport, at a price of 800 guineas.—Dr. Dillon, Infirmary, Castlebar, Mayo, 20 guineas, Jan. 1, 1844.

Premium of a gold medal or money for the best mode of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

SURVEY MAP AND APPORTIONMENT.—Parish of Cornworthy, Devon, 2,200 acres.—Mr. John Elliott, Allaleigh, in Totness. Nov. 20.

Earl of Leicester's Monument, at Holkham, cost 4,000 guineas.—R. N. Bacon, Hon. Secretary. Dec. 20.

TO OUR CORRESPONDENTS.

"One of the Craft" will be obliged for information as to the component parts of gun metal for making cramps for stone work.

"B."—His last favour has merits well entitling it to publication.

"F."—His design for farm cottages is, on the whole, a good one, and shall appear.

"R. M."—There is some mistake, through different informants probably.

"Mr. Bendley."—We will endeavour to avail ourselves of his kind contribution.

"Mr. Benson."—His communication shall have our best attention. He may probably hear from us by post.

"Mr. Harrison" is thanked for his kind consideration in our regard.

"CHAPMAN'S PATENT PAPER CLOTH."—A subscriber inquires for specimens and particulars. If the manufacturers will supply us therewith we shall be happy to forward them.

SUMMARY OF CORRESPONDENCE.

"Φιδος-ἄμος" complains of the great delay in opening the new Galleries and Exhibition Rooms of the British Museum, and of the ill-arranged and incomplete manner in those that are opened, he admits that some excuse may be pleaded on the score of the extent and unfinished character of the buildings, but this, considering the immense sums that have been expended, is not, he says, a sufficient excuse. He goes on to say, the public are defrauded from entering during three days, and the very prohibition presupposes that there is a continual state of progress within, which is far from being realized by those who are in the habit of frequenting it. Some portions have been completed for a considerable time (for more than a year), and are not yet exhibited; and it certainly is very annoying to have a door opened displaying a tantalizing glimpse of a gallery in a state, if not absolutely complete, as much so as are those now open, and to be denied admission on the plea of its unfinished state. To any who may think these remarks out of place in your periodical, I would urge that, if I mistake not, one, and that one not the least considerable of your ends and aims, is to give a tone to the working classes, and in what better way can that be accomplished than by providing them with sources of rational amusement? and what sources of amusement can compete with those displayed in the British Museum? We, as a nation, are but just beginning to find the immense use of gratuitous exhibitions in raising the moral and intellectual tone of the lower, and therefore the most numerous, orders of the people. In argument against this I have often heard it remarked that Englishmen could not bear the same privileges as foreigners from the peculiar anxiety manifested by them to exercise their sense of touch, but have always replied the only way to get over this is to multiply the various exhibitions, and thus to accustom him to see the advantage of order and propriety of conduct. How far I was right let the gratuitous exhibition of the cartoons, let the British Museum itself, continued open through the Easter week for the first time last year, and the astonishing fact that of the thirty thousand persons who viewed it during that week, there was but one whose conduct could be complained of.

"Alpha, Glasgow," expresses a favourable opinion and a kindly feeling in behalf of "THE BUILDER," but takes exception to one department, viz. that which includes "the getting up and selecting the subjects for illustration." He more particularly adverts to the Wesleyan Centenary Hall. The design given as an emendation on the one executed may be superior, he says, but it appears to him, and to those who have examined it, very much what may be seen in the centre of almost any square, crescent, or terrace in London, or even some of the provincial towns. Some of the Cottage Designs he stamps as unworthy of a second inspection; and here we must have a word with him, much in the same strain as we have before uttered. We do not in all such cases think it important to select only for what is perfect, or approaching perfection. Men have to be taught by avoidance as well as by guidance; and if no more than the useful criticisms had been excited, we have done good. We are not writing for the dilettante, but for men in all grades of progress, and for youths. However, Alpha is only anxious that in all designs that purport to be new, care should be taken that they contain some new "architectural idea," such, for instance as Mr. Hanson's Sussex Memorial, which, whether good or bad, upon which he defers to give an opinion, is calculated to excite, and has excited in his hearing some ingenious discussions. Alpha is anxious to have "THE BUILDER" keep up with the present state of Architecture, and hopes that his remarks will have the effect of bringing forth "both original and good designs." We have to thank him for the excellent spirit in which he writes, and to say we shall be happy to hear from him again.

(ADVERTISEMENT.)

TO THE EDITOR OF THE BUILDER.

SIR,—Having seen in your paper (which I have taken from its commencement) an answer to your correspondent, that you had applied to Mr. Nash for the stain used and so much admired at the Temple Church, I beg to say, that having executed and completed the joiners and carvers' works and staining to the stalls, pulpit, and choristers' stands, under the direction of Messrs. Burton and Smirke, and by order of the benchers of both societies of the Inner and Middle Temples, I shall be happy to supply any one requiring the stain, or to execute any of the works for them.

I am, Sir, your obedient servant,

F. W. VIGERS.

Carpenter to the Hon. Society

of the Inner Temple.

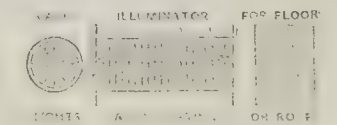
New Wharf, Whitefriars, Nov. 13, 1843.

ADVERTISEMENT.

R. E. CLARKE AND SON, PAPER-STAINERS, 3, Chancery-street, Bedford-square, respectfully beg leave to state that they have now on hand a large quantity of PAPER-HANGINGS, which they can offer at a very great reduction of price.

Several Hundred Remnant Lots of from three pieces to five pieces will be sold at one-half the usual price.

PAPER-HANGINGS.—**R. CHATER** invites Builders and the Trade to inspect his PAPER-HANGINGS, adapted to the decoration of Bed-rooms and Parlours, from 4 to 14s. per yard; Satin Papers, from 4d. to 8d. per yard; Marble, Granite, and Oak Papers, from 2d. per yard; Flock, Gold, and other Papers in proportion, in great variety of elegant and modern designs. A liberal allowance on taking a quantity. At R. CHATER'S Warehouse, 45, Tottenham-court-road.



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N.B. The Lenses are so fitted in the above, that they may be walked over without injury.

Sold by J. Barlow, Inventor and Manufacturer, 14, King William-street, Mansion-house.

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TURPS, per gallon 2s.
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SHEET LEAD, in sheet, per cwt. 18s.
WHITE LEAD, ditto 24s.

Colours, Pipe, Brushes, &c., &c., equally low, and quality warranted. Complete Lists, priced, may be had on applying to R. COGAN, 5, Princes-street, Leicester-square, London.

PRINT PUBLISHERS, PICTURE FRAME AND CABINET MAKERS, can be provided with flatted Crown, flattened sheet, and the patent Sheet Plate. Lists of which, shewing the price for any Square, from 14 by 12 to 40 by 30 of Best and Seconds quality, will be sent (gratis) upon receiving the address. Builders, Glaziers, and others having to Contract, sending a copy of their specifications, with a list of dimensions to R. COGAN, will receive by return of post the lowest prices for all qualities and sizes of Crown Sheet-Glass and Sheet-Plate, &c. Glazing estimated for if required.

NURSERYMEN, MARKET GARDENERS, AND OTHERS requiring Small Glass, will find a greater variety of sizes (a large Stock of which is constantly on hand) than is kept by any other House in the country. Also, a new and COMMON SHEET AND CYLINDER. The advantages of Common Sheet over Crown for Glazing Sky-lights is decidedly great, and is generally used where strength or superior appearance is required; a light 6 feet 6 in. long, with openings of any width, will, in the same length, be considerably stouter than Crown, and may be had from 1s. 3d. per foot.

Also may be had, **COGAN'S PATENT CHIMNEY GLASS** FOR GAS OR OIL, which effects a great saving in the consumption, produces a more brilliant light, prevents smoke, and is cheaper than any other Patent Chimney glass.

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French Table Flowers, China Vases, Fancy Glass Ware, and Alabaster Figures in every variety.

R. C. having just completed his Show Rooms for the above articles, begs to invite the inspection of the Public. A liberal Discount to Bazaar Keepers and others.

H. T. CHURCH is desirous of calling the attention of ARCHITECTS, SURVEYORS, BUILDERS, and the Public to his LITHOGRAPHIC AND GENERAL PRINTING OFFICE, 55, WALFINGHAM STREET, CITY. Drawings of Machinery, Railway, Canal, and Estate Plans, executed with the greatest accuracy and elegance; a combination of qualities difficult to obtain, as the Printers are entirely ignorant of the nature of the drawings committed to their care for the purpose of being lithographed. H. T. Church having, besides a ten years' experience of the business, had the advantage of three years' observation in the office of an expert Surveyor, is particularly fitted for the superintendence of drawings, &c., which require to be lithographed with great accuracy. Circular Letters, Fac-similes, Bill-heads, Cards, Labels, Gum Tickets, and every description of printing, in the commercial and manufacturing world executed with punctuality and elegance, and on the lowest remunerating terms. H. T. Church will wait upon gentlemen in any part of London for the purpose of giving estimates or receiving orders. Country orders instantly attended to, if accompanied by a London reference.

WATSON'S PATENT DRAINING,

FOR LAND, VIADUCTS, RAILWAY CUTTINGS, TUNNELS, AND OTHER ENGINEERING WORKS. This invention will supply the want so much felt in railroads, and other engineering works, of a perfect system of drainage. The ships that have taken place in railway cuttings have been caused by want of under-draining; and the preservation of Tunnels, Embankments, and Viaducts, &c., may be provided for by the means now offered. Experience has shown that, without draining, no work having water to get rid of, can be considered secure, for the water will open itself a passage sooner or later; and the attention of Engineers has for some time been directed to the best mode of draining their works.

The draining of Tunnels, Embankments, &c., by this Patent, consists for the most part in inserting to the requisite depth in any direction, and at suitable distances, cast-iron pipes of between two and three inches diameter, and having numerous small holes or slits in them; and by these apertures being formed underneath, viz. enlarging inwards, they do not become clogged with other holes.

In erecting new works, the drain-pipes may be built in; and for old works, borings are now easily made by a machine, which, after much time and expense, has been brought to such perfection as to render boring through the hardest brick work a safe and expeditious operation. This machine, working the Patent Cutter, has, in boring a four-inch hole through a brick wall of the hardest description, performed six feet in an hour. It is worked by manual labour, and bores in any direction, and to any depth or length, but in general between ten and twenty feet will be sufficient.

One great advantage derived by this Patent, is the Ventilation that is procured in the works to which it is applied, and which will preserve building materials and consolidate earthwork. The borings are to extend not merely through the masonry, but some distance into the earth.

It may here be remarked, that holes bored for drainage, without the insertion of pipes, soon become choked and useless. For Wood Pavements the draining and ventilation, which may be kept up by these pipes, will be found particularly valuable. The pipes will be laid underneath the blocks, and communicate with the sewers, and may be laid down at every six square, being merely embedded in the concrete. By the foundation being thus drained, the surface will be kept cleaner and drier, and when dry and clean this pavement is not slippery. Every pavement, whether of wood or stone, will, if underdrained, keep cleaner and last longer than at present; for it is impossible so to put it together as to prevent the rain soaking through; and the concrete, or other foundation, when wet or soft, will rise up to the surface in the shape of dirt, and allow the blocks or stones to sink and present an uneven surface.

The price of the Pipes is one Shilling per foot, and they are made in lengths of four feet. The charge for insertion varies according to circumstances. The Proprietor will either insert the Pipes himself, or sell them; and let on hire the Boring Machines.

Apply to T. HUGHES, 51, Bunhill Row, London.

DAY'S PATENT WINDGUARD,

for Ventilating Churches, Hospitals, Factories, Theatres, Club-houses, Breweries, Mail-houses, Shops, Counting-houses, School-rooms, Smoking-rooms, Bed-rooms, Nurseries, Kitchens, Larders, Stables, and all Buildings requiring Ventilation; as well as Ships, Mines, Tunnels, &c., &c., also, for Preventing Down Draft; and is guaranteed to be all smoke Chimneys caused by Wind, and entirely supercedes the use of Revolving Cowls, or anything moveable or unsightly on the tops of Chimneys or Ventilators.

The object of this Invention is to create a draft where otherwise it would not exist, by the assistance of the external air.

The Windguard forms a pleasing octagonal pillar, and by its peculiar construction to carry out the principle, which consists of the wind giving a disposition for a vacuum within, which causes a continual upward current, and can be regulated at pleasure.

The Windguard applied to Ships and Steam Vessels in the form of a Skylight, prevents rain or the sea entering within, however boisterous the weather may be, thereby affording excellent Ventilation, as well as Light.

The Windguard applied to the Tops of Chimneys prevents all annoyance from Smoke, and agreeably Ventilates the room when fires are not required. This is a most simple and effectual way of Ventilating Bed-rooms, Dining-rooms, Smoking-rooms, Offices, &c., &c., and may be seen daily in operation at all times as pleasant as can be desired, and may be regulated by a valve at pleasure.

The Windguard is simple in its application, reasonable in price, ornamental in appearance; no machinery or anything moveable in it, therefore, cannot get out of order; free from noise or any unpleasantness whatever; not liable to choke up with soot, and no obstacle to the machines used for sweeping chimneys.

The Windguard having been applied, with much success, to the chimneys of Windsor Castle, Buckingham Palace, and Chiswick, also to several of the Club-houses, as well as to the mansions of many noblemen and gentlemen, it is with great confidence recommended for the cure of smoky chimneys generally, and may be had of all respectable ironmongers in Town and Country, and may be seen daily in operation at the Patent Ventilating Works, Commercial Road, Finsbury.

Where also may be seen Mr. G. T. Day's plans (illustrating the different applications of his Patent ARCHIMEDIAN VENTILATOR and his PORTABLE WATER APPARATUS) for effectually Ventilating, Warming, and Cooling the Air of Buildings, Ships, &c., &c. By the use of these inventions many thousand feet or any quantity of pure warm air can be generated to be continually exchanged per minute, day and night, winter and summer; thereby ensuring, at all times, free ventilation to the rooms and passages of buildings, &c., from the basement to the roof. The size of the apparatus depends on the nature and use of the buildings and its occupants.

THE BUILDER,

NO. XLII.

SATURDAY, NOVEMBER 25, 1843.

THE WASHINGTON MEMORIAL.

WHAT does it matter to us that this is a work of another nation and people? It is a work of art: and the whole world is one republic in this respect, and every artisan of that public has and ought to have an interest in it. The American may have and has other matters and feelings to influence him that a European and an Englishman may be imperfectly cognizant of, but when so grand, stupendous an affair is to be raised out of the resources of that art whose professions exist all over the world, whose sympathies and thoughts spring from one common source, whose laws are taken out of the one code-book of science; when such an affair projected, all minds move,—architects, engineers, and builders,—all are attracted to this at gravitating point, and cohere for the purpose, as it were, of sustaining it. It is thus that we have felt, and many feel on the question of the completion of that cathedral of Gerony, Cologne! Men and masters and promoters should make their pilgrimages there, if this "monster" memorial should be up in New York, like the Cathedral of Cologne, irrespective alike of their objects—one commemorative of a Washington, the other devoted to the Catholic faith—it commands the gatherings westward, and it may the more deserve to do so, were these few words in our high and exalted position, that they may spread thither, be heard for the purposes and objects of a child's satisfaction.

The conception of this Washington memorial is a superb one, and it is not wanting in numbers and features to assort with it, but the means and disposition should be committed to the genius of more refined and practised taste to give birth to it. What nursing care of necessity should preside over the dressing of a giant is not to be met with through haphazard means; we question whether the old and the new world had reared between them one so equal to it.

The idea is noble, but it is not altogether new; if it had been so, we could have trusted to the strain from whence it emanated—in whose veins it had been cast—but this cross of old and new, this hybrid taint, *malgré* many great and noble conceptions, is a drawback. Towers and spires, and chambered buttresses, encumber the design, otherwise a product had been entered and created, which, with the costliness it had been new (new to us at least), like the continent in its day, on which it is designed to stand. But as it is, with its rotunda or central hall of 40 feet diameter, and 40 feet high, surrounded by its five abutting libraries, surmounted by a grand monumental rotunda, and set in height, with its pompous array of state rooms, and statues of Major-generals, storied again by a third rotunda (the Academy of the 180 feet high, and finally crowned by the tall and galvanized iron spire of 194 feet, its observatory and the "look-out." But full, bold, singular, and original in many respects, as the design is, it is imagined in what of a mixed blood,—there is breeding but not pure breeding—bone, sinew, and nerve—but the blood is not pure. Perhaps, however, it is too much to crave a larger measure of advance. We must go through

two or three generations to restore or to create an art.

We lament that we are not in possession of more particulars than are supplied to us in a copy of the *New York Sun*, and that from the small and obscure character of the drawing, it has been impossible to do more than to render a faithful, though enlarged copy, in which there is evidently many defects and improprieties. The estimated cost of the work is four hundred thousand dollars, of which upwards of fifty thousand dollars are already subscribed. The stone has also been most liberally proffered by a large builder and quarry proprietor. The design is by Mr. Pollard, architect, of New York. With this and the Croton Aqueduct, that city may boast of the most famous works of structure in the history of these days.

SUPPLY OF WATER TO THE METROPOLIS.

We are entitled to resume this subject again, and to enforce our views, the more so as since our former writing it has been made the theme of some earnest articles in other periodicals, and in such a way as greatly to confirm us in our purpose. The *Athenæum* of Saturday last in particular has a powerful and clever chapter, caustic, and yet playful withal, one that we would fain quote at length, if we had space; and it is urged therein as a duty incumbent on the press generally to take the initiative, and to drill the public into *sanity* on this subject. This is what we felt when we invited attention to it some months back on the occasion of several serious London fires—nay, we not only invited their attention, but we insisted on it, as one in which foresight and forethought would be well exercised, and wherein apathy and neglect would be criminal. We then took the initiative, not merely on the ground of the salubrity to be obtained through the agency of a sufficient supply of pure water, but also on the almost, if not equally important one of the security of life and property in cases of fire, and there were minor yet not minute consequences besides—not unobserved—regarding the employment of artisans, the beneficial diffusion of money, the encouragement of art, and the elevating influences of a popular character derivable from it. We felt then, and still feel, that as the organ of the building fraternity, we had a right of privilege to have our first word in the business, or if not the first word in point of time,—because many words have been already expended on it,—the first word in point of weight; and we were altogether heedless, as we then observed, of any shallow and stale objections that might be urged against us, on the score of our recommendation of *leather*, for it amounted to conviction with us, that to fortify a city like London from the threatened ravages of pestilence and fire, the engineer and the builder could erect the best walls, and those *walls* we defined to be, an aqueduct for the supply; abundant tanks, elevated on the houses' tops to contain the water, and fire-proof buildings at regular intervals in every street. We waited not to "*take orders*," to have the *Athenæum* and every other vehicle of general public expression crying out as to the want of water and the want of protection; but we noted both, and prescribed a full and an efficient, a practical and a practicable remedy. The Croton Aqueduct of New York was before us, as it has since come under the notice of our contemporaries, and we wrought with some energy on that topic, shewing how that new city of a new country was outdoing this, the

mistress and pride of the old; in regulations and provisions sanatory, and for its security. To be sure, as the *Athenæum* drily observes, the *yellow fever* is an aristocratic disease in the former city, and insinuates that if the *typhus* were equally so in our metropolis, it would not be long before we should emulate the New Yorkists in efforts for "self-preservation and self-purification;" this, however, is to assess our susceptibility to the influences of reason at rather too low a scale, to say nothing of our humanity. We believe the indifference to arise from a multitude of causes, but mainly from that habit of immersing themselves in business which the citizen and merchant of London follow, so that they become abstracted as it were from the consideration of many of the more important claims upon their attention, and actually tread the precipice of the most awful danger with the security of the "sleep-walker," while waking men tremble and melt with very fear. But this sleep cannot always endure; the *press* is set to bawl in the ears of the slumbering, and if it exaggerate the alarm, let the dull ear take the blame that was not otherwise to be roused. We have been found fault with for loud screeching by some inconsiderate, who when the danger arrives, of which we report the menace, would be the first to cry out "Who'd have thought it!" Shoulder shaking, and pricking, and goading must be resorted to, if the somnambulists resist the gentler expedients. Irrationals! which is the wiser, to build your house secure from the storm, or to boast that you have timber ready for props and struts when it shall rock under the wind, or that you have laid in a store of new materials for the rebuilding, if this should be carried away? Yes, you fancy that you have done wisely in the embodying of an army of the faculty to extinguish disease when it should ravage, and of firemen to extinguish fire when it rages, while the grand preventive resource, an abundant and constant supply of water, with fire-proof blocks of building, would put you upon the gain of all this, and in next to perfect security. Life, and limb, and property are the sacrifices you vainly make at the altar of Ease, and the idol is not yet propitiated. Security is the true goddess whom you should invoke; her worship is pleasant and profitable in the act, in its ending, and its following.

What do the bills of mortality reveal? Why that in this London alone, every ten or twelve minutes, one human being is passing from the stage of life to be consigned to the dust of his origin. This, however, is not strange in the sense of our using it, but to append to this note of fact the inquiry,—how many are being borne off on the wings of the GENII of foul air and filth? How many, while we read, are being saluted by the impure lips of these ministers of disease and death? whence issue, and where have these fatal missionaries their strongholds? Where, and how many their temples? built out of our lavish contributions, on sites assigned to them at our willing, by free deed of gift, where baleful atmospheres are maintained and from whence poisonous exhalations are sent forth,—in short, let us ask ourselves, how many nests of disease do we privilege in our city, that a broad stream of pure water would not wash away, to be lost in the wide ocean of innocuous gatherings? Let us ask this, and though we may not reduce our mortality bills, we may render a cleaner "bill of health," and raise the standard of the duration of life in London to a scale more consistent with its pride of intellect, and its boast of benevolent self-consideration.

Plague and pestilence may come, though the

typhus be, as the *Athenæum* hints, a plebeian disease. For several weeks past the mortality bills have averaged some fifty per cent. increase on the ordinary return of deaths! This fearful circumstance, no doubt, arises from the conjoined influences of bad air, bad and insufficient food, bad and insufficient water, insufficient clothing and shelter. Cleanliness, however, which has been well and long reputed the "nurse of health," we can send forth to the abodes and haunts of misery, and if we do not send her, those haunts will despatch an embassy to us, which we would as soon welcome as a falling star, or the belchings of the quaking earth. Cleanliness rides proudly in her argosy, on the breast of health-fertilizing waters, not squirts and piddling fountains, in fashionable places, nor yet pumps and engine-streams will suffice,—no cock-boat craft to run through muddy culverts will invite our saviour-goddess to visit us. We are a rich, a great, and a boastful people, and our embassy to invite, our outfit to conduct, our provision to entertain, must be to the full, commensurate with our riches, our greatness, and our boasting. The more liberal the largess on our parts, the more generous the return. Talk of emulating old Rome indeed! why, New York excels us. This should not be for a day, it need not be for a year longer.

We have confined ourselves mainly to the sanitary part of the question as enforced by our contemporary in the article we have alluded to; we have done so at this present writing under a sort of cue thus given to us in the pleasure of our reading, but it will be remembered that in our former article we dwelt upon the subject principally in reference to its influence in averting the calamity of fire. Night after night the bulletins were issued, or with the morning's announcement, of fire upon fire—and while the public mind, as we thought, betrayed or was likely to betray some signs of conscious appreciation of its losses, we seized the time to dwell upon the similar terrors in prospective—but no! listless and indolent, or, as we have said before, abstracted in the study and solution of other problems, many, vain and frivolous as compared with this—speculating, bargaining, and playing at *pitchpenny*—they were not to be charmed out of their fixed bent. Other fires, in number and amount of damage exceeding the former, have *accrued*—we use the word *accrued*, as most aptly expressing the apparent public estimation of the matter—the *provident! national!! FIRE FUND!!* has been most liberally drawn upon in the interval!—thousands and hundreds of thousands of pounds have been thrown into the consuming gulph, by way of stop-gap! Ha! ha!—What laugh might best excite to mocking of this wisdom! but we are out of breath, and out of astonishment. We must have done the sage public some wrong; let us see.

FIRE INSURANCE.—This is a significant word, and has a *woundy* weight of import. What does it mean? We are afraid we must revert to Paddy again for its definition, to him who sat coolly indifferent in the midst of the storm by which his fellow-passengers were affrighted, and answered looks and speeches of remonstrance with a smile at their want of foresight, and a look of triumph in his own sagacity, and with every now and then the words "Faix, and didn't I insure my life before I started?"

Fire insurance and life insurance, as they are called, are fine things in their way, but there is something which these words do not popularly mean that would be more like either. The best fire and life insurance office would be

one that, under a commission, would direct an examination into every pestilent and combustible district in London, and draw from a fund to enforce a timely remedy; let fire and life indemnity offices continue, in heaven's name, to mitigate calamity when it overtakes us, but it would be much better if they could expand their arms, and set them out a better barrier against its approach. We do not despair of seeing this; meanwhile, we are grateful for any aids, and work gratefully under any leading. We shall not be found unwilling to push the matter forward at every opportunity till it reach its issue.

DURATION OF LIFE AMONG WORKMEN.

STATISTICAL SOCIETY.

THE first meeting of the session for 1843-44 was held on Monday night at the Society's rooms, 11, Regent-street. An interesting paper was read by Professor Guy, founded principally on the experience of King's College Hospital, and tending to shew many important consequences connected with the influence of employment upon health. So far as the professor's inquiries extended, it was made apparent that a fearful disparity exists between the state of health and length of life of the gentry class and the trading and labouring classes, the former having the advantage in an almost incredible proportion. Hard labour and sedentary employments, with their usual concomitants of intemperance in the one case, and working in high temperatures in the other, together with hard and irregular living, and confined habitations, in all, have, it would seem, a most destructive tendency, not only in abridging the period of life, but, as was well observed by Mr. Guy, in disseminating the principles of early decay, debility, effeminacy, &c. in a whole race of people, a consideration of the highest import to every lover of his country and species. Draymen, it was remarked, whom it is common to rank among the class of the privileged as of robust and enduring constitutions, are almost the very reverse; and it was noted in the discussion that followed Mr. Guy's paper, and what we had heard stated before, that this class of men are stated amongst surgeons to be the worst subjects for hospital treatment, the most difficult to cure, even in slight cases of disease or injury. We waited during the reading in anxious expectancy that a few words would fall concerning the artisan class ranking highest in numbers and importance—the builders; but except a casual remark, which we are happy to say appeared to conflict with the tables of Dr. Thackrah, of Leeds, who brings the masons low in the scale of longevity, we heard nothing. There was a promise, however, that this section would have full attention paid to it, and be the subject of a future comprehensive review. The printers, principally compositors and pressmen, formed the chief of those to whom Mr. Guy's papers had reference.

We have thrown these few remarks of notice together principally with a view to prepare our readers and the building class generally to meet this question. It is to them a very important one: its revelations may be very startling.

One thing has always struck us, and we have considered it with feelings far from comfortable. Where do all the old carpenters, masons, bricklayers, and others of our craft go to? A knowledge of the manner in which they are *shelved*, or *superannuated*, or *killed off*—we use plain homely terms, to excite to an attentive and anxious consideration—would serve

an important purpose. Plague upon it, and upon the laws of our craft, if it is to make old men at forty-five, and that this should arise out of deprivations, over-exertion, exposure to wet and cold, or any causes which human wit can render moveable. We must look to this. Is it not something to be in possession of the knowledge by which a whole people are to be happier, stronger, longer lived? Such knowledge is that which statistical inquiries may lead to, and if our friends in any district may think it worth while to raise their minds to the consideration of this weighty subject, and not be wholly absorbed, like machines, in manufacturing designs and structures, they will render larger service not only to art, but to its honoured subjects, to their country, and their species.

BRITISH MUSEUM.

We are particularly anxious that we do no injustice to Sir Robert Smirke, nor push ourselves forward over presumptuously. In looking over the papers referring to the Museum, we find much to strengthen our first feelings of respect for Sir Robert's talents. The plan of the Museum is very fine; the elevation is just a "missing of the mark." All the elements of a good composition are there, but spoiled in the compounding.

We regret that we are unable to fulfil our promise of bringing before our readers this week Sir R. Smirke's design, but we found it impossible with our other arrangements to complete it; we have also a desire to give an opportunity to any gentleman who may be disposed to favour us with a comparative design for the Museum façade.

NELSON COLUMN SCAFFOLDING.

We have been favoured with a drawing and description of this ingenious fabric, for fabric we may call it, albeit for the temporary purposes of erecting another more durable. We hope to give it to our readers next week with some remarks of our own on the peculiar merits of the work. We are greatly obliged for the papers forwarded.

BIOGRAPHICAL SKETCHES OF DISTINGUISHED ENGINEERS.

J. Smeaton

THE extraordinary man, a fac-simile of whose signature heads this page, was born at Austhorpe, near Leeds, in Yorkshire, on the 22th May, 1724. The mere infancy of Smeaton afforded earnest of the natural direction of a mind peculiarly constituted for mechanical pursuits; a variety of anecdotes, which are preserved, go to shew that from five years of age he had steadily cultivated the several processes essential or useful to his future profession; and that at eighteen he was in possession of tools proper to the exercise of many trades, all forged and fashioned by his own hands from the various metals of which they were composed; together with a lathe, upon a new and more perfect principle than any previously in use. Originally destined to succeed his father in the respectable and lucrative profession of an attorney, Smeaton was sent to London about the year 1742 to attend the Courts of Law at Westminster; but after some time thus spent, a strong remonstrance, and expression of his dislike to legal practice, made to the elder Mr. Smeaton, procured him liberty to strike out into the new path for which genius had fitted him. We have truly said *new path*, for in England, in the year 1742, civil engineers, as an order, had yet no existence. How singular, then, is the merit of our subject, and of a few others, his contemporaries. Twenty years after his death, the committee of the Society of Civil Engineers, on publishing "The Reports of the late John Smeaton, F.R.S., on various occasions in the course of his practice," made the following remarks on the establishment of the important institution so called, and which are worthy of being repeated and remembered. "About the year 1760 a new era in all the arts

d sciences, learned and polite, commenced this country. Every thing which contrites to the comfort and prosperity of a nation moved forward in improvement so rapidly and obviously, as to mark that period with particular distinction. Manufactures were also attended on a new plan, by the enterprise, the capital, and, above all, by the science of men of deep knowledge and persevering industry, engaged in them. All this produced a new demand, not thought of till then in this country,—*internal navigation*; to make communications between factory and factory, and from warehouses to harbours, as well as to carry raw materials, became absolutely necessary. Hence these wonderful works, not of pompous and useless magnificence, but of real utility, which are carrying on to an extent and magnitude to which, as yet, there is no appearance of limitation. This general situation of things gave rise to a new profession called civil-engineering. In all the polished nations of Europe had previously existed; in this country, however, the formation of such artists has been left to chance, and persons leaned towards the public call of employment, in this way, as their natural turn of mind took a bias. The civil engineers of Britain are therefore a self-created set of men, whose profession owes its origin not to power or influence, but to the best of all protection, the encouragement of a great and powerful nation, a nation become so from the industry of its manufacturing workmen, and their superior knowledge in practical chemistry, mechanics, natural philosophy, and other useful accomplishments." These remarks emanated from the society at then (1812) firmly establishing itself, and became so conspicuous in the annals of practical science. John Smeaton was one of the most eminent among those self-educated men, so well described in the Preface to his reports," and to whom the Society of Civil Engineers pointed with well-founded pride, as an example of what may be accomplished by individual exertion. Vast natural talent, with an predilection for his future profession, grew with his growth; but encouragement had been denied. Escaping, as it were, from the trammels of the law and its study, we find him, at the comparatively early age of twenty-six, in correspondence with the Royal Society of London, in a communication dated Furnival's-court, April 16, 1750, "On Improvements in the Mariner's Compass;" and so frequent and important were his subsequent papers, that in 1753 he was elected a fellow of that society; and in 1759 honoured with an unanimous vote, with their gold medal, for his paper entitled "An Experimental Inquiry concerning the natural Power of Water and Wind in Mills and other Machines depending on Circular Motion." With these preliminary sketches, necessary to a conception of the science in science to which Mr. Smeaton had turned himself, we may proceed to mention his early first great practical work, the Eddystone Lighthouse. This beacon, so essential to

security in navigating the coasts of Devon and Cornwall, and particularly in entering Plymouth Sound and Harbour, one of the great depôts of British maritime power, had been twice erected and destroyed; the first structure in 1696, which was blown down during the storm of 1703, the six persons who were therein perishing at the time, Mr. Winstanley, the engineer and architect of the building, being of the number. In 1706 an Act of Parliament was passed for re-establishing the lighthouse, the corporation of Trinity House having power to lease the undertaking at their discretion; the inducement to the large expenditure of capital required upon such occasions being a revenue arising from a toll or bar, according to tonnage, imposed upon all vessels frequenting the coast. In the present case the lessee for 99 years was Captain Lovet, who, singularly enough, selected as engineer Mr. John Rudyerd, a silk mercer in considerable practice in Ludgate-hill. Smeaton, speaking of him, says, "It does not appear that Mr. Rudyerd was bred to any mechanical business or scientific pursuit, nor do we find that in any other instance he had distinguished himself by any mechanical performance before or after; yet this is no proof but that he might have made these kind of subjects his private amusements; and it is indeed true that a natural genius, with very slender experience, will go further in design than experience alone is capable of. However, Mr. Rudyerd's want of personal opportunities or practice was in a degree assisted by Mr. Smith and Mr. Norcutt, both shipwrights from the king's yard at Woolwich, who worked with him during the whole time he was building the lighthouse. It is not very material now in what way this gentleman became qualified for the execution of this work; it is sufficient that he directed the performance thereof in a masterly manner. He saw the errors in the former building and avoided them; instead of a polygon, he chose a circle for the outline, and carried up the elevation in that form. He seems to have adopted ideas the very reverse of his predecessor by rejecting all unwieldy ornaments at the top, such as an open gallery, and projecting cranes, contrivances more for ornament and pleasure than use; he saw that however beautiful ornaments may be in themselves, yet when they are improperly applied, or out of place, by affecting to shew a taste, they betray ignorance of its first principle, judgment; for whatever deviates from propriety is erroneous, and at best insipid." These observations are valuable, as proving most clearly the state of science, and the anomalous condition of its professors, a hundred and thirty years since; Smeaton saw in the self-taught engineer Rudyerd, a reflection of his own conceptions and powers, and not only defended but lauded the effort of one of the early pioneers in engineering and building art, the single effort of a silk mercer, in daring and accomplishing a novel and most difficult work! Upon the whole Rudyerd's lighthouse

is described by Smeaton as a piece of shipwrightry, yet of elegant proportions, and in which the best principles of construction were accurately observed. Comparing it with Winstanley's building, and referring to the plans and details, he says:—"A comparison of these two buildings affords a great and useful lesson to future engineers. We are sure such a building as Mr. Winstanley's was not capable of resisting the utmost fury of the sea, because in four years it was totally swept away; but Mr. Rudyerd's building had sustained innumerable attacks of that element, in all its fury, for forty-six years, and was then destroyed not by water, but by fire, an enemy scarcely calculated upon or guarded against." The quantity of materials expended in the construction were 500 tons of stone for the basement, and 1,200 tons of timber for the superstructure; 80 tons of iron, 35 tons of lead; and of trenails, screws, and rock bolts 2,500 each. Rudyerd's lighthouse was burnt on the 2nd day of December, 1755; the fire was supposed to have originated in the lantern, burning downwards to the basement; upon this occasion the three light-keepers were rescued, one of them dying shortly after from severe injuries received during the conflagration.

At this period the representatives of the original lessee of the Eddystone, Captain Lovet, had a remainder of half a century in a most beneficial property, and they bestirred themselves with energy in the matter of re-establishing the lighthouse. Engineering being at a low ebb, the main difficulty lay in procuring an efficient person to plan and conduct such a work. Under these circumstances, Mr. Weston, the principal proprietor, decided upon applying to the Earl of Macclesfield, then President of the Royal Society, for advice and assistance. The reply of that nobleman is authenticated to have been given in these words: "There is one of our body whom I can venture to recommend; yet the most material part of what I know of him is his having, within the compass of the last seven years, recommended himself to the society by the communication of several mechanical inventions and improvements; and though he at first made it his business to execute things in the instrument way, without ever having been bred to the trade, the merit of his performances has occasioned his association with us. Further, for about three years past, having found the business of a philosophical instrument maker not likely to afford an adequate living, he has wholly applied himself to such branches of mechanics as you appear to want. Mr. Smeaton, the individual I allude to, is now somewhere in Scotland, or the North of England, engaged in this way." The Earl concluded this recommendation by saying—"I have never known Mr. Smeaton to undertake any thing but what he completed to the satisfaction of those who employed him; and you may rely upon it that when the business you have in hand is stated to him, he will not undertake it unless he clearly sees himself capable of performing it."



RUINS OF THE KASR, OR PALACE, AT BABYLON.

(Referred to and described in "Lectures on Architecture," &c., p. 495.)

CAMBRIDGE CAMDEN SOCIETY.—
THIRTY-THIRD MEETING.

NEARLY fifty new members were balloted for and admitted, principally fellows of the colleges, and about half a dozen architects whose names we recognize: Donthorn, Raiton, and Richardson, of London; Cates, York; Hicks, Bristol; Shearburn, Dorking. The Rev. John Keble was received a member with acclamation, as were the Bishops of Aberdeen and Glasgow as patrons.

The report sets out that—

"A fourth summer has gone by, and the committee have again to congratulate the society on the continued increase of its numbers, and the peaceful progress of its principles and operations.

"The increasing accession of architects of reputation is a gratifying evidence of the truth of the architectural rules for which we have contended, and affords a welcome ground for the hope of ultimate uniformity in the general principles of ecclesiastical restoration.

"The growing augmentation of business and consequent occupation to the members of the committee must again, and still more than before, be pleaded in apology for delays that have occurred in the society's proceedings and publications. This remark will particularly apply to the *Ecclesiologist*, the regular publication of which is always a matter of much difficulty in the five summer months, for reasons obvious to those who are acquainted with the customs of the university, and which are not likely to lose their force or operation as the subjects embraced by that journal grow in interest and importance. Two numbers have, however, been issued in the summer, and two more are now on the eve of publication. In regard to a work involving such matters, and coming under the review of so many persons, it is hoped that an indulgent allowance will be made, not only for what may have been erroneously admitted, but also for what may have been reluctantly withheld."

It next goes into a statement of the progress made in the restoration of the Church of the Holy Sepulchre, a view of which we gave in an early number; half the encaustic pavement is yet to be laid down, and many things must be deferred from want of funds (such as the erection of the oak roof to the new aisle which was determined on by the committee, the frescoes, with the chancel and parclose screens). The window, however, for the east end, committed (as stated in a former report) to Mr. Willement, will, it is hoped, through that gentleman's extraordinary exertions, be ready for the opening of the church, which was desirable as well to save the cost of a temporary glazing, as because this forms an important feature in the restoration."

Further application had been made to the committee by the Bishop of New Zealand for designs and guidance, upon which they were deliberating, and lists of new churches, and of restored churches, were read, in which the advice and assistance of the society had been solicited and given.

It was announced that the second and third numbers of *The Illustrations of Churches in Cambridgeshire and the Isle of Ely* had been published, and the fourth number is forthcoming. A new edition of the *Few Words to Churchwardens* has also been issued.

"The plan adopted for supplying lecterns especially, and other carved wood-work in general, by a wood-carver in Cambridge, has met with great success, as to leave little doubt of the difficulty which was felt in obtaining in the county correct designs or copies of ancient designs; and consequently of the advantage of having them manufactured on the spot under the society's superintendence. Several have been already executed and sold, and more are on hand. Arrangements have also been made for the supply of alms boxes, of various kinds and sizes, on a similar plan. Casts of poppy heads have also been prepared, and are on sale by the same maker, Mr. James Ratlee, opposite the Fitzwilliam Museum.

Acknowledgment was made of the many valuable presents and drawings, in particular of a very valuable series of twenty-five coloured plates of views and details of Westminster Abbey, by E. G. Hartnell, Esq., Trin. Coll.; a series of about eighty drawings, with the working drawings full size, of the open seats at Comberton and Bourn churches, by F. H.

Paley, Esq.; a very large contribution of brasses, from various sources; a copy of 'Blore's Monumental Remains,' by H. Heslop, Esq., Trin. Coll.; a series of forty drawings to a scale of carved standards, from Somersetshire, through S. N. Stokes, Esq.; the first part of the costly and beautiful series of Yorkshire Abbeys, published and presented by Mr. Sunter, of York. Above all, the costly and magnificent present of two high tombs, with effigies and canopies complete, from the Earl of Shrewsbury, has now been erected and is deposited in the society's room.

After alluding to donations made to the funds by the Chancellor of the University, and the Duchess of Gloucester, the former of 50*l.*, the latter of 10*l.*, and remarking on the auspicious visit of her Majesty and Prince Albert to the works of the Round Church, certain papers were read, among which one by S. N. Stokes, Esq., of Trinity College, on decorative colour, in which he shewed from authorities and examples that painting and gilding were necessary for the proper adornment of a church and its ornaments, called forth a few remarks from the Rev. H. Goodwin, of Caius College, in which he drew the distinction between painting wood or stone for the purpose of deception, and enriching costly materials by the aid of colour, without any attempt at disguise, for the sake of greater dignity and beauty.

INSTITUTION OF BUILDERS' FOREMEN.

It would occupy us at greater length than we are now able to bestow upon the subject to set forth the peculiar claims which this and similar institutions proposed to be established have upon the consideration of our readers; but confining ourselves to this alone, there are two classes or sections we would address—the masters and the foremen themselves, and with these our remarks must be necessarily limited.

To the master of an enlightened mind and honest purpose, the claims we speak of will suggest themselves with more force than we have the power of giving utterance to. Such masters will regard the body of foremen as an important link in the great chain of honourable connection between themselves and their workmen. Foremen are of necessity those who rise from the ranks of the workmen, and are supposed to carry with them all the best qualities of head and of heart which characterize the class from whence they spring; they are not chosen on account of an obsequious and supple demeanour towards their superiors, or for that worst of all qualities, contempt and suspicion of the body to which they belong, but on such grounds as, if the vote were left to the shop itself, would ensure their election; men who distinguish themselves by their integrity, by honourable dealing, by pride of class, best evinced in the active exercise of the practical virtues of good fellowship, generous sympathies, and the faithful discharge of their trust; men of good talent, well cultivated, and with honest hearts. Their appointments are not bribes, but distinctions and rewards.

It will not do to answer us with exceptions to the rule we have sketched out, nor with the reply that the policies and practice of trade do not admit of working up to this high standard. We answer, first, that it is a libel upon trade to speak so ill of it; better it should fall than not justify our description; and, secondly, that we know the practice of the best-regulated establishments will, and do justify it, and that it is our purpose to elevate all to the same standard by every means in our power, in which we shall be most effectually assisted, in fact, carried forward to the accomplishment, by the co-operation of those we now address.

We call upon the masters, therefore, recognizing, as we are sure they will do, the truth of the principle we have laid down, to mark their sense of the value of the independent and honest foreman, by giving their sanction to an institution which, like this, promises to provide an honourable retreat for the victim of misfortune. It is not—and we are warranted in saying it, from the inquiries we have made, and the perusal of a copy of the rules—it is not in the slightest degree intended to interfere in any matters that concern the master builder, but purely and solely with the motives propounded. If it had been otherwise, we would have withheld our hand in its favour.

We know of masters, whom we should offend by the ostentatious publication of their

names, who have pensioned and provided for their faithful servants upon their superannuation through age and accident, and who, if they were sure of the proper drift of this institution, would, in future cases at least, annex the reward to the foundation of a permanent charity. What so easy? Let the Foremen's Institution provide the funds for the support. Let the masters lay down those for the building. Begin one lodge at a time. The body is not so numerous, nor their habits so improvident, as to render likely the call for more than half a dozen houses; but what a consolation, what a stimulus to good conduct and virtue, would be the knowledge to each man, that he was the member of a body whose care, under Providence, would extend to him and his family in the event of any calamitous dispensation.

There are foremen, too, who in right of their worthiness may rise to the rank of masters in their day. Those who may be of this institution, or who would have been had it existed in their time, will remember it in the prosperity with which heaven may bless, or has already blessed them, and will assign such portion of its good things for their less fortunate brothers, as to properly mark their gratitude to the Author of all good, and their right fraternal feeling.

We believe the time never was so pressing for the cultivation of those virtues out of which institutions, such as this we advocate, usually arise. We shall be most happy to be the medium of giving effect to any promotion of the object which our friends may honour us with on either side.

CHURCHES AND MEETING-HOUSES.

We have pleasure in extracting the following letter from a provincial paper, to shew the active feeling that is beginning to be evinced in favour of architecture:—

"TO THE EDITOR OF THE NOTTINGHAM JOURNAL."

"SIR,—With your permission, I will make a few remarks in your excellent journal on the new churches in this neighbourhood, with a view to promote attention to their architectural and other arrangements. Where I am in error, perhaps some one more competent will correct me; where I find fault justly, perhaps cause for this may be prevented in future erections.

"The new churches already completed are—Sneinton, by Rickman and Hussey, of Birmingham; Trinity (Nottingham), by Stevens, of Derby; Lenton, by the same; and Carrington, by Mr. Surplice, of Nottingham. Those now building are—Beeston, and Leen Side (Nottingham), both by Scott and Moffatt, of London; and Ison Green, by Stevens. Those proposed to be built are—Bulwell, by Stevens; and New Radford, by the same (?).

"If we were to add the new meeting-houses for dissenters, we should have the Wesley meeting-house for the Methodists, in Broadstreet; and that of St. Barnabas for the Romanists, on the Derby road,—these being as far as I know, the only new meeting-houses building, or lately built, in this town or neighbourhood.

"Of all the new churches yet completed, I have frequently heard it remarked, that they are all, in one point or other, evident failures as works of art. Thus, e.g., Sneinton Church is over-done with its tower; Trinity is spoiled by its wide, flat roof; Lenton is distorted by its high, narrow clerestory, stuck upon its disproportionate side aisles; and Carrington is much over-windowed, as well as disfigured by its ugly bell gable. Whether those in progress will prove equally failures will be seen in due time, before which it were hazardous even to make a guess either for or against them.

"Still it must be confessed that there are many beauties, as well as infinite real utility, in these new churches, to counterbalance the acknowledged faults committed between the architects and the building committees concerned in each case. I say between them, because I am convinced that the architects are not alone to blame for the faults of their productions. In the case of Trinity, for instance, I have heard said that Mr. Stevens first sent in a design with a clerestory and high-pitched roof, and that the committee reduced his plans to the present inconsistent elevation. Again, at Lenton, it is not impossible that the prejudice in favour of building the tower at the west

end, combined with the rule not to build one narrower than the clerestory, and with the fact that the funds were not sufficient to make the tower larger than it is, was the cause of the pinched up proportion of the clerestory, while an idea of future side-galleries was the cause of the heavy-looking side aisles being combined with the said lank clerestory in the present church. If so, Mr. Stevens deserves more credit and less blame than most spectators will award to him.

"SISTE VIATOR."

STREET PAVING—SIR J. S. LILLIE'S IMPROVEMENTS.

A SPECIMEN of this improvement, which is a combination of wood and asphalt, patented by Sir John Lillie, has been just laid down opposite St. James's Church, in Piccadilly, and fully bears out the favourable accounts we had previously noticed of its success in France and other places, where it has been subjected for some time to severe tests. The advantages claimed for it over all other plans of paving heretofore in use, are economy, facility of laying down, and freedom from danger to horses. Much of the expense attending other descriptions of wooden paving has been occasioned by the removal of from 12 inches to 18 inches of existing surfaces of streets, and the substitution of foundations of fresh material, much inferior to those removed. In the present instance, this objection is got rid of by the patentee's availing himself of the existing surfaces of streets for foundations, and laying thereon a covering of the new combinations of materials before specified in the proportions, as near as we can judge, of equal parts of wood and asphalt. The wood is embedded in the cement in such a manner as to leave open spaces between the respective sections of wood, of about an inch in depth and width, which serve to carry off the water, and prevent that slipperiness which must necessarily result from blocks of wood when brought into close contact, except, perhaps, when shaped in the mode patented by Meers, Crannis and Kemp, and described in one of our recent numbers.

The duration of one inch of wood used as pavement has been ascertained to average from fifteen to twenty years, and a surface which will last that time is all the public require; there does not therefore appear to be any greater necessity for six or eight inches of wood for street covering than for six or eight carpets being laid at the same time for the covering of floors.

The various pieces which compose this specimen of street-paving were first cast in moulds at Cassel's asphalt manufactory, Mill Wall, Poplar, and then cemented together and secured by the same operation to the stone pavement, which forms the foundation.

A specimen of sections of wood only 1½ inch thick has been laid down opposite Cassel's manufactory, and has been exposed during the last summer to the heaviest traffic, without the least impression being made upon it.—*Mechanic's Magazine*.

HUNGERFORD SUSPENSION-BRIDGE.—It is intended to open this bridge in May next. The abutments on either side of the Thames, and the pier on the Hungerford side, are completed. The pier on the Lambeth side is expected to be finished by Christmas. The length from pier to pier will be 600 feet, the entire length of the bridge from the abutments on the Hungerford side to the opposite will be 1,440 feet. Its breadth in the "clear" will be about 14 feet, and its height from the water level to the footway, 28 feet. The height of each pier, from its basement to its top, will be nearly 100 feet. The links that compose the supporting chains are made of malleable iron, 700 tons of which will be necessary for the construction of the bridge. The property required for approaches has cost 13,000*l.*, and a contract has been made for the completion of the bridge at a cost of 80,000*l.* The total cost (including expenses incidental to the progress of the works, the Act of Parliament, &c.) will be 106,000*l.* The proprietors calculate that a net annual income of 3,010*l.* will be derived from tolls, being at the rate of 8 per cent. on the capital. 10,000 persons must cross the bridge daily to yield this sum.—*Times*.

SOCIETY OF ARTS.

Nov. 15.—W. Tooke, Esq., V.P., in the chair, read a communication, by Mr. Pellatt, on Elkington's process of Coating Iron with Zinc, Copper, &c. Several specimens of hinges, ornamental railings, &c., were laid on the table. Ordinary crystallized sulphate of zinc is dissolved in water, with a proportion of 1 lb. of the sulphate to one gallon of water, which forms the zinc solution. The iron to be zinced having been cleansed, by remaining for a short time in dilute sulphuric acid, and afterwards well scoured with sand, is placed in the zinc solution, and being attached to the negative pole of the galvanic battery (plates of zinc being connected with the opposite pole which face the articles in the solution), the deposit takes place. After being a short time in the solution the article should be taken out and brushed all over, so that any portion which may not have been properly cleansed, and to which the zinc has not perfectly adhered in consequence, may be discovered. It is then returned to the solution, and allowed to remain until a covering of the requisite thickness is obtained. In coppering iron, a solution is formed of ferro-cyanide of copper dissolved in the cyanide of potassium. When the iron to be coated has been cleansed, it is placed in this solution, heated to about 120 degrees and in connection with the battery. In from two to five minutes the article is coated with copper; it is then scoured with sand, and placed in an acid solution, when, if any portion of the iron is found to be uncovered with the alkaline solution, such part will turn black, and must then be cleansed and returned to the solution for one or two minutes. In order to test the adhesion of these metals, bolts of iron coated with copper have been driven through African oak twenty-four inches thick without at all disturbing the coating of copper; they have also been heated above redness, and then plunged into cold water, without any injury arising thereto from the difference of expansion and contraction of the metals.

THE POINTED ARCH.

It has been often matter of surprise, as well as of remark, that the pointed arch, which is of far the most simple construction, and arises at once from the use of stones superimposed, and gradually projecting, should have been alike neglected by the Greeks, when they began to use arches, by the Romans, and the architects of the middle ages; while the circular arch, which requires at least the rudiments of geometrical science, was universally in practice. The fact, however, is notorious, and the use of the pointed arch has always been made the line of distinction between the Saxon and that which is usually termed the Gothic style of architecture.

This style was in the height of its glory in France during the 13th and 14th centuries, and in England during the 14th and 15th; after which period a taste for imitating the classical remains of antiquity became general, and the Gothic manner, having reached its perfection, was exchanged for a style not only recommended by novelty, but better suited to the alteration of the times, and the gradual increase in the price of labour.

Those three centuries, however, and that style on which a term of contempt has been so preposterously bestowed, have left fabrics that are still the boast and ornament of the principal cities of Europe. For whatever has been said of the exact proportions of Grecian architecture, the beautiful disposition of its parts, and the harmonious symmetry of the whole, ought not in reason to detract from our admiration of a Gothic cathedral. Sir Christopher Wren, it is true, called them "mountains of stone, vast and gigantic buildings indeed, but not worthy the name of architecture;" and adds, "that though not altogether naked of gaudy sculpture, trite and busy carvings, it is such as gluts the eye rather than gratifies and pleases it with any reasonable satisfaction." But to whatever theoretical explanation we refer the pleasure which the mind receives from architecture, whether to greatness of size, or to the uniform succession of the pillars and various members of the building conspiring to increase the idea of its magnitude; a Gothic structure may assert its claim to power over the imagination. Its height, its massive but-

resses and stupendous pillars, with the defiance of labour displayed throughout the fabric, cannot fail to excite in the mind the sublimest ideas of magnificence and power. At the same time, the eye, accustomed to the picturesque, finds in the variety of the ornaments a compensation for that want of uniformity which the architect accuses; and in the numerous projections and varied lights for the ample relief and swelling which is so deservedly celebrated in the examples of antiquity. Again, if we appeal from theory to the paramount judge in these matters, general taste and opinion, it will probably be allowed that in the metropolis, Westminster Abbey, though not the grandest of our cathedrals, divides the palm with the finest specimen of Grecian architecture which this country can boast.

NENE ESTUARY EMBANKMENT.

THIS extensive and important undertaking was designed for the purpose of enclosing from the sea a tract of most valuable land, amounting to about 4,000 acres, which will, when enclosed, be principally the property of the Commissioners of the Nene Outfall, under whose auspices the works are being carried into effect, and in which they are assisted by the professional services of that eminent engineer, Sir John Rennie. The embankment is nearly three miles and a half in length, and for some distance averages 25 feet in height, and at some parts of the line of works there is a depth at high tide of 14 feet. About one mile and three-quarters, or one-half the whole length, is already completed, and from this portion of the work, as a specimen, it is allowed by experienced persons that it will be one of the best examples of a sea-wall to be found in England. The land, it is estimated, will vary in value from 50*l.* to 80*l.* per acre, and as a maiden soil, would be a fine site for a model farm of one of the agricultural societies of England. The works are rapidly progressing under the superintendence of Mr. H. H. Fulton, resident engineer, and the contract, we understand, was taken in August, 1842, by Mr. Sharp, for 60,000*l.* The Nene Outfall Commission, composed as it is of some of the most public-spirited men of the day, headed by Mr. Tycho Wing, as chairman, has already effected great improvement in the condition of part of the Fens of Cambridgeshire and Lincolnshire, by producing a natural drainage for the lands in lieu of the inefficient and expensive system of drainage by windmills and other mechanical means, at the same time improving the navigation of the river Nene from the sea to Wisbech, to such an extent that whereas formerly Humber keels of 70 or 80 tons could with difficulty reach that port, now vessels of 400 or 500 tons can, without the assistance of a pilot, owing to the straightness of the channel, get up to Wisbech without the slightest difficulty. This navigation, as an artificial tidal channel, is said to be the finest of that description in the country. It was designed and executed under the direction of the late Mr. Thomas Telford and the present Sir John Rennie, and so important has been the result of these works, that the trade of the port of Wisbech has been trebled during the last ten years. In the course of last year it amounted to 140,000 tons of shipping, though the shipping trade was in a worse state in 1842 than it has been in for many years past.—*From a Correspondent*.

SIZE OF TREES.—Our native woods often contain noble specimens of which the bulk is ten or twelve feet in diameter, a width greater by three feet than the carriage way at Fetter-lane, near Temple Bar; and oaks might be named, on the block of which two men could thrash without one accommodating the other. The famous Greendole oak is pierced by a road, over which it forms a triumphal arch, higher by several inches than the poet's postern at Westminster Abbey. The celebrated table in Dudley Castle, which is formed of a single oaken plank, is longer than the wooden bridge that crosses the lake in the Regent's Park, and the roof of the great hall of Westminster, which is spoken of with admiration on account of its vast span, being unsupported by a single pillar, is little more than one-third the width of the noble canopy of waving branches that are upheld by the Work-sop oak. The massive rafters of the spacious roof rest on strong walls, but the branches of the tree spring from one common centre. Architects can also estimate the excessive purchase which boughs of at least 189 feet must have on the trunk into which they are inserted. Those of the oak of Eilslerie cover a Scotch acre of ground; and in the Threshire oak its branches drip over an extent of 707 square yards. The tree itself grows in a nook that is formed by the junction of the three counties of York, Nottingham, and Derby.—*Ruins and Old Trees*.

THE WASHINGTON MEMORIAL.

The First Section.—The plan of the monument is that of a pentagon, 68 feet in diameter, forming a rotunda of the interior 40 feet in diameter, and 40 feet high; to be finished in the Gothic style of architecture, with projecting buttresses, at each angle of 25 by 34 feet, and 43 feet high; also, two octagon turrets at the angles of the buttresses 6 feet 6 inches in diameter, and 68 feet high from the walk to the top of the crockets, and 117 feet to the extreme angles of the base.

In each buttress there will be a room 22 by 19 feet, well lighted by three pointed Gothic windows of 5 by 18 feet; and fitted up for a free library, which will contain 400,000 volumes. Besides it will contain the history and memorials of the Revolution; with a gallery, communicating with each room, for busts and historical paintings.

Each room and section is approached from the first rotunda by five entrances of 9 by 16 feet, and five spiral stone staircases, of easy ascent, to the libraries. Over each entrance will be a marble tablet, 8 by 8 feet, illustrating the history and progress of the monument.

On the frieze of the first section will be placed 98 Gothic white marble tablets, on which to record the names of the signers of the Declaration of Independence; also, the names of the members of the Convention who framed the Constitution of the United States. There will be a terrace 7 feet wide on the top of the section.

The Second Section, which is 56 feet at the angles of the base, and 100 feet high, is surmounted with a rich Gothic cornice and balustrade; also, angular projecting buttresses of 24 by 18 feet, with two external and internal ornamental turrets 6 feet in diameter and 126 feet high, and surmounted with rich Gothic canopies. The buttresses are to contain 45 richly finished niches for marble statuary. The interior of this section will be the grand monumental rotunda, 40 feet in diameter, and 100 feet high, finished in the most splendid style of Gothic architecture, and lit by five pointed Gothic windows, and five circular windows, all glazed with thick ground and stained glass.

In this rotunda is intended to be placed WASHINGTON'S STATUE, in the centre, holding the Declaration of Independence, and surrounded by La Fayette, and our other foreign allies. In the thirteen niches are to be placed statues of the thirteen Major Generals appointed by Congress at Philadelphia, when Washington was elected to take command of the armies.

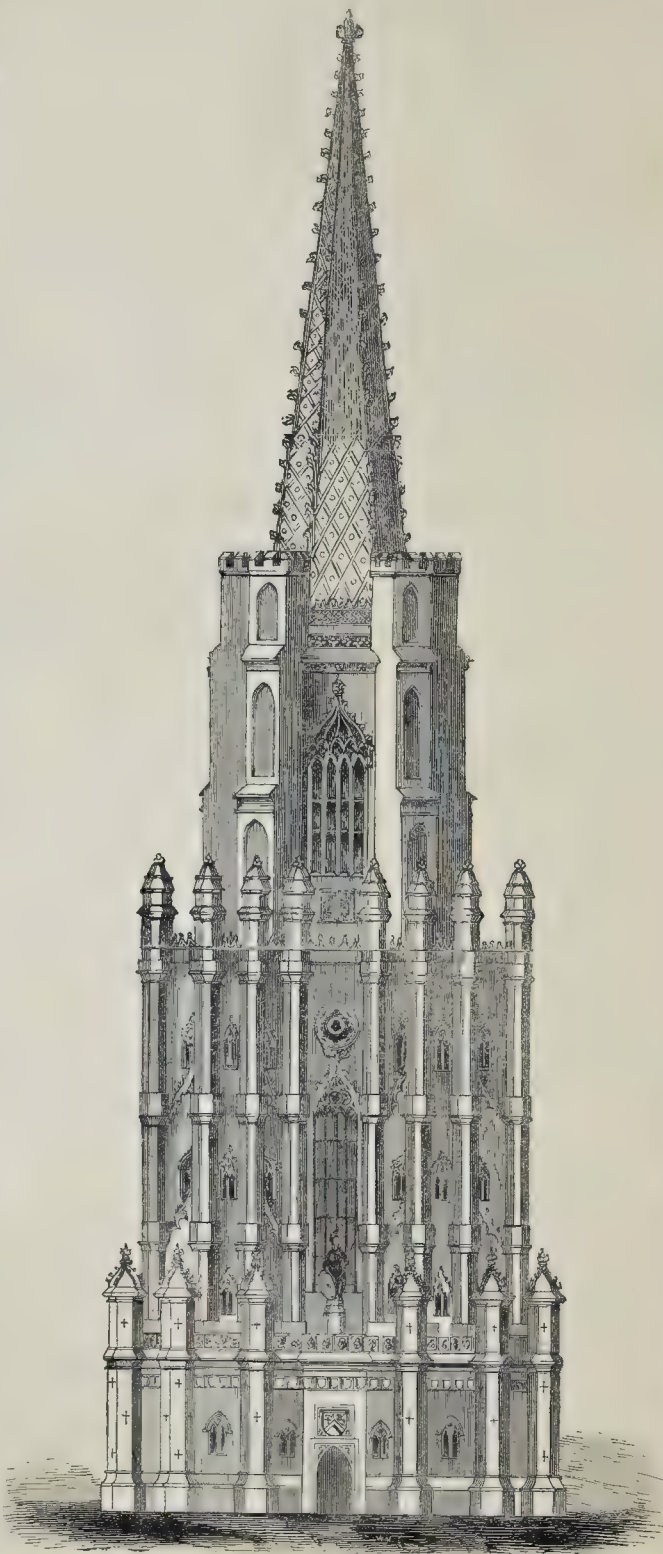
The thirteen columns are intended to represent the thirteen confederated States, supporting a richly ornamented Gothic canopy ceiling, with an eagle suspended from the centre. Each column is to support the States' flag. There will be two galleries of light ornamental iron-work above the canopy, where can be seen the statuary and historical paintings, illustrating the events of the revolution.

The third section is a plain pentagon tower, 48 feet at the angles of the base, and 87 feet high, surmounted with a rich figured cornice and balustrade, with plain angular buttresses, projecting 14 feet by 9 feet, and 112 feet high.

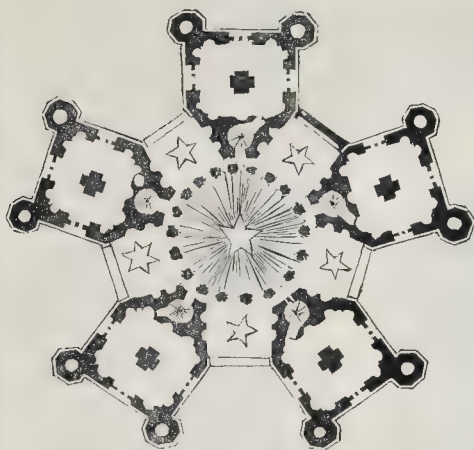
The interior forms a third rotunda of 38 feet diameter and 86 feet high, well lighted by five pointed Gothic windows 13 feet wide and 43 feet high. This rotunda is intended to be divided into ten separate galleries, for the use and encouragement of young men of genius, in the study of the fine arts; in executing historical paintings to embellish the great saloon; and in modelling statues of the heroes of the revolution, to adorn the interior and exterior niches. The whole will be surmounted by a galvanized cast-iron pentagon pinnacle, 36 feet at the extreme angles of the base, and 194 feet high.

The pinnacle will be cast in the form of window-mullions, and filled in with metal sashes, and glazed with glass. Inside, is to be a wrought-iron spiral staircase, to ascend 146 feet to a platform and a look-out.

A platform will be erected inside of the pinnacle, 25 feet above the base, where instruments may be placed for an astronomical observatory, which will be 279 feet from the base of the monument. The upper look-out will be 400 feet from the base, making the whole height from the walk to the top of the crocket of the pinnacle 425 feet.



THE WASHINGTON MEMORIAL.



First Section.



Second Section.

FRIENDLY CO-OPERATIVE BUILDING SOCIETY.

On Thursday last the first annual meeting of this society was held at the Prince Albert, Sherborne-street, Blandford-square, when a most respectable party of about sixty of the members, assembled and partook of an excellent dinner, provided by the worthy landlord. It was truly gratifying to witness the display of good feeling and unanimity which pervaded the meeting, and more than all, that spirit of staunch resolve which the praiseworthy exertions, and the success of the last twelvemonth, had infused into them. This is a body whose aim and object is, by a discreet union of their means and abilities, to labour for the attainment of that competence which the exercise of their individual skill and foresight is hardly calculated, in these days of competitive strife, to secure. Their success has been signal, much more so, in fact, than we would have given credence to an account of, had we not obtained our knowledge through authentic sources. It came out in the course of the address of Mr. Payne, the secretary of the society, that scarcely one twelvemonth has yet passed over their heads as *members*, and they are now in possession of property in cash and in buildings to a surprising amount; their dividend at last Midsummer, upon their previous half-year's working, was 10 per cent. At the first meeting, about Christmas of last year, the payments and assets to credit were 63*l.* 15*s.*; in July of the present year the above dividend was declared, and the sum of 1,133*l.*, the value of three houses; the carcasses of three other houses, valued at 435*l.*; the stock in trade in timber, bricks, &c. taken at 445*l.* 0*s.* 4*d.*; and in cash at 104*l.* 12*s.* 10*d.*; making in all a total of 2,117*l.* 13*s.* 2*d.* representing the credit side of their transactions, while their debit was considerably under the line, thus leaving them in a condition to declare the dividend above alluded to, and to stand in possession of the elements of great, present, and future good. The rate of profit in fact is 4*d.* per month upon each share of 1*l.* Of these shares of 1*l.* each there are now about 500 subscribed for among 125 members. This number of members has been, since the

formation of the society, greatly on the increase; it commenced with 39: at Lady-day last it rose to 77, and at Midsummer to 88, since when it has attained its present number. There are, we understand, upwards of 60 carpenters, 12 plasterers, 6 masons, 7 plumbers and glaziers, and smaller numbers of the other building crafts, but there are, besides, members of other trades, and two who were read out as gentlemen.

The plan pursued is this: under the direction of a committee of management, a superintendent of works, Mr. Daniel Cross, to whom much is owing for the plan and organization of the society, an audit board, trustees, steward, and secretary, a piece of ground is engaged whereon to build the carcass of a number of houses, or complete houses, or the carcasses are purchased already standing, to finish. Members of the society out of other employment are engaged upon the works and paid wages to a certain amount, contributing the remainder as capital, through which they become secured in an equivalent number of shares. Thus the idle season of winter or otherwise, is diligently filled up, and men who would in all probability be thrown upon the most necessitous issues, are secured against the present and a future day of want.

However, we must make this glance at the constitution and functions of the society suffice, and conclude with that notice of the entertainment of the evening in question, which

all men look for in connection with such incidents.

The first toast was proposed by the chairman, Mr. Eales (one of the trustees)—“The Queen and the rest of the Royal Family.” Three times three.

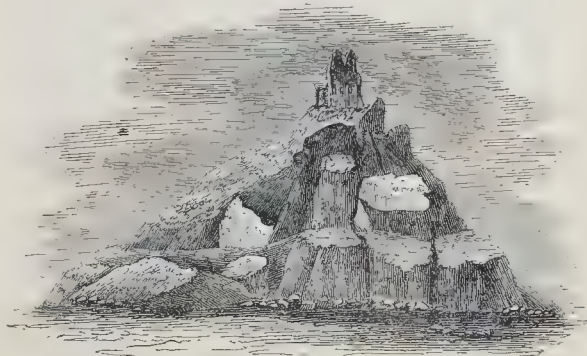
The next toast—“The Trustees, Messrs. Eales, Birch, and Bell,” which was acknowledged by Mr. Eales in a neat and appropriate speech.

The third toast was that of—“The Health of the Secretary, Mr. Payne,” who went into a long and interesting statement, out of which we have gleaned the foregoing particulars, in our inability to give a full report.

The fourth—“The Managing Committee.”

The fifth toast—“The Health of Mr. Daniel Cross, the Superintendent,” which was replied to in a sound practical speech; then followed the healths of the several other officers of the society, and a bumper for success to the Friendly Co-operative Builders Society.

In conclusion, we can only repeat that meetings such as these are calculated to raise the drooping hopes of those who have long looked in almost despairing mood at the anomalous state of society and of citizenship, and who, by rallying round these and similar useful institutes, will be able to bring back that independent race of small property men and freeholders, whom the selfish and grasping tendencies of the present times have well nigh succeeded in expelling.



RUINS OF “BIRS NEMROUD,” THE TOWERS OF NIMROD, AT BABYLON.

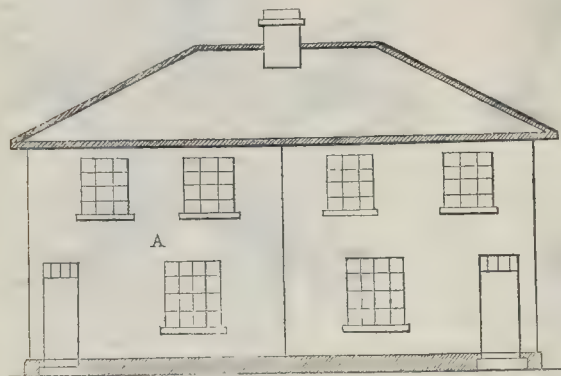
SUPPOSED TO BE THE TOWER OF BABEL.

(Referred to and described in “Lectures on Architecture,” &c., p. 495.)

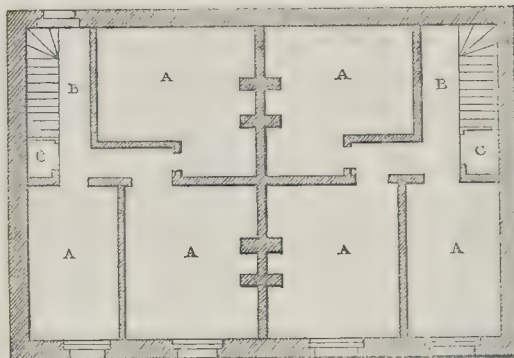
PLAN FOR DWELLING-HOUSES.

SIR,—The enclosed is a plan for two houses which I have had to draw lately, and have built several on a similar plan; it is generally approved, but may be reduced by making the front room 13 feet by 12, and the kitchen 11 feet by 12 feet; built in a substantial manner with 1½ brick walls will cost about 400*l.* the pair, fit for occupation.

I remain, Sir, yours, &c.,
A PRACTICAL BUILDER.

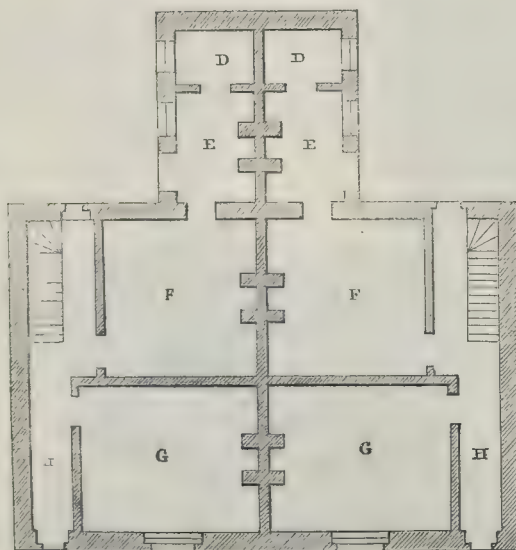


Elevations of Two plain Dwelling-houses.



Chamber Plan.

A. Bed-rooms. B. Stairs. C. Closet.



Ground Plan.

D. Pantry. E. Scullery. F. Kitchen. G. Parlour. H. Passage Entrance.

NEW CHURCHES.

Cambridge.—A proposition is on foot to build a new university church in Cambridge. This is met by the objection, that considering the central situation of St. Mary's, its advantageous grouping with the finest public buildings, and the associations with it which have endured for centuries, it is perfectly impossible to obtain another spot in any degree comparable with it. Nowhere in the heart of the town could a sufficient space be cleared, but at a cost for which it is utterly hopeless to think of providing. St. Mary's, however, is confessedly inadequate to the wants of the "ever-increasing academic body." It is therefore proposed to enlarge it. A writer in the Cambridge paper puts the suggestion in these words:—"By extending the building eastward, lengthening the present nave by two or three arches, and adding a suitable chancel, with a handsome east window, a truly magnificent church might be the result. If the incumbences now upon the ground cannot be all removed at once, they might gradually disappear, through the liberal exertions of those who come after us, stimulated by our example. Whatever defects likewise in taste are to be observed in the present structure, might at the same opportunity be carefully remedied. The Camden Society, it may be presumed, would watch over such a proceeding with the most anxious unremitting attention. And who, Sir, can doubt that, if our university leaders would but make a beginning, this is a work for which 'the people, through the length and breadth of the land, would willingly offer themselves?'"

The tender of Messrs. Myers and Wilson has been accepted for the works about to be commenced in the chancel of the fine old church at Hedon. It is proposed to refurnish it with longitudinal stalls, and to put up a new altar rail, all to be of oak elaborately carved; also to lay the floor with encaustic tiles, and to have a new reredos, with gilt panels illuminated, by Mr. Williams, of London.

The Queen has subscribed 100*l.* towards new churches in Woolwich.

The Queen Dowager has sent 100*l.* into the subscription for the restoration of Llandaff Cathedral.

Earl Talbot has given 50*l.* in aid of the restoration of St. Mary's Church, Stafford.

The consecration of the Cathedral of Versailles took place on Sunday last. The building was commenced a hundred years ago.

PUBLIC WORKS.

The New Docks for the Aire and Calder Company are intended to cover about two acres of ground, and abut on the Manchester and Leeds Railway, at Wakefield, on the river side of the station house. They are to be commenced very shortly.

New Gaol, Wisbech.—Operations were commenced for building the new House of Correction on Tuesday last. By the terms of the contract the whole of the works are to be completed by the last day of October, 1844.

Hereford New City Gaol.—Messrs. Treherne and Duckham, the architects, having certified that this building has been completed in accordance with the contract, the magistrates on Monday last ordered that the prisoners should be removed thither, which was accordingly done. The old prison will consequently be speedily demolished, and the materials employed for other building purposes.

RAILWAYS.

NOTICE of application to Parliament has been published for a branch railway from the South-Eastern line at Headcorn to Hastings.

An advertisement has appeared in the papers of the prospectus of a proposed railway from Harrogate and Knaresborough, to form a junction with the York and North Midland line at Bolton Percy station.

Railway between Edinburgh and Berwick.—The usual requisite notices of an intention to apply to Parliament for powers to carry out this undertaking have been posted on the church doors.

WESTMINSTER BRIDGE.

Since the carriage-way of this bridge was closed, the workmen have been engaged in removing the great body of loose sand and rubble walls which loaded the east pier of the centre arch unnecessarily, and are preparing to substitute brick arches, &c. for this, as was done to the sunken pier on the Middlesex side. Mr. Nixon, the superintendent of the works informs us, that the lessening of the weight upon each pier by this operation, and by the proposed lowering of the roadway, will not be less than 1,700 tons, and that since this lightening began there has not been the smallest movement in any part; whether, however, this will continue so, time only can prove.

Messrs. Walker and Burgess have thought it prudent to take the opinion of two other eminent engineers, Messrs. Cubitt and Rendell; we understand their opinion also to be that the sinking of the piers of the bridge is caused by the great load upon the clay foundation, their being no piles under the bridge, and the ground on the Surrey side being of a loose nature. Supposing this to be correct, to lessen the load appears the direct remedy. The masonry of three of the arches being laid bare gives an opportunity for taking out any sunken stones, and stopping the cracks from the upper side, and is now in progress.

Many of our readers may not be aware, that when this bridge was commenced, the intention was to have wooden arches, and that the thickness of the piers was enlarged for carrying stone arches without adding to the foundation. Hence perhaps their general weakness. It appears from the plans which we have seen, that there is a thickness, varying from 2 feet to 7 feet, of sand and gravel between the bottom of the caissons and the clay.

Westminster Bridge is 100 years old. Blackfriars bridge was built by Mr. Mylne in caissons about 77 years since, but there are piles under them. Vauxhall-bridge was built in 1816, by Mr. Walker, in caissons, which go down to and rest upon the clay.—*Times*.

STOKE ROCHFORD.—A truly hospitable entertainment was given here on Tuesday last, by Christopher Turnor, Esq., M.P., to the contractors and workmen employed at the splendid new mansion which he is erecting from designs by the celebrated architect, Wm. Burn, Esq., of Edinburgh. About 120 sat down to dinner, which was served up in the new hall. Mr. Laing, clerk of the works, presided; and there were also present, Mr. Hornsby, Mr. J. Wilson, Mr. N. Rogers, Mr. Howison, and Mr. Clayton, from Grantham; Mr. Howison, of Harlaxton; and Mr. Scoffin and Mr. Watson, of Stoke. Mr. Alex. Wilson, builder, was vice-president. After full justice had been done to the roast beef and plum pudding, and to the usual loyal toasts, the chairman gave the health of Christopher Turnor, Esq., expressing how greatly they all appreciated his uniform kindness and liberality. The toast was drunk with the utmost enthusiasm. At this period Mr. Turnor honoured the company with his presence, and after the cheers with which he was greeted had subsided, he proposed in very complimentary terms the health of the chairman with three times three. Mr. Laing having expressed his sense of the honour done him, Mr. Turnor gave the health of Mr. Alex. Wilson and the other contractors, adding that he was very much pleased with the skilful and substantial manner in which they had executed the building, and that the workmen, although numbering nearly 200 through the season, had conducted themselves to his entire satisfaction. Mr. Wilson replied that it was his wish, along with his fellow contractors, to do every justice to the building, and to please their employer and all concerned. Mr. Turnor then retired, amidst deafening cheers. Mr. Wilson, of Grantham, gave the health of Lady Caroline Turnor, whose amiable qualities, he said, did honour to her exalted station. This was drunk with three times three, and was followed by several other toasts, including the health of Wm. Burn, Esq., the architect. The evening was spent in the happiest manner, all feeling delighted with Mr. Turnor's kindness and the handsome way in which they had been treated. The party broke up soon after twelve o'clock.

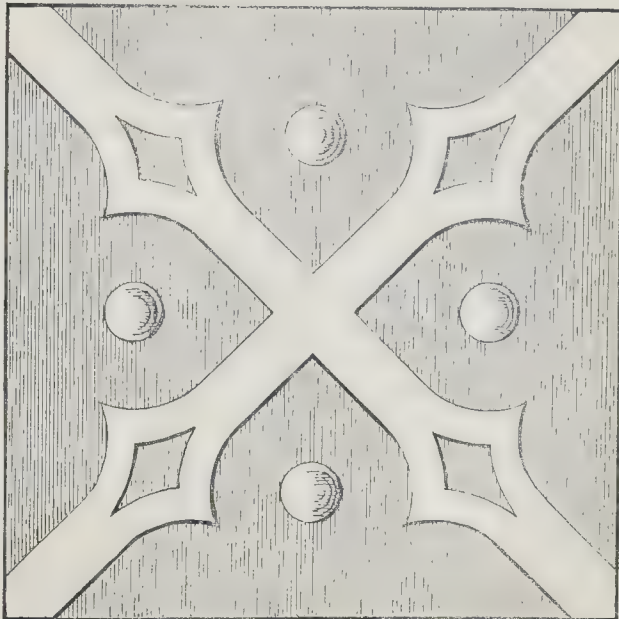
The number of houses in France, in 1810, was 2,498,137; in 1825, 2,423,702; and in 1840, 2,318,495. Thus, whilst the population has nearly doubled, the number of houses remains about the same.

Mr. Josiah Parkes has been appointed consulting engineer of the Royal Agricultural Society of England.

ENCAUSTIC TILES.

SIR,—If the following sketches are of any service to your periodical, they are at your service. They are copies of two very ancient encaustic tiles found during the alterations of All Saints Church, in this city, under Mr. H. Rumley, architect; they are in a very mutilated state, so that I was forced to rub them with a stone in water before I could copy them; they appear to have been glazed all over, top and bottom. Encaustic tiles are now coming much in use for paving of ecclesiastic buildings.

T. M. V.



HUNTINGDON.—VALUE OF LAND.—On Saturday evening, the 4th inst., a piece of pasture land, containing about two acres and a quarter, adjoining the River Ouse, and having a carriage communication with the street at Huntingdon, was put up to auction by Mr. Fox, at the George Hotel. The

first bidding was 500gs., and after a spirited competition, it was knocked down at 1,018l. The convenience of the spot for a merchant's yard rendered it highly valuable, and induced the competition; but it was bought by a lady whose property adjoins, and will remain free from bricks and mortar.

LIST OF ENGLISH PATENTS.

Elisha Haydon Collier, of Goldsworthy-terrace, Rotherhithe, Surrey, civil engineer, for certain improvements in the construction of furnaces and flues. September 28; six months.

John Ainslie Farmer, of Redhaugh, near Dalkeith, N.B., for a new or improved mode of drying tiles, bricks, retorts, and such like work, made from clay and other plastic substances. September 30; six months.

John George Briggs, of Leicester, coach proprietor, for certain improvements in axles. October 5; six months.

Edward Banton, of Walsall, Stafford, saddlers' ironmonger, for certain improvements in saddles and horse harness. October 5; six months.

Richard Boote, of Burslem, Stafford, earthenware manufacturer's clerk, for certain improvements in pottery and mosaic work. October 5; six months.

Benedict Albano, of Piccadilly, civil engineer, for improvements in preparing materials, and applying them to the manufacture of ornamental mouldings, and other useful purposes. (Being a communication.) October 5; six months.

James Combe, of Leeds, engineer, for improvements in heckling, cleansing, preparing, and carding flax and other fibrous substances. October 5; six months.

Ferdinand Charles Warlich, of Cecil-street, gentleman, for improvements in the manufacture of fuel. October 5; six months.

William North, of Stangate, Surrey, slater, for improvements in covering roofs and flats of buildings with slate. October 5; six months.

Jonathan Saunders, of Soho Hill, Birmingham, gentleman, for improvements in the manufacture of tyres of railway and other wheels, and in the manufacture of railway and other axles. October 5; six months.

James Griffin, of Withymore works, Dudley, manufacturer, for improvements in the manufacture of spades, shovels, and such like tools. October 5; six months.

John Baptist Soldi, of Windsor-place, Southwark Bridge-road, Surrey, for improvements in apparatus for measuring of persons' heads, and for fitting and retaining hats, caps, and bonnets according to such measure. (Being a communication.) October 5; six months.

Charles Brown, of Woolwich, Kent, surgeon, for improvements in the manufacture of dip candles. October 5; six months.

Lawrence Hardman, of Liverpool, merchant, for certain improvements in machinery or apparatus to be employed in the manufacture of sugar. October 5; six months.

John George Bodmer, of Manchester, engineer, for certain improvements in grates, furnaces, and boilers, and also in manufacturing or working iron or other metals, and in machinery connected therewith. October 5; six months.

Margaret Hennessey Marshall, of Manchester, for a certain improved plastic composition, applicable to the fine arts, and to useful and ornamental purposes. October 5; six months.

George Wall, jun., of Manchester, gentleman, for certain improvements in the methods or processes of manufacturing earthenware, china, and other similar substances, and also in the machinery or apparatus applicable to such manufactures. October 5; six months.

Philip Walther, of Angel-court, Throgmorton-street, merchant, for certain improvements in the construction of steam-engines. (Being a communication.) October 12; six months.

John Cleaver, of Ripley, spelter maker, for an improved furnace for subliming or reducing to a metallic state the ores of zinc. October 12; two months.

Stephen Hutchison, of the London Gas Works, Vauxhall, engineer, for certain improvements in gas-meters. October 12; six months.

Charles Brook, of Waltham Mills, cotton spinner, for certain improvements in machinery for spinning and twisting cotton and other fibrous substances. October 12; six months.

Moses Poole, of Serle-street, gentleman, for improvements in enveloping medicine. (Being a communication.) October 12; six months.

Stephen Garry, of Hamilton-place, King's-cross, architect and civil engineer, for certain improvements in the construction of panelling and framing, applicable to all building purposes, cabinet work, and other similar uses. October 13; six months.

Richard Beard, of Egremont-place, New-road, Middlesex, gentleman, for improvements in printing calicoes and other fabrics. (Being a communication.) October 13; six months.

Richard Taniau Nevill, of Llangeenach, Carmarthen, Esq., for an improved mode of separating certain metals when in certain states of combination with each other. October 18; six months.

William Watson, junior, of Leeds, chemist, for

certain improvements in ventilating houses and other buildings. October 18; two months.

Julius Adolph Detmold, of London, merchant, for certain improvements in the construction and arrangement of furnaces or fire-places applicable to various useful purposes. October 18; six months.

James Graham, of Wapping, Middlesex, for improvements in the construction of pots or vessels, and furnaces used in the manufacture of zinc, and in other manufactures, and also improvements in the treatment of the ores of zinc in the process of manufacturing zinc. October 18; six months.

Thomas Morton Jones, of Birmingham, merchant, for improvements in heating liquids and aeriform bodies. October 18; six months.

James Gibbons, of New Radford, Nottingham, machinist, and Thomas Roe, of the same place, machinist, for certain improvements in machinery used for what is called setting or reading patterns, and stamping or punching them in jacquard cards. October 21; six months.

George Edward Mylne, of Albion-terrace, Canonbury-square, Islington, watchmaker, for improvements in the construction of watches. October 21; six months.

SCOTCH PATENTS.

Joannes Mac Innes, of Liverpool, Lancaster, manufacturing chemist, for certain improvements in funnels for conducting liquids into vessels. (Being a communication from abroad.) October 2, 1843.

Goldsworthy Gurney, of Great George-street, Middlesex, gentleman, for certain improvements in apparatus for producing, regulating, and dispersing light and heat. October 4.

Alfred Vincent Newton, 66, Chancery-lane, Middlesex, for certain improvements in the manufacture of cyanogen and its compounds, particularly the prussiates of potash and soda. October 13.

James Combe, of Leeds, York, engineer, for improvements in heckling, cleaning, preparing and carding flax, and other fibrous substances. October 16.—*Mechanic's Magazine*.

ASSESSED TAXES CASES.

Determined by the Judges on Appeal.

Windows—Warehouse.

A room over stables having no communication with the dwelling-house, with an entrance by a flight of stairs, and used as a granary and warehouse, having therein grain, wool, and other things, but occasionally on fair days used for dining customers therein, is not chargeable for the windows in it, being exempt within the Act.

At a meeting of the commissioners of land and assessed taxes, acting in and for the division of Mowdwy, county of Merioneth, held at the Goat Inn, Dinas, September 4, 1840, for the purpose of hearing appeals against the first assessments (48 Geo. 3, c. 55, sch. A);—Evan Hughes, of Dinas, inn-keeper and farmer, appealed and claimed exemption for three windows. It appeared by the appellant's statement that the said windows are on a room over the stables, which is attached to his dwelling-house, but forms no part whatever thereof, and hath no internal communication therewith; that the entrance thereto is by a flight of stairs at the back of his dwelling-house; that the said room is principally used as a granary and warehouse, their being grain, wool, and other things stored and kept therein; he, however, admitted that occasionally on fair days it is used for the purpose of dining his customers in. The commissioners present, having taken into their consideration the few occasions in each year it was so used, and that it was principally occupied as a granary and warehouse, allowed the appeal; with which determination the surveyor was dissatisfied, and demanded that the case be stated for the opinion of her Majesty's judges.

Given under our hands the 2nd day of February, 1841.

WILLIAM PUGHE, } Commissioners.
C. J. LLOYD, }

We are of opinion, that the determination of the commissioners is right.

J. PATTESON. T. COLTMAN. W. WIGHTMAN.

Windows—Store-room.

Windows of a store-room in the garret of a dwelling-house, made without any glass, with wooden shutters only, occasionally opened for drying the goods therein, are chargeable.

At a meeting of the commissioners of the land and assessed taxes, acting in and for the division of Estmanor, county of Merioneth, held at the White Hall Inn, Towny, the 31st day of August, 1840, for the purpose of hearing appeals against the first assessments (48 Geo. 3, c. 55, sch. A);—William Davies, of Corrys, skinner, appealed against a charge for eight windows. The appellant stated that one of the windows included in that number,

and for which he claimed exemption, is on a store-room in the garret of his dwelling-house, made without any glass, with wooden shutters only, which are occasionally opened, not for the purpose of giving light, but for the purpose of obtaining air to dry the wool and skins kept by him in the said room; that the walls of the house are built of stone. The commissioners present being of opinion that windows of such description were exempt from duty, allowed the appeal; with which determination the surveyor expressed himself dissatisfied, and demanded a case for the opinion of her Majesty's judges.

Mrs. Lewis, Bryndovey, also appealed at the same time, and claimed exemption for two similar windows in a passage leading from the kitchen to the wash-house, made without any glass, with wooden shutters only, and was allowed.

Richard Jones, Braichyculyn, clerk, also appealed at the same time, and was allowed one window of the same description in a wash-house attached to the dwelling-house, made without any glass, with wooden shutters only, which window was effectually closed with stone subsequent to the 5th April, 1840.

Given under our hands this 28th day of January, 1841.

GRIFFITH EVANS, } Commissioners.
E. C. OWEN, }

We are of opinion, that the determination of the commissioners is wrong.

J. PATTESON. T. COLTMAN. W. WIGHTMAN.

Windows—Warehouse.

Two rooms underlet to a tenant and on the second floor of a dwelling-house let to several tenants, such rooms being used solely for lodging goods and wares, are not exempt for the windows thereof as for a warehouse.

At a meeting of the commissioners of land and assessed taxes acting in and for the division of Estmanor, county of Merioneth, held at the White Hall Inn, Towny, the 31st day of August, 1840, for the purpose of hearing appeals against the first assessments (48 Geo. 3, c. 55, sch. A);—Robert Edwards, of Aberdovey, draper and grocer, appealed against a charge for window duty; claiming exemption for two windows in a warehouse. The appellant stated that the two windows in question are on two rooms on the second floor of a house he lets at Aberdovey to one Michael Jones and others; that the said rooms are held and occupied by him as a warehouse, and are approached by the same outer door and the same staircase as those apartments held and occupied by Michael Jones; that such rooms are used by him as a warehouse for the sole purpose of lodging goods, wares, &c.; that he resides in a separate and distinct dwelling in another part of the town, and is duly assessed for the windows it contains; therefore contended that the windows in tenements or buildings, or parts thereof, so occupied, are exempt from duty, under and by virtue of the 1st section of 57 Geo. 3, c. 25; the commissioners present were of the same opinion, and allowed the appeal; but the surveyor, being dissatisfied with their decision, deeming the exemptions provided by the said Act inapplicable to this case, inasmuch as the greater part of the building is now occupied for the purpose of residence, demanded that the circumstances of the case be stated for the opinion of her Majesty's judges.

Given under our hands this 28th day of January, 1841.

GRIFFITH EVANS, } Commissioners.
E. C. OWEN, }

We are of opinion that the determination of the commissioners is wrong.

J. PATTESON. T. COLTMAN. W. WIGHTMAN.

Windows—Brewhouse.

Windows of a brewhouse and offices having an internal communication with the dwelling-house of appellant, some being glazed, and others having wooden shutters on iron hinges, and occasionally opened for the admission of light and air, are chargeable, on account of the connection of the building with the dwelling-house.

At a meeting of the commissioners for hearing and determining appeals against the supplementary charges on assessed taxes, held at the New Court Room, in Prescot, on the 9th day of February, 1841 (48 Geo. 3, c. 55, sch. A, rule 2);—George Fleetwood, of Torbock, appealed against a charge upon him in respect of eleven windows and lights in his brewhouse and offices thereto belonging.

The appellant is a common brewer of ale and beer, and serves victuallers and private families with ale and beer in quantities of not less than a quarter barrel, or nine gallons. He is charged from eight to twenty-five windows. The brewhouse and offices adjoining have an internal communication with the dwelling-house in which appellant resides; some of the windows or lights in the brewhouse and offices are glazed, and the others

have wooden shutters hung upon iron hinges, and which are occasionally open for the admission of light and air. The commissioners relieved the appellant from the windows or lights in the brew-house, but the surveyor considering that all the windows and lights in the brew-house, however constructed, are chargeable, together with those in the dwelling-house, requested a case for the opinion of the judges, which is here stated accordingly, with a plan of the premises furnished by the appellant annexed. (The plan is necessarily omitted.)

Thomas Arrowsmith, of Windle, common brewer, being charged with ten windows (50 Geo. 3, c. 104, s. 8), appealed against two of them in his brew-house, which adjoins to his dwelling-house. The circumstances are similar to those stated in the foregoing case, except that there is no internal communication between the brew-house and dwelling-house. The commissioners relieved the appellant from the two windows or lights in the brew-house; but the surveyor not being satisfied with such determination, demanded a case for the opinion of the judges, which is here stated accordingly. Witness our hands this 26th day of Feb., 1841.

W. ACKERS

ANTHONY T. DRUCKER. } Commissioners.

We are of opinion that the determination of the commissioners is wrong.
J. PATTESON. T. COLTMAN. W. WIGHTMAN.
—Justice of the Peace.

Correspondence.

CORRUGATED IRON FOR ROOFING AND DOORS, &c.

SIR,—During the period of great depression in the price of iron, I am surprised that no one has turned their attention to manufacture corrugated iron for roofing, like to the most beautiful roof at the Eastern Counties Railway, Shoreditch, excelled nowhere in elegance, lightness, and simplicity. This manufacture was patented by Mr. Palmer, in April 1829, which patent expired in April 1843, but from the enormous price of 5*l.* to 7*l.* per square of 100 feet, weighing about 3 cwt., and having no rafters requisite, it gained no custom, whilst the price of such 3 cwt. iron was only 15*s.* or 20*s.* per 100 feet: a profit of 400 per cent. being charged for rolling the like. I hope some of your readers will consider and extend such a beautiful and useful method of using sheet iron, and thereby render roofing cheaper than ever; if galvanized it will be everlasting. This method likewise renders sheet iron very useful for fire-proof doors. Your inserting this letter will be a favour conferred upon your obedient servant,

A CONSTANT READER.

Halesworth, 16th November, 1843.

THE LEICESTER MONUMENT.

SIR,—I have received the following particulars from the chairman of the committee for the "Leicester monument," which perhaps may be useful to some of your readers. The column is to be 120 feet high, exclusive of the pedestal, &c., three sides of which will be appropriated to bas-reliefs in bronze, and the fourth to an inscription. The subject for sculpture and inscription are left in the hands of the architects, as also the ornaments of the base, and the finish above the abacus of the capital. A staircase in the inside is not a requisite, but it is left entirely to the taste and fancy of the architect in this particular. No statue of the deceased Earl is intended to be placed upon the column, nor will the column be required to serve as a lighthouse by night, but simply as a mariners' land-mark by day. Any information respecting the stone may be obtained from Mr. John Browne (Lord Hastings' agent) at Seaton Delaval.

I am, Sir, your constant reader,
14th November, 1843. E. B. T.

SIR,—Will any one of your numerous readers oblige me with the addresses of the several building societies already established in London.

I am, Sir, yours most obediently,

A CONSTANT AND FIRST SUBSCRIBER.

SIR,—In THE BUILDER of November 18th, there is a paragraph headed "Reform Club," from Times November 8th. I beg to propose to you, as a lover of justice, that you insert in your next number the letter of Mr. Faraday in Times November 10th, which, in my opinion, completely refuted the apparent or supposed superiority of the Bude light over the Faraday.

I am, Sir, yours obediently,

A READER, S. J. L.

London, Nov. 18th, 1843.

"TO THE EDITOR OF THE TIMES."

"SIR,—In your paper of Wednesday last is an article headed "Reform Club," in which the Bude light and Faraday light are spoken of as having been compared. I was not informed, nor at any time aware, of an intent to compare them; but

without wishing to intrude on your important space, I hope you will allow me to state, that I have the authority of Mr. Barry, R.A., Dr. Holland, and my brother, Mr. Faraday, of the Royal Institution (being some of those mentioned as present on that occasion), to say that the statement conveys very erroneous impressions on many points, and, above all, in the relative expense of the lights. It is easy to ascertain how much gas any light burns; but that has not yet been done with the Bude light, so that no comparison in that respect can as yet be made.

"I am, Sir, respectfully yours,

"R. FARADAY."

[We are most happy to render the act of justice called for in the insertion of the above.
—Ed.]

ANALOGIES OF LANGUAGE AND ART.

SIR,—If any one doubt the relation of architecture to literature, let him take a "Vitruvius" and the "Ars Poetica" of Horace, and I think he will not find one general principle in the latter to which a corresponding one may not be found in the former.

Your correspondent's letter on the "Analogies of Language and Art" suggested the above, which you may think worthy of insertion.

I am, Sir, your obedient servant,

C. H. H.

SIR,—Will you pardon me for troubling you with one question or two. I would be glad if you could inform me (in your next number of Saturday if possible) which is the best work on rural architecture, and the cheapest plates, &c.

Also, which is the best on the construction of pumps. Also the best on the different shrubs, evergreens, with a sufficient description of each, and plates, and the cheapest?

Is there a work by a gentleman named Phillips on the Laws of Draughts and Currents, being a guide for the construction of flues, and to prevent smoking, &c.?

By answering the same you will confer a lasting favour on

A SUBSCRIBER.

[There are many works that we could recommend. In reply to the first inquiry for cheapness, Busby's at 16*s.*, and more expensive ones at 2*l.* 12*s.* 6d.

"Millington's Epitome of Natural Philosophy" treats on pumps, and perhaps would answer the requisition; the price is 5*s.*

Mr Loudon's condensed work, "The Arboretum," will satisfy our friend to the full. We are not aware of Mr. Phillips' work, but we may refer to "Rumford's Essays," and for a more modern work, "Hort, on Chimneys," which is charged 30*s.*, but may be had, we believe, for 15*s.* We shall be happy to assist our correspondent in any farther way he may want.—Ed.]

MEASURE AND VALUE PRICES.

SIR,—Permit me, in the hope of their insertion in your highly useful and judiciously conducted paper, to state a few facts connected with the present system of what is termed *measure and value prices*.

A speculator having run up a dozen or two carcasses upon an estate of which he is the proprietor, engages with a joiner, a mason, a plasterer, and a painter, for each to take a carcass, and to work out the value of the same in their respective trades, upon some of the other carcasses. The value of such work, and the value of such carcasses, to be ascertained by measurement, and the amounts to be fairly priced out, i.e. an equal per-centage placed upon the market price of each party's work; but, this is rarely, if ever, done; for, by the peculiar measurement and separately pricing out of the tradesman's work, the per-centage upon the market price of it frequently bears four times the amount of that allowed upon the brickwork, &c. of the carcass, and yet this system is called *fair*, and sanctioned by the most respectable surveyors.

The measurement of the *minutiae* of a door or of a mantelpiece ought merely to guide the surveyor as to the market price of the whole, and not for the purpose of having them separately priced out, for it would be impossible for a surveyor to judge exactly the proportionate time occupied in working the mouldings, plain or sunk work, &c., of such door or chimney-piece; in fact, I can point out instances where a certain quantity of work measured out to three times the amount of the contractor's original estimate. Surely this ought to be remedied, and it is in the hope of eliciting, either from yourself or from some of your talented correspondents, such remedy, that I have ventured to address you upon a system so manifestly unjust to a certain class of speculators, who, by their spirited exertions, are raising domestic architecture to an elevation hitherto unknown.

Monday, Nov. 20, 1843.

AN ARCHITECT.

Miscellaneous.

APPROPRIATION OF CHURCHYARDS.—London, let us recollect, is not altogether a bee-hive, though perhaps as full of business and of humming; the business is somewhat less clean, and the hummers exhale effluvia rather less fragrant than the breath of flowers, the treasures they collect by no means resemble the pure and innocent products of Hybla or Hymettus, nor does their diet consist of Heaven's own dew, liquid amber, bee-bread, and pollen. The bills of mortality do not include many such "garden houses" as Milton tenanted—nor the bills of immortality many such ethereal natures as he. Now that the dead are about to be ratiocated, we hope their ci-devant receptacles, the churchyards, will be suffered to lie fallow, and thus form a kind of rus in urbe for the living. We advocate this on other accounts besides their ventilative and respirative uses, and their verdure—the moral effect of their quiet and cloister-like seclusion amidst tumult and uproar that would drown the voice of Moses giving the commandments. What is there fitter to arrest the foot and the thoughts of a passenger than one of those silent, dim grave-yards in the heart of the world's capital in the world—such as old St. Laurence Pountney, or St. Alban's—close behind the noisiest, most crowded thoroughfares, yet breathing perfect stillness? Buried themselves amongst innumerable edifices, they afford to the toil-wearied spirit a momentary rest, if no more. They perhaps echo the din outside, but with a deadened sound that mimics and mocks its hollowness. We would have all these verdant recesses, however disused as cemeteries, kept as sanctuaries—sacred at least to contemplation: their very gloom has an impressiveness which must affect the lightest mind—now perhaps a little, much perhaps years hence, though but half-remembered—and their pallid headstones gleaming above the heavy grass utter a mute *Memento mori* where everything else proclaims *Memento vivere*, the single important motto. Useful things are not always *utensils*. Believe us, materialist! these idle patches of ground are amongst the utilities.—*Athenaeum*.

MODERN BARBARISM.—The *Univers* remarks:—"The government, at great pains and expense, brought from Salonica and Ephesus a magnificent Pagan sarcophagus, and the entire frieze of the Temple at Diana. These relics of Grecian art, so valuable in the illustration of history, ought to have found grace in the eyes of the conservators of our museums; but they have been suffered to lie for six months rotting at the foot of the colonnade of the Louvre, on the ground which served as the burying-place for the victims of July. Since their arrival in the inhospitable climate of Paris, they have endured more fog and rain than during their long existence in their native soil. When the frost attacks them, nothing will remain but lamentably degraded fragments of what have cost several hundreds of thousands of francs and the lives of seven men, among whom we have to lament the unfortunate painter Clement Boulanger.

The Tribunal of Valenciennes have severely fined an architect of that town, through whose presumption and ignorance their splendid Gothic tower 240 feet high, was brought to the ground in April last, and several passengers in the street were killed or wounded, as well as other persons who were in the building. One faithful and talented person represented the building to be unsafe, and advised extensive and immediate repair; the offending architect was tinkering the immense tower, declaring that there was no danger whatever, when the whole fell to the ground without any warning.

The city of Milan, which is to receive within its walls the sixth Italian Scientific Congress, has come to a resolution to grant 10,000 Austrian livres, to be expended in one or more grand experiments within the region of the physical or natural sciences, to be made during the meeting of the Congress. The Italian savans are requested to send to the Municipal Council of Milan, on or before the 1st January, 1844, indications of the experiments they propose to make.

We understand that a meeting of delegates connected with the iron works of Scotland took place last week at Carlbridge, to take into consideration the propriety of petitioning their employers for an advance of wages. Delegates from most of the works having attended, the propriety of a general strike was taken into consideration, when, after considerable discussion, it was thought most prudent in the meantime, that each work should give their employers fourteen days' notice, and that a meeting, after they had got their answers, should take place to consider what other steps it might be necessary to take.—*Glasgow Argus*.

Messrs. Broadwood, the piano-forte makers, recently gave 3,000*l.* for three logs of mahogany, the produce of a single tree.—*Reading Chronicle*.

GRANITE.—Granite is supposed to be at once the most ancient and most abundant of all substances. It forms the base, and sometimes the whole mass of mountains of the Alps and Pyrenees, of Cornwall, Saxony, and Silesia, the Ural, and Altai, in Asia; the Atlas, in Africa; and the Andes, and Cordilleras, in South America. It is formed by a concretion of the granular particles of felspar, quartz, and mica, irregularly mingled, strongly adherent, and evidently the effect of simultaneous crystallization. The size, colour, and relative proportions of the particles differ greatly, but felspar, with a reddish tint, generally predominates. It is one of the hardest and most durable rocks known. Granite is much less metalliferous than any other of the primitive rocks; but it nevertheless yields tin and iron in considerable quantities; gold or silver rarely; but other metals commonly.

MUNIFICENT GIFT FOR CHURCH EXTENSION.—The agents of Sir J. W. Ramsden, at his half-yearly rent day at Huddersfield last week, announced that it was his intention to give the munificent sum of 8,000*l.* for the erection of four new churches and schools in the extensive parish of Huddersfield, with ground for the sites of the same.

IRON TRADE, MERTHYR.—By accounts from this district, we are sorry to learn that the prospects in trade are very gloomy. The present rate of wages is said to be maintained only at a decided loss to the masters.

NEW MANUFACTURE.—In the Westmoreland paper of last week is an advertisement of a marble-mason's, a Mr. Thomas Airey, in which he styles himself a "marble manufacturer."

Tenders.

Sir,—I take this opportunity of correcting an error in No. 41 of *THE BUILDER*, in the account of tenders delivered for building three third-rate houses in William-street, Chalk-road, Islington, for Mr. Clayton, delivered Friday, Nov. 3rd, they were as follows:—

Lucas	£1,466
Dingle	1,197
McGill	1,100
Peck	985
Brighton	977
Dennis and Price	925

I have also another, though, perhaps, too trifling for insertion, but that I shall leave to your superior judgment.

TENDERS delivered Monday, November 13, for tack pointing of front and flat jointing to back, front, and flank wall of a house in Blackfriars-road, for Mr. Miles:—

Bottom	£72 19
Tim-on	35 0
Slade	31 16
Carter	29 0

Mr. Carter's tender was accepted. J. H. S.

A Correspondent suggests that the general dimensions of the Building would be useful in the case of comparing the amounts of contracts, and that those who furnish the lists of tenders would oblige many readers by adding such information.

NOTICES OF CONTRACTS.

BOSTON CHURCH, LINCOLNSHIRE.—Repairs and restoration.—Mr. Scott, architect.—Messrs. White and Lindsay, Boston; J. T. White, Hon. Secretary. Nov. 27.

ST. OLAVS CHURCH.—RESTORATION.—Mr. George Allen, architect, 69, Tooley-street, Southwark; George R. Corner, Vestry Clerk. Nov. 28.

COMPETITIONS.

LONDON CEMETERY COMPANY.—Designs, &c. for two chapels, cost 6,000*l.*; premiums 100*l.* and 50*l.*—Charles Buris, Jun. Secretary, 15, New Bridge-street, Blackfriars.

Secretary to the Practical and Scientific Association for Pavements, &c., 20, Vere-street, Oxford-street.—J. W. G. Gutch, Secretary.

Earl of Leicester's Monument, at Holkham, cost 4,000 guineas.—R. N. Bacon, Hon. Secretary. Dec. 20.

District Surveyor for the metropolitan parishes of St. George-the-Martyr, and St. Andrew, Holborn-above-the-Bars, and the Liberty of the Rolls.—Testimonials to be sent in up to 30th December. Election next January Sessions.—C. H. Ellis, Clerk of the Peace.

Design for a testimonial to the late G. Clendinning, Esq., to be executed at Westport, at a price of 800 guineas.—Dr. Dillon, Infirmary, Castlebar, Mayo, 20 guineas, Jan. 1, 1844.

Premium of a gold medal or money for the best mode of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

NOTICES.

TO OUR READERS.

BRITISH ASSOCIATION OF ARCHITECTURAL DRAUGHTSMEN.—By an inadvertence, it was omitted to be expressed in the advertisement in last week's number of *THE BUILDER*, that country members are exempted from furnishing subscription drawings.

TO OUR CORRESPONDENTS.

"J. L. T., Brecon," next week.

"Mr. Glegg."—His paper has been forwarded as he requests. We shall be happy to have the promised return.

"Senex."—was not deferred one moment by us, but the printer was compelled to exclude our note for want of space.

"Knightsbridge."—This is too bad. If he has a blush in him we could bring it up the deepest crimson; but it would be beneath us to retaliate. We hope he will raise himself above the repetition. We should be no true friend to him if we could think or act otherwise.

"C. E. D., Bath."—We are reminded by him of our delay; his communication is put in hand, but we have a great number; thanks to our active and generous correspondents, from which we are obliged now to select.

"A Subscriber, Chipperfield."—His school plan is to hand; if it appears, he must give us a little time, and the privilege of selecting from others. We thank him for his pains.

"J. M., Middlesbrough."—We shall refer to his paper, and make good the defect.

"A Working Mason."—We shall make use of his commendable paper.

"A Leicester Subscriber."—Would he oblige us with some sketch of the work he so much admires, to enable us to judge of the fairness of his encomiums.

"Norman," Leamington.—His pertinent letter on the Swiss style next week.

"Mr. G. W. Aplin."—His paper will appear at the first opportunity.

"The Mining Journal."—The matter complained of came before us in the pages of the Polytechnic Journal, and in a way that fully justified us at the time in dealing with it as we did.

We are, however, very sorry to have unwittingly excited our contemporary's displeasure, and beg to inform our readers, now that we know it, that the article upon Mr. Andrew Smith's Steam Generator first appeared in the columns of the Mining Journal.

SUMMARY OF CORRESPONDENCE.

TRURO MARKET COMPETITION.—"Senex" is astonished that we should justify the successful competitors being allowed to explain their drawings to the corporators. He is wrong. We claim the same privilege for all successful or unsuccessful. He does not blame the architects for availing themselves of the opportunity to explain and set off their plans, but he thinks the corporation are liable to the charge of partiality; where is the difference between us?

He states, that as in the several notices of the competitions, the heading "Truro Stannaries Hall, Town Hall, and Markets," would lead to the inference that there are two separate Halls, whereas the printed instructions to Architects only speak of "the Hall," it is calculated to excite a suspicion of some purposed ambiguity. Commenting on the letter of "A Young Chivy," in our Journal of October 29th, he thinks some information could be afforded through his means as to the cause of delay in the selection of the designs; we shall be happy to be the means of throwing any new light upon the subject.

GUILDHALL, BRISTOL.—"A Constant Reader."—We should hardly be justified in reporting his information upon anonymous authority. Thus far, however, we may say that he throws discredit on the whole affair, as far as Mr. Pope is concerned; he denies that there was any competition at all, and asserts that concerning a Dissenting chapel near Richmond Terrace, Bristol, and Mr. Pope's conduct in it as architect, which, if correct, is far from being to be approved of. We cannot, however, give our authority to this description of attack.

"N. Hancock" is pleased to see some attention paid to the comfort of that noble animal the horse. Referring to the communication of "Mr. Rex," he observes that he thinks the plan therein advocated would be too expensive for general adoption; and he proposes a pointed headed nail projecting to be filed sharp on becoming dull. We may observe that it was omitted to be stated with "Mr. Rex's" description that he proposes to introduce India-rubber or felt between the two shoes, and by case hardening the bottom shoe, making them also to one pattern, they would last longer, and could be screwed off and on by the groom. Hence would be avoided the too frequent cuttings and parings of the horse's hoof.

"A Friend" adverts to the successful employment of the Pauline Apparel in cases of fire, and recommends that all insurance agents should be provided with one by the head offices, and a fire escape, if not also with an engine. He urges besides the necessity of a more copious supply of water in the way of fountains &c., as we have ourselves advocated in imitation of New York. He says that by each parish paying a rental of an average of some 20*l.* per annum, this constant supply of water might, in all probability, be ensured.

"H." inquires whether there is any and what scale for determining the quantity of sawing in a square of timber framing—for example, when roof and floor framing is undertaken indiscriminately by the square, it is required to say how much sawing is to be regarded as the average quantity per square.

"Φλοοδύλλιο" is thanked for his solicitude in our behalf. We trust there is no cause of apprehension as to falling between the two stools. High and low, however, are mere relative terms, and with the midway, we hope may be compassed by us and our goodly company of supporters. His remark about foreign sources of information shall not be lost upon us. We have been longing some time to apply ourselves to them, but there is much to do midway still. What he says of the "deplorably defective" character of the architectural section of the Library of the British Museum has been long felt, and is a reproach to the nation. There is indeed an "enormous mass of actual rubbish," but this we could bear, if there was the proper mass of sterling ore, and a proper registry to lead to it. Would that we could render an effective service in the remedy.

"A Builder of the Olden Times" joins issue with us in deprecating that "hawk-eyed" and suspicious spirit which he says is manifested in every district as well as in that of Worthing, and which, he regrets to say, the clergy are not the only remiss in tolerating, and the guilty in practising. We regret they should tolerate anything like it, and that it should be as he says, that "masters in all branches of trade, to save themselves, are cutting down the labourers' wages in return." "How long," says he, "this wretched system will go on I know not; but that it must eventually recoil on the shoulders of the aristocracy is as certain as Mr. Elliott's bankruptcy."

"Leonidas," Plymouth, inquires whether there is at present any theatre, concert, or music hall now being erected in or near London; also who is the builder, the amount it is to cost, whether it was a public contract, and also inform him if there is any of the above-named places being repaired, and by whom?

"A Subscriber," Newcastle, asks us to state which is the most approved plan of warming and ventilating churches and other large buildings, and wishes the address of the parties. Really we are hardly in a condition to answer such a question. Our advertising columns should relieve us in this respect, but there are gentlemen who do not advertise with us. Mr. Sylvester, of London, and Mr. Haden, of Trowbridge, were employed at the new Model Prison, and there are many others of great skill.

"Mr. Thomas George" thanks "P. T." for his design for a Swiss cottage, which came too late for his use; but he begs it to be understood that he had no unworthy selfish motive in asking for it, which we believe from his explanation, and owns upon consideration the propriety of the remarks of "A Citizen," and others. He hopes, however, it may not be converted into a bad precedent. His queries as to Somerset House we will reply to in our next.

ADVERTISEMENTS.

DESTRUCTION OF RATS AND MICE WITHOUT ARSENIC.—The MUOPHOBON, which has received the approval of the most celebrated Chemists in France for this desirable object, may be obtained, price 2*s.* 6*d.* and 5*s.* per box, of all respectable Druggists, and from E. TURNER, 27, Coventry-street, Haymarket.

EASE IN WALKING. COMFORT to the FEET, &c. Wellington-street, Strand, London. HALL & CO., SOLE PATENTEES of the FANNUS CORIUM, or Leather Cloth Boots and Shoes. These articles have borne the test and received the approbation of all who have worn them. Such as are troubled with Corns, Bunions, Gout, Chills, or Tenderness of Feet from any other cause, will find them the softest and most comfortable ever invented.

Hall and Co. particularly invite attention to their ELASTIC BOOTS; they supersede lacing or buttoning, are drawn on in an instant, and are a great support to the ankle. The Patent India-Rubber Goggles are light, durable, elastic, and waterproof; they thoroughly protect the feet from damp or cold. Hall and Co.'s Portable Waterproof Dresses. This desirable article claims the attention of all who are exposed to the wet. Ladies' Cardinal Cloaks, with Hoods, 18*s.* Gentlemen's Dresses, comprising Cuffs, Overalls, and Hood, 21*s.* The whole can be carried with convenience in the pocket.

THE BUILDER,

NO. XLIII.

SATURDAY, DECEMBER 2, 1843.

THERE are motives suggested by the closing of the year and the near approach to the commencement of our second annual series, that induce us to make a few remarks in anticipation, and to prepare ourselves and our readers for increased profit in our progress together. The time past has necessarily been spent in many matters of initiation and induction; the future has promise of a career more matured, although it cannot be of more successful workings; so far as *THE BUILDER* is concerned, a much more flattering result could hardly have been desired, but there are circumstances which will, in all probability, distinguish the forthcoming year that we seek a timely occasion to speak upon, with some slight reference to the past. Anxious as we have been to procure for this journal the title, and to give it the character of a permanent trade book and record, it is natural that we should wish to have all who care about such matters associated with us at some point in our progress, when the backward view may be as little discouraging as possible. What we mean is, that all those who are in a position to accompany us as readers, contributors, and fellow-labourers, we would have join at the starting rather than at an advanced period, with the disadvantages of lost ground, and the "bringing up the leeway." It is our intention, therefore, to prepare an exposition of our plans for the forthcoming year, founded on the experience of the past, and to invite every member of the Building fraternity to the perusal of it. Our principal object now is to solicit our readers to lend a kindly hand in the dissemination of our views, and so to assist in bringing in to our confederacy, and under our leading, the whole of those whose objects and interests are one and the same as that of *THE BUILDER*.

To our indulgent friends and readers of the past year, few words will suffice. We have had the happiness of securing a large share of their approbation; that we have not pleased all, and at all times, is to be expected, however much we may regret any difference of view; much of this, however, has arisen from that which we have taken pains to make known heretofore. A new plan and a new organization are matters of difficulty, and require time and patience for the conquest;—the one we have given to it, the other has been gained. With these advantages in our favour as compared with the past, we look forward with increased confidence to the future, and trust not only to be endowed with that strength which conduces to the discharge of every promise, but to so much more as may lead to scenes and achievements of ever new and never-ending profit and gratification.

What we would particularly impress upon the workmen is that which is so pertinently expressed in Mr. Newnham's letter, and for which purpose we inserted it. Let them send any information, and make effort at describing any thing that is useful and peculiar. It may appear to some a little irksome to go over homely and familiar ground, as it does to others to soar occasionally to loftier heights; but the universality of our sphere of labour demands it all, and without it our structure would be incomplete. The brick must be moulded and the stone quarried, as

well as the painting and polishing and the gilding.

Nor will our other more accomplished friends find fault if we remind them of the useful, sterling essences of criticism. He is but an imperfect preceptor who indulges in the vice of taking exceptions, and neglects to bend his mind to amend and instruct. Surely it becomes those whose privilege it is to detect faults, to be able, and not only able, but willing, to remedy them. It is thus that correction and instruction go hand in hand.

PUBLIC BATHS.

It will readily be imagined, from what we have said as to the importance of an abundant supply of pure water, that we should seize with avidity the occasion to notice any steps made in the direction of procuring that supply. We recollect, in the lectures of our learned professor of architecture (Mr. Cockerell) at the Royal Academy, how he dwelt upon a description of the public baths of Rome, and depicted in glowing terms their magnificence and extent, and the practices that prevailed in their popular use; how even the Emperor—we think it was Hadrian himself—mixed with the populace who frequented the baths, and had the free privilege of access to all, both high and low, secured the *luxury* of cleanliness, and doubtless its concomitant—*HEALTH*. We do not, it is true, look for—we do not know that we could wish for—any such display of patrician and plebeian "*hob-and-nob*" comminglings, but we would not, on the other hand, choose to have matters at that vast remove of wide extremes, that leaves us without one single instance of provision for the popular wants in respect of bathing establishments. Of course we allude to gratuitous ones, and to those by which all classes and all sexes may be equally benefitted. If bathing and plentiful ablutions be good for all, all should have it; and it would be easy to secure it under the most salutary regulations. We are glad to find that in the city of Edinburgh the working men themselves are bestirring in this respect, and, under the patronage of Lord Dumfries and others, are likely to carry out their project; but we have the pleasure also of being able to state that our own metropolis is not either asleep, for we have a printed public notice at present before us, headed "Bathing in the Thames—Nuisance," but whose object is to provide a "Swimming-school and Bathing-house Establishment" for the district of Millwall and the Isle of Dogs. Whatever is done in this respect, let us urge that consideration for *A.L.T.* be mixed up with it. A sense of decency or delicacy, call it which you will, may tempt to the suppression of a practice by which the public eye is now and then offended; but there are suggestions of an equally pressing description wherein decency and delicacy are as much involved, though in a different manner; cleanliness and wholesomeness would be greatly subserved and promoted by a popular practice of frequent bathing, and once this were established, we should be astonished to have borne so long with the opposites of what we may not more particularly describe without offence to "ears polite."

We heartily wish success to both, and every project of this stamp, and urge perseverance on the parties who have undertaken or may undertake them. We understand that meetings are held and lectures are contemplated in furtherance of the objects of the Millwall Institution, of which particulars may be ob-

tained at the Temperance Hotel, 16, Ferry-road, Millwall. We have gone out of our way to give this notice in order to the advancement of a matter we have so much at heart—the comfort and the well-doing of the working classes.

BIRMINGHAM,—ITS MANUFACTORIES, AND PUBLIC BUILDINGS

WE trust that important results will flow out of the visit of his Royal Highness Prince Albert, on Wednesday last, to this far-famed metropolis of the hardware manufactory. Birmingham, although exhibiting for a long time past symptoms of debility and depletion, construed by many as having arisen out of a long period of overstrained efforts, and the absorption of a vaporous prosperity, has yet within the seeds of an interminable life of vigour, which the warm and radiant sun of art may cause to strike root, and branch forth to the eclipsing of any former time or product of its wonderful garden. His royal highness comes from a country which contains, and we trust he brings from it a quality, which, united to the powerful masculine genius he would find the other day developed in Birmingham, is calculated to produce fruit such as England waits to taste of, and Birmingham in particular to be replenished with. The arts of manufacture have probably outshot themselves a little in Birmingham, and the arts of design have been left as much in the rear. Bring them abreast, and the car of her prosperity will run smoothly and triumphantly, and with a speed and certainty of which the railroad it boasts may be regarded as having been the fitting type and harbinger.

We claim for ourselves and our class the special privilege of being most deeply interested in the mission, for such we regard it, fleeting as it was, of the Prince to the manufactories and buildings of Birmingham. It is true that only a few of the principal were chosen, but then the more necessary, and we trust the more profitable it is for us to report. In doing this we avail ourselves of the columns of a contemporary, most distinguished of the daily papers for its attention to that section which our province comprises; we allude to the *Morning Herald*. We pass over so much of the report as merely pertains to the manner of the Prince's reception, the accompaniment of the *cortège* and the like, contenting ourselves with observing that those were all that the loyalist subject of the sovereign and the arts could desire, and commence by enumerating in the order of the route the works and buildings which were the objects of his royal highness's visit and inspection, we may claim all, as of direct interest to *THE BUILDER*,—even to the guns and buttons, for the processes, if not the uses, and we know not if the last be disputed, are in their connection and analogy most intimate with the most of building art.

1.—The Glass Manufactory of Messrs. Bacchus and Son, in Dartmouth-street.

Here his royal highness was received by the Messrs. Bacchus, by whom he was conducted into the glass-house, where the different processes of the manufacture were in operation, the mode of conducting which was explained to the prince. While in this part of the works a beautiful two-handled cup was blown in his presence, and a very elegant glass centre-piece was produced by the new mode of pressing—a process somewhat similar to die-stamping, and the rapidity with which the glass was passed through the different stages, from its raw or liquid state till it was turned out from the mould perfect and fit for use, was regarded by his royal highness with great interest. The articles produced in this way have all the finish,

though not quite the sharpness, of cut glass, for which, however, they are frequently mistaken. An elegant glass pillar was also manufactured in the prince's presence with great rapidity, the perfectness of the article depending altogether on the skill of the workman.

The royal visitor was next conducted to the mixing-room, where the glass is prepared for the furnace, and was afterwards ushered into a long room where a number of workmen were busily engaged at glass-cutting, the machinery being turned by steam. In this shop a variety of articles in glass, of every shape and design, were in various stages of completion, the busy operations of the workmen, and the din of wheels and machinery, presenting a scene of active life and industry. His royal highness then passed on through the show-rooms of the establishment, at the splendid display of which he expressed his admiration, and departed amidst the hearty cheers of the workmen. There are nearly 200 hands employed in these works, in which about 12,000lbs. of glass of every description are produced weekly.

2.—The Rolling Mills of Messrs. Muntz in Water-street.

Here his royal highness was received by Phillip Henry Muntz, Esq., one of the proprietors, and conducted through the different departments of the mill where the various operations of manufacturing the patent yellow metal were being carried on. He was first shown the metal in its liquid state taken from the furnace, and cast in bars or pigs; next the process of heating the solid mass, which, while in this state, was subjected to the operation of powerful rollers, turned by not less powerful steam machinery. The flattened bar, after being taken from the rollers, was again subjected to the heat of the furnace, and once more passed under the rollers, and in this way, by four operations, the shapeless mass was converted into a fine sheet of metal, cut by circular shears into the required lengths, and prepared for coating the "wooden walls" of Old England, for which it is found peculiarly fitted, and is fast superseding in the British navy and our mercantile marine the more expensive process of copper-sheathing.

3.—The Papier Maché Establishment of Messrs. Bettridge, Jennens, and Son, Constitution Hill.

Here his royal highness was received by the Messrs. Bettridge, Jennens, and Son, and ushered by them through their extensive works. He was then shewn the various stages of this beautiful manufacture, from the first process of pasting the sheets of paper together in the form of trays, &c., till the article was turned out in its polished and highly finished state. Prince Albert seemed much interested in the beautiful arts of enamelling, inlaying with pearl, and painting, which are carried on in separate rooms, and he examined with much apparent gratification the many beautiful designs and views which were being transferred from the works of Landseer, Roberts, and other artists, to the more costly and highly-ornamented articles intended for the drawing-room and boudoir. After examining the process of turning door-handles, vases, &c., on lathes, his royal highness was conducted to the show-rooms, where he appeared to be highly delighted with the magnificent and elegant collection of articles in papier maché which were here displayed in the highest state of finish. Many of the larger articles were embellished with historical subjects, others with allegorical groups, and the smaller ones were tastefully painted with birds, flowers, views, and portraits. The prince seemed to be equally surprised and delighted at the great variety of purposes to which the manufacture was applied, the room containing specimens in every shape, including work-tables, chairs, folding screens, cabinets, work-boxes, desks, picture-frames, &c.

4.—The Gun and Sword-blade Manufactory of Messrs. Sargant, in Charlotte-street

Where the new process of rolling gun-barrels, and turning and boring them, by steam-machinery is very extensively carried on. The highly-finished and perfect style with which the barrel was turned out excited the admiration of the prince, who examined, with the judgment of a connoisseur and the eye of a keen sportsman, the smooth and glassy surface

of a variety of guns which have just been completed by Messrs. Sargant for the Ordnance department, by order of government. By the aid of their very extensive and complete machinery the proprietors are enabled to manufacture about a thousand guns, of various descriptions, per week.

5.—The Electro Plating Establishment of Messrs. Elkington, Mason and Co.

This, the most important to our view in its bearing upon building art, this new and beautiful invention is here carried on most extensively, the perfection to which it is brought having superseded to a great extent the old system of gold and silver plating. At this establishment are also manufactured solid gold and silver articles, deposited by the same agency as is used in the process of plating the solid articles, merely requiring a longer period for the process of depositure. Large quantities of rings, bracelets, and other light ornaments were placed in a small basket, and dipped in a solution of gold, and in less than five minutes they were brought out perfectly and beautifully gilt. The whole of the articles intended for plating are manufactured of German silver, those intended for gilding being composed of a mixed metal, formed chiefly of a mixture of brass. One of the most recent applications of this beautiful art is the coating of flowers, leaves, and rare plants with gold, silver, or copper; birds, too, are subjected to the same process of enamelling, and form exquisite specimens for cabinets and other collections. The invention, amongst the infinite variety of purposes to which it is being applied, has also been used in coating with copper cloth and canvas, as sheathing or covering for buildings; and by the same process wrought-iron can be coated with zinc, so as to prevent the injury arising from oxidation. His royal highness expressed himself greatly pleased and interested in the various processes of this new and beautiful art, in the carrying out and perfecting of which Birmingham claims the exclusive distinction.

6.—The Gilt and Silver Plated Button Manufactory of Mr. Edward Arnfield, New Hall-street.

This was the last of these establishments visited by his royal highness, who was received by Mr. Arnfield, on alighting from his carriage, and conducted through the different workshops in which the various processes of manufacture were carried on. The prince first inspected the metal as it is cut out in its rough by powerful presses; next the process of annealing, cleansing, and stamping; and the simple mode by which the shank is soldered on was afterwards explained. The process of gilding and burnishing was next gone through in the presence of his royal highness, thus giving the last finish to this once fashionable article of utility and ornament. This, the once great staple trade of Birmingham, is now reduced to a very limited extent, and of the thousands who were in years past kept busily and profitably engaged in the various branches of the manufacture, few, comparatively, are now obtaining employment. The gilt and plated metal button trade has, perhaps, called into existence and exercised a greater amount of inventive genius than the manufacture of any similar article in Birmingham; it is still undergoing constant improvements. One of the latest for which a patent has been obtained, is what may be termed a moveable button, the shank being attached to the coat, to which can be firmly put on any pattern of button which the taste of the wearer may suggest, and this he can change as often as it suits his pleasure. This patent is, we learn, applicable to covered as well as metal buttons. It is not to be supposed that the button manufacture in Birmingham is confined to the latter alone, for the making of silk and Florentine buttons is carried on very extensively, and the button trade may be still said to form our staple manufacture, inasmuch as it employs more hands than any other branch of industry in our famed "toy-shop." The fortunes of many of our most wealthy merchants have been based on the button trade, as it flourished in the palmy days, when its importance was so highly estimated as to secure the passing of a legislative enactment in its favour (we believe in the reign of George the third) subjecting to a heavy fine all persons found wearing other than metal buttons!

The Town Hall.

Great preparations had been made here to receive his royal highness by an assembly of upwards of 1,500 ladies, who had gathered in this magnificent hall, and through the influence they had been able to bring to bear, succeeded in diverting him from his first purpose of merely inspecting the exterior of the building. Their attraction was irresistible. His royal highness remained for a quarter of an hour, and was greeted most enthusiastically by them, and by the aldermen, the members of the council, and the immense assemblage of other gentlemen who made up the dense crowd of several thousands with which the hall was crammed. He was greeted also by the unequalled strains of the *monster organ*, played by Mr. Simpson, with the power and flexibility of which, and with the noble proportions of the hall, his royal highness expressed himself as being highly gratified.

8.—The Free Grammar School.

This highly reputed work of Mr. Barry's, which, with the hall, the work of Mr. Hansom, are regarded as the "Lion" structures of Birmingham, was the last object of his royal highness's visit, and occupied a fair share of his attention. Both these buildings will, one day, shortly be fully set forth and detailed in our pages, so that further remark is uncalled for now. His royal highness departed after a stay of five or six hours, greatly pleased with his visit and the reception he experienced. We hope this is but the beginning of his profitable acquaintance with Birmingham, its arts, and its people.

BIOGRAPHICAL SKETCHES OF DISTINGUISHED ENGINEERS.

(Continued from page 503.)

A RECOMMENDATION so much to the purpose decided the proprietors of the Eddystone in their choice of an engineer and builder. We have before us the original agreement drawn up upon this occasion, and deputed to Mr. Smeaton powers of the most ample kind. This document, conferring the entire control of a great undertaking, involving an unusually large expenditure, is simple in its wording, and seems to have been entered into spontaneously, without the intervention of lawyers; neither are there any signatures of witnesses; the parties interested felt that they had found the right man, and were anxious only to prove to him the entirety of their confidence. The clauses are eight in number, and confined chiefly to a declaration of the supremacy of the engineer in the different departments auxiliary to such a work; as an example of the whole tenour of the instrument, we transcribe the last clause, which is to the following effect:—"That Mr. Smeaton have the sole power, and management, and direction, of all persons engaged in the service, and may discharge, or reward, such as he sees proper; and also control all matters whatever, and do such acts as he thinks will most and best conduce to the speedy and proper execution of this great and useful work." Many years after the successful completion of the Eddystone lighthouse, and when he had had leisure to condense a detailed history of his labours, given to the world in a splendid folio, he says, referring to the perfect understanding that subsisted between himself and the principals in the undertaking, "On this occasion I found myself totally unfettered; and perhaps no resolution of the proprietors ever more conducive to the ultimate success of the work than this, which set me at liberty. Had they been of the same temper and disposition of by far the greater part of those who have employed me, their language would have been, *Get on for God's sake!* the public is in expectation; get us something speedily to shew, by which we may gain credit with the public! This, however, was not their tone, which I looked upon as a happy omen.

The Eddystone Rocks obtained their name from the great variety of contrary sets of the tides and currents in their vicinity. They are situated nearly south south-west from the port of Plymouth, distant from it about fourteen miles, and almost in the line which joins the *Start* and *Lizard* Points; consequently, in the direction of vessels coasting up and down the Channel. Their situation with regard to the Bay of Biscay and the Atlantic is such,

that they lie open to the swells of that bay and ocean, from all the south-western points of the compass; so that all the heavy seas from that quarter break over the Eddystone Rocks with uncontrollable fury. Sometimes, indeed, when the sea is to all appearance smooth, and its surface elsewhere unruflled, the ground swell, meeting the slope of the rocks, beats upon them in a frightful manner. This short description of the site of the building will convey some idea of the difficulty of the undertaking, more especially as Mr. Smeaton proposed the erection to be entirely of stone, to which was opposed the *general opinion* that a structure of that description was less capable of continued resistance than one composed principally of the lighter material, *timber*; also, that the period to be occupied in building would be greatly prolonged by the necessary preparation, transport, and difficulty of landing stone upon the rock. These preliminary objections being, however, removed by demonstrations and models, the integrity of Mr. Smeaton's plan was preserved, and he commenced cutting the rock for receiving the foundation on the 5th of August, 1756, and fixed the first block of granite, weighing two and a quarter tons, in its place, on the 12th June, 1757. To describe the progress of the building would be incompatible with the space we could devote; as given by the pen of Mr. Smeaton, it is replete with profitable information, and the development of a master mind in meeting the natural obstacles opposed to him. Not only judgment, but the inventive faculties, were put into requisition at every step; new expedients and new machinery were adopted, and in handling the latter, the engineer was foremost—with him the post of *honour* was that of *danger*, and by this means he at once inspired the confidence and respect of every artificer in his employ. This great work, the English PHAROS, remains perfect and unshaken after the lapse of nearly a century. The whole time occupied, between the first stroke upon the rock and the completion of the lighthouse, was three years, nine months, and two days; but the actual time expended upon the rock, that is, in rearing the building with the materials which had been previously prepared in the yards on shore, was only 111 days, 10 hours, and so perfect were the arrangements and discipline, that not a single accident affecting life or limb occurred.

Though Mr. Smeaton completed the Eddystone in 1759, it was not until ten years from that date had elapsed that he got full employment as a civil engineer. In the interim he obtained the appointment of joint receiver of the Derwentwater estates, forfeited on the attainder of the Earl of that name in 1645, and assigned by the Crown for the maintenance of Greenwich Hospital, for which he was well qualified, the principal sources of revenue being extensive mines, which required the superintendence of such a man. Business now flowed in upon him, and in 1775 he found difficulty in attending to the various important commissions tendered to him for acceptance. His opinions on all matters connected with civil engineering, and the construction of machinery, had acquired a weight and validity that occasioned his being constantly consulted respecting public improvements. He thus became a frequent attendant on Parliamentary committees, and on these occasions his natural strength of judgment, and perspicuity of expression, had full scope. It was his practice when applied to, to plan or support any measure, to make himself fully acquainted with it, and to be convinced of the merits before he would become concerned. By this caution, joined to the clearness of his descriptions, and known integrity, he rarely failed having the bill he supported carried into an Act of Parliament. No person was heard with more attention, nor had any one ever more confidence placed in his testimony; and in the courts of law he had repeated compliments paid to him from the bench by the late Lord Mansfield, and other judges of the land, on account of the assistance derived in every case wherein he stood forward.

Great projects and great works were incidents which the constitution of his mind disposed him to grapple with, and the manly simplicity of his deportment to his superiors and employers, combined with the disinterested modulation of his pecuniary ambition, pro-

cured him universal respect. Nor was a knowledge of his merit and capabilities confined to these islands; splendid offers to transfer his services in aid of the political and commercial views of other countries were made to him, but refused. The Empress Catherine of Russia, successor to the imperial pioneer Peter, choosing for the experiment the Princess Askoff, then residing in England, tendered him a *carte blanche*, using every persuasion to induce him to accept it, together with the sole direction of the vast improvements projected in that empire, but which was met by a decided negative. The reply of the princess might have furnished an inscription for the tomb of the self-taught engineer:—"Sir, you are a great man, and I honour you; you may, perhaps, have an equal in ability, but in *character* you stand single. The English minister, Sir Robert Walpole, was mistaken, and my sovereign has the misfortune to find one man who has not his price."

Mr. Smeaton executed numerous works connected with harbours, canal navigation, mills, and machinery, his reports alone occupying four quarto volumes, and a perusal of them affords instruction and pleasure even to the best informed in this advanced, and advancing, day of science. In private and domestic life we are told that he was the least vain and most unassuming individual who ever attained to eminence. Of himself he never spoke. In nothing does he seem to have stood more single than in being devoid of that egotism which more or less affects the world. Devoted to his family with a perfect affection, his manner was at once so lively and serene that it was impossible to say whether the charm of conversation, the simplicity of instruction, or the gentleness with which it was conveyed, most endeared his home; a home, says his daughter, in which from infancy we

cannot recollect to have seen a trace of dissatisfaction, or a word of asperity to any one. Yet with all this he was absolute! And it is for easiness in education, or rule, to explain his authority: it was an authority, as impossible to dispute as to define. Mr. Smeaton gradually retired from public engagements towards the closing years of life; he had always apprehended the manner of his death, from palsy, or paralysis, as it had been hereditary in his family, but he dreaded it only as it gave the melancholy possibility of outliving his faculties; or to use his own expression, "*lingering over the dregs, after the spirit had evaporated.*" When this sudden species of attack really did occur, he met it with composure, and dignified thankfulness on finding his intellect spared. In the interim until his dissolution (about six weeks) all faculties and affections were as clear and animated as at any period of his life, and he expressed pleasure at seeing the usual occupations of his family resumed. He would sometimes, indeed, complain of his own slowness of apprehension and then would excuse it with a smile, saying "it could not be otherwise; the shadow must lengthen as the sun went down." The hand of death continued to weigh gently upon the body of this great and good man, while the spirit was preparing for its flight. On one of his last evenings, when the moon shone brightly into his room, some phenomena respecting that planet were asked him; when he had fully explained them, his eyes remained fixed upon it with a most animated attention; then turning them to those present he observed, "How often have I looked upon it with inquiry and wonder! to the period when I shall have the vast and privileged views of an *hereafter*, and all will be comprehension and pleasure."

Mr. Smeaton died on the 28th October, 1792, in the sixty-eighth year of his age.

EWYAS HARROLD CHURCH, HEREFORDSHIRE.

TRADITION affirms that the parish of Ewyas Harrold received its distinguishing appellation from the Saxon king, Harold, who had here a castle and extensive domain previous to his elevation to the throne, and by whom it was conferred upon an illegitimate son, also named Harold. The prefix *Ewyas* is peculiar to this county, and seems to have denoted an appanage of extent and importance, held in chief by the most powerful barons. *Lacy*, one of the immediate followers of the Norman conqueror, had a large portion of the soil of Herefordshire allotted to him, and *Ewyas Lacy*, *Ewyas land*,

&c. are terms which still preserve the identity of the grant.

The church (dedicated to St. Michael), of which we give an engraving, is a small edifice, but remarkable for a massive tower in the Norman or very early English style. The living is a perpetual curacy, in the archdeaconry of Brecon, and diocese of St. David's, endowed with 200*l.* private benefaction, and 400*l.* royal bounty, and in the patronage of the Bishop of St. Davids. Ewyas Harrold is an agricultural parish in the hundred of Webtree, 12½ miles south-west from Hereford, and contains about 450 inhabitants.

We are indebted to a correspondent for the following sketch of this singular and interesting relic of an early period of church architecture.



EWYAS HARROLD CHURCH, HEREFORDSHIRE.

CHURCH ARCHITECTURE.

The style of the middle ages was called Gothic, by way of opprobrium; but it might with great propriety be called Christian. It arose out of the demands of the Christian mode of worship. It fulfils all its requisites with grace and convenience.

"The spirit of the middle ages (observes Schlegel) has nowhere so powerfully expressed itself as in its architectural monuments. We still survey them with a mixed feeling of melancholy, delight, and wonder.

"Whoever were the inventors of this style were not mere heapers together of stones, but had all those thoughts they meant to embody in their labours.

"All architecture is symbolical, but none so much so as the Christian architecture of the middle ages. The first and the greatest of its objects is to express the elevation of holy thoughts; the loftiness of meditation set free from earth, and proceeding unfettered to the heavens. It is this which stamps itself at once on the spirit of the beholder, however little he may himself be capable of analyzing his feelings when he gazes on these far-stretching columns and airy domes. But this is not all,—every part of the structure is as symbolical as the whole; and of this we can perceive many traces in all writings of the times. The altar is directed towards the rising of the sun; and the three great entrances are meant to express the conflux of worshippers from all the regions of the earth. The three towers express the Christian mystery of the Triune Godhead. The choir rises like a temple within a temple, with redoubled loftiness. The shape of the cross is in common with the Christian churches, even of the earlier times. The rose is the essential part of all the ornament of this architecture; even the shape of the windows, doors, and towers, may be traced to it, as well as all the accompanying decorations of flowers and leaves. When we view the whole structure, from the crypt to the choir, it is impossible to resist the idea of earthly death leading only to the fulness, the freedom, the solemn glories of eternity."

Such is the language of this eminent writer in illustrating the poetry of the middle ages by its architecture. And who can enter an ancient cathedral without being awe-struck by the magic of its construction, and the grand original effect of its harmonious design?

Architecture, more than any other art, depends on the influence of religion,—the temple being with many nations its only, and amongst all its highest, object. At the era alluded to, all the talent, all the science, and all the wealth of the country, were brought in aid of the perfection of the Christian temple, and the result has fully justified the efforts. The great impression which these churches, particularly their interiors, make upon the mind of every unprejudiced person, on that of the intelligent and well-informed, as well as the uncultivated and ignorant, is truly wonderful; they combine the simplicity and majesty of the groves of the forest with the richness and beauty of its flowers and leaves: all is variety, greatness, and sublimity. They fully justify the observation of Madame de Staël, that "architecture is the only art which approaches, in its effects, to the works of Nature." The reason of this is probably because, in its best examples, the means have been made so thoroughly subservient to the end. In every case where the style is perfect, that is, where the end is every thing and the means nothing, the impression of a work of art, whether of architecture, painting, or poetry, will be like that which Bouchardon said he felt from reading Homer:—"His whole frame appeared to himself to be enlarged,—all nature which surrounded him diminished to atoms."

The principle of the Greek temple is grandeur and dignity; faultless excellence was their object, as in all their arts, and was founded in the imitation of the natural world. They have never attempted the unattainable. The principle of Gothic architecture is altogether different; it calls upon the imagination of the spectator; the soul is agitated and impressed with the glimpse of something supernatural. An indefinite feeling of anxiety is produced. The heart is impelled by a sentiment of, and aspiration after, immortality and unattainable perfection.

The Greek temple is so simple in its object, so obviously perfect in all its parts, and so

easily comprehended, that the understanding is immediately satisfied. Not so with the Gothic, which is much more complicated. It is more the production of feeling than of ratiocination. It exhibits much, hints at a great deal more, and promises a prophet bath of heaven in his dreams;" but when attempted to be grasped and analyzed, it shrinks from the coarseness of the touch, and vanishes like a dream. The heart is to be impressed with a sentiment borrowed from another world, and all its expressions are to set the heart and imagination to work to catch a glimpse of that other and that better world. This comparison is made with the pure Greek architecture of antiquity. But that is conceding too much to it; for pure Greek architecture in a Christian church is impossible. The very perfection of the Greek temple prevents its being susceptible of the modifications necessary to adapt it for Christian worship. It was produced by a religion whose form as well as spirit were totally different. When copied and modified for modern use its original character is lost; but no new character is given to it. Its forms become destitute of meaning; it may be guessed to be any thing rather than a church. L. G.

APPLICATION AND INTENT OF THE VARIOUS STYLES OF ARCHITECTURE.*

THE Gothic style always fills the eye, and conveys the notion of comprehension and capacity; habitation and converse, and congregational worship beneath its roof, are seen to be its intent. We are invited to enter into the cathedral. The portals expand, and in the long perspective which appears between the pillars of the porch, and ends in the distant choir, the light darts downwards, through the lofty, unseen windows, each marked by its slanting beam of luminous haze, chequering the pillars and the pavement, and forming a translucent gloom. Gothic architecture is an organic whole, bearing within it a living vegetating germ. Its parts and lines are linked and united, they spring and grow out of each other. Its essence is the curve, which, in the physical world, is the token of life or organized matter, just as the straight line indicates death or in-organized matter. It is a combination of arches, whose circles may be infinitely folded, multiplied, and embraced. Hence, the parts of a Gothic building may be expanded indefinitely without destroying its unity. However multiplied and combined, they still retain their relative bearing; however repeated, they never encumber each other. All the arched openings, the tall mullioned windows, the recessed doors, are essential parts; they do not pierce the walls of the structure; on the contrary, they bind them together. The spire may rise aloft, the large and massy walls may lengthen along the ground, but still the building preserves its consistency.

Richness of decoration, colour, and gold, may increase the effect of the Gothic style, but the inventor chiefly relies upon his art and science. Gravitation, which could bring the stone to the ground, is the power which fixes it in the archivolts, and every pinnacle bears witness to the mastery which the architect has gained. The details are sometimes bad. Parts, considered by themselves, may be destitute of beauty, but they are always relevant, and all minor faults are lost in the merits of the entire structure.

Gothic architecture, whatever its primitive elements may have been, was created in the northern parts of Europe; it was there adapted to the wants of a more inclement sky. Its structures were destined for the religious worship of a people amongst whom it was matured. In a Gothic church no idea can possibly arise save that of Christianity and the rites of Christianity. We cannot desecrate it even in thought. From its mode of construction, no convenience which we need ever becomes a blemish, and its character assimilates itself to every emblem or ornament which its use requires.

Many of our contemporaries are desirous of introducing the pure Grecian style for the purposes of ecclesiastical and civil architecture. But even their talents cannot naturalize the architecture of ancient Greece in modern England. The Grecian temple will not submit to be transported into our atmosphere. No adaptation can be given which will reconcile it to

utility. Plate-glass windows glaring through the inter-columniations, chimneys and chimney-pots arranged above the pediment, are just as appropriate as English nouns and verbs in a Greek hexameter. When the portfolio is opened and the drawing is shewn, these incongruities escape observation in the neat lines and colouring of a geometrical elevation, which can be made to look just as the artist pleases.* But when the scaffold is struck from the real building standing in the open air, then they strike us most forcibly; and we are compelled to acknowledge that its principles are too stubborn and unmanageable. View the Grecian temple as a dwelling and with relation to its inhabitants, and then every part which contributes to comfort or convenience is a grievous sin against architectural fitness; they are rejected by the very essence of the building into which they obtrude themselves.

The objections brought forward against the pure Grecian style do not operate with equal force against that modification of the Roman orders which was invented by the great Italian architects who flourished after the revival of the arts. This has been called an adulterated style. It may be admitted that a new compound has been formed, but the alloy possesses a ductility which is denied to the purer metal. It has been so judiciously matured and naturalized as to acquire great propriety and a degree of picturesque beauty. When brought it to the highest state of excellence in this country. It is a bad omen for the progress of architecture, that so many attempts should be made to depreciate the productions of this great artist. The exterior of St. Paul's cathedral resulted from the earnest reflection and labour of a most comprehensive mind. From the pavement up to the cross-crowned globe, there is not a portion which can be removed without destroying the integrity of the composition. It was all present to the mind's eye of the architect before a line was drawn upon the paper. It tells a complete story, neither weakened by after-thoughts nor disfigured by redundancies. If, snail-like, we crawl about the surface, we may stumble upon some petty deformities, an unclassical vase or an inelegant scroll, but no one who has the heart to appreciate this master-piece can be patient when he hears such cavilling criticism.

Architects often fail from the poverty and meagreness of the masses and returns. They compose their buildings out of screens and façades. They seem to forget that a building is to be viewed from more than one point of view, and in various lights. One of the pleasures to be derived from the contemplation of architecture arises from the manner in which the object unfolds and varies as we approach it, or recede from it, or walk round it. We study the play of the perspective and the changes of the shadowing. When fully understood the method of giving architectural expression. His lines and masses are always working upon each other. The small low door at the side of each belfry of St. Paul's marks the loftiness of the pile. By coupling the pillars of the double portico, he obtained further breadths of shadow, as well as greater altitude, than he could have done by adhering to the plan of the Grecian portico; and the pyramidal belfries unite in a symmetrical group with the towering dome, based upon the colonnade which circles and retreats below. Q.

A WINDOW THE CAUSE OF A WAR.—When the palace of Trion was in course of erection, in the reign of Louis XIV., that monarch went to inspect it, accompanied by Louvois, the secretary of war, and the superintendent of the building. He remarked that one of the windows was out of shape, and smaller than the rest. Louvois denied this, and asserted that he could not perceive any difference. The king having had it measured, and finding that he had judged rightly, treated Louvois in a contumelious manner before his whole court. This conduct so incensed the minister, that when he arrived at home he was heard to observe, that he would find better employment for a monarch than that of insulting his favourites; and he appears to have carried his threat into effect, for he insulted the other powers by his insolence and haughtiness, and occasioned the bloody war of 1688.

* If solid models were more in use, the effect of our buildings would be better understood, both by the architect and his employer.

ON GRANITE.

Devon and Cornwall.—The moorstone or granite of this country that is wrought for sale not only at this place (Lanlivery, Cornwall), but every where that I have had an opportunity of observing it, is not produced from quarries, but lies in pieces, generally roundish, upon the surface of the earth, somewhat sunk into the same; and this is used in preference, as being most easy to come at; but the miners find that it lies underground in very thick and solid strata. It is here called moorstone, from its being generally found upon the high grounds in this country. At Lanlivery I saw one stone, apparently without crack or flaw, which curiously prompted me to measure, and I found it to contain not less than 400 tons.

I found the moorstone, which in reality is the true granite, worked nearest to Plymouth, up the River Tamer, near Calstock, to which place I understood the river to be navigable. The moorstone is found upon Kingstone Downs, and here I first saw it worked, which was by splitting with a great number of wedges applied to holes or notches, cut in the surface of the stone at the distance of about four inches, more or less, according to the size and supposed strength of the mass. These holes are sunk with the point of a pick, much in the way that is done for the splitting of hard quarry stone. Here I was informed that the harder the quality of the moorstone, the more exactly, in general, would it split to the size or exactly required; and, on the contrary, that the more soft or capable of being worked with the pick or other tool, the less regularly it would split; so that to bring this kind of stone to a true square would require in the whole near the same quantity of labour, whether of the harder or softer species. The moorstone of this place seemed to be of the harder kind, but of the quantity remaining the stones did not appear of the size I expected to have met with.

In inquiring as to the prices of work, I foresaw it would be to no purpose to ask the expense of shaping stones to the particular figure I wanted, because the workmen, being totally unused to any work of that sort, the question would only have puzzled them, and the answer, of course, would at best have been indistinct, if not tending to mislead; I therefore founded my inquiries upon the price at which they could produce *Ashler*, by the foot superficial, when brought to a true square, and what was their price per gallon in forming stone *troughs*, some of which I found they were in the practice of making. By answers to the first, I was enabled to form a judgment at what price they could work moorstone by the foot, to a perfect regularity, after it was split into the proper scallings for that purpose; and from the price of working out the hollows of stone troughs, I could judge of the expense of hollowing out the work by dint of downright labour with the pick, where no advantage could be derived from the use of the wedge or the hammer.

The operation of splitting granite is very curious; for the apparent texture being without any particular direction, the parts seeming to be irregularly and coarsely huddled together, somewhat resembling a *plum pudding*, one would not imagine that any degree of regularity could take place in their division by splitting; but the case is so far otherwise, that gate-posts are afforded in the rough square at a very moderate price; and I have, in this country, frequently seen posts of granite, 12 feet long, and not above 8 inches square, used instead of wood for the mere purpose of supporting a *hovel*, no part of them being so much as an inch out of the straight or flat; but it is to be constantly observed, that the strength of the stone, on each side of the bisection, is so managed as to be nearly equal, otherwise the split will constantly encroach upon the weaker side. Indeed, without this remarkable property in granite of splitting regularly, it would be little use in human life; for it is of so hard a nature that steel will not cut it; and yet hard steel will *bruise* it; so that the prominent parts being gradually crumbled away by repeated blows, its surface can be brought to a great degree of regularity; and as the splitting procures plain surfaces, nearly regular, as already the accidental prominences can be reduced to regularity by a moderate degree of labour.

Next morning went on horseback to *Con-*

stantine, a place about four miles from Falmouth, where I applied to Mr. Matthew Box, to whom I had been directed as the principal and almost only man for moorstone in these parts. The stone here appeared to be of a quality better both to cleave and work than any I had before seen; for I observed by a piece of it then under the hands of Mr. Box, that it might be cut and formed with a much superior degree of execution than I had before conceived this sort of stone to be capable of. He was at this time executing a *grave stone* of the elevated kind, of which the pedestal of a column gives the idea, and in which he had formed the mouldings with so much delicacy and propriety, that I could not help considering Mr. Box as a capital artist in that kind of material; and therefore felt a secret joy in meeting with him. Such, however, is the nature of man, that he may be great in one branch of his profession, and remain small in another; so on communicating the nature of my design to him, I quickly found that he considered the *forming and erecting of a well-shaped tomb-stone of granite as the greatest of all human performances*; and that having lived and been brought up in a retired part of the country, from whence there had never been any great demand for moorstone, in point of quality, he had chiefly applied himself to finishing of smaller works for gentlemen of the country, within a moderate distance of him. He seemed, therefore, rather *frightened* than *pleased* when, after I had explained a little of the nature and form of the work I should be likely to need, I mentioned the extensive order that I might possibly give for this article. For the execution of it he formed numerous difficulties, and did not know what to ask either for the stone, his work, or the carriage down to Falmouth. On considering the result of this interview with Mr. Box, and having examined all the localities I could hear of where moorstone was worked, and would lie tolerably convenient for water carriage, I became convinced of the necessity of making use of Portland or some other free-working stone for the inside work.

The foregoing remarks are extracted from one of the most interesting works ever published in the annals of engineering—we mean Smeaton's report and description of the Eddystone Lighthouse. The granite there referred to is of the same district to which our remarks in a previous number had reference. Foggintor is that quarry to which all the experiments of Smeaton, and the subsequent ones of individuals and companies, have led to a conclusion of preference. Smeaton's description of the manner of working, and of the quality of the material, would very well answer for our purpose now, but we can and may enlarge upon it. The shrewdness of that great man, devoid of all complexion of *cunning*, is fully exemplified in his account of the way by which he arrived at a knowledge of the value of labour in granite-working; but it may excite a smile even now among those whom long habit, growing out of his enterprise, has rendered familiar with a standard of prices. Amongst the hardy men of Devon, quarry-working and granite-dressing is now a sort of child's-play, and the economy equal, or almost equal, to that of a soft free-stone. The difficulties of procuring workmen, large blocks of stone, and an abundant supply, with all which *poor* Smeaton had to contend, and on account of which he was driven to adopt a filling-in to his structure of an inferior material, are now, thanks to the enterprise of our London merchants, done away with. The engineers and builders of the present day might justly hold a *Saturnalia* in honour of Smeaton and his followers, who have thus opened out to them so extended a field of advantageous working.

The character drawn out in Mr. Box is one to be studied with advantage; it is a portrait to the life, and Smeaton a very *Vandyke* or a *Lawrence* for the painting. There are many of the *Messieurs Box* still remaining, and who would overrule a Smeaton, if a Smeaton could submit to their rule. We dare say Mr. Box was not only *frightened*, but shocked at the temerity of the great engineer; perhaps not a little astounded at the presumption that could call in question his sagacity, or presume to dictate to his experience. We dare say, also, he dismissed *the Smeaton* with a grave shake of the head, and retired to meditate in all com-

placency on his own superior profundity. Oh! for one Smeaton in architecture in our day, to save us from a thousand Boxes!

NEW SCHOOLS.

THE Wesleyans propose to apply a fund of 200,000*l.* to provide a grand system of schooling throughout the kingdom. Three-fourths of the sum will be spent in the buildings; in fact, it is said to be their intention to build 700 schools! It may appear a small sum, however, to devote to each school, including site and furniture; yet much may be done with an average of 230*l.* to 240*l.* each. Let us hope that some attention will be paid to the architecture of these structures; a good model will be of more consequence than many of the lessons taught in the schools. We do not attach importance enough to the material auxiliaries in the matter of education. A correct building promotes and forms correct impressions; in fact, you may from a building form a pretty correct estimate of the merits of that for which it is set up, and by whom it is set up. As the *Old Play* has it, "Let me see Mrs. Jago's hand-writing, that I may judge of her temper," may with more force be applied to building,—"Let us see the *Messrs. Wesley's* head work, that we may judge of their hearts?"

Seven years are proposed to be occupied in the work. Two additional schools to be raised in each circuit, one for the town and the other for the village population. Immense must be the influence of this and similar movements on the character of the future world.

NEW CHURCHES.

Tottenham.—A new church is being erected at Clay Bush Hill, Wood-green, in the parish of Tottenham. It is in the Gothic style, and constructed of Kentish rags and a stone found in the neighbourhood of Tunbridge Wells. Its length will be about 77 feet, and its width 25 feet. It is expected that the building will be completed by Christmas.

Aberdeen.—On Thursday, the 16th inst., the new church at Cruden, near Aberdeen, was consecrated by the Bishop of the diocese. It is built in the early English style, having long, narrow, lancet windows, with alternate buttresses, and a spire about 90 feet high, which, from its elevated position, is seen from a great distance both by sea and land.

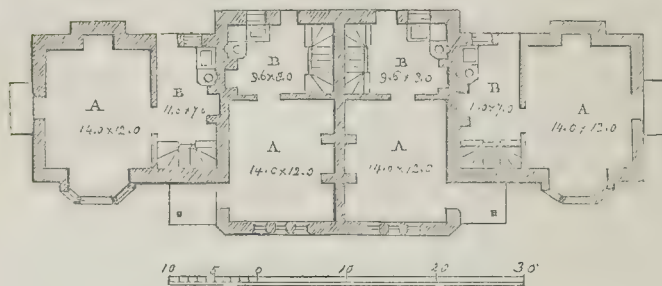
IMPROVEMENTS IN WESTMINSTER.

Workmen are busily engaged in pulling down the houses in the vicinity of Buckingham Palace, leading from James-street into the Piccadilly-road, to make way for the new improvements. The houses in Tothill-street, York-street, and Castle-lane, Westminster, are also to be pulled down in the spring, as well as Sion College Almshouses, for the new road, which will run across the ground of Elliott's brewery into the Vauxhall-road. On the site of the old buildings, some splendid houses are to be erected, equal to those at the West-end. The Rookery, which for several centuries has been the Westminster nuisance, being the refuge of the cadgers of London, and the most profligate characters, is at length to be cleared away, and a square will be built on the spot. One of the greatest improvements in the city of Westminster is the proposed embankment of the Thames, by having a public roadway or communication from or near Whitehall-place, along the side of the Thames, on the Middlesex side, as far as Chatham-place, Blackfriars. An embankment is to be made from Westminster-bridge to the northern pier of the new Hungerford Suspension-bridge, and thence to Blackfriars, forming excellent quays, and a public promenade similar to those on the banks of the Seine at Paris. Stone landing-places for the convenience of passengers are to be erected at the bottom of Essex-street, Arundel-street, Norfolk-street, Surrey-street, the Savoy, Villiers-street, leading into the Strand. The quays will be built upon arches, so as not to impede the barges and the great traffic carried on at the different wharfs at this part of the river. Several old houses will be pulled down in the neighbourhood of these improvements.



PERSPECTIVE VIEW OF FOUR COTTAGES.

(From a Design furnished by a Correspondent.)



Scale of Feet

Ground Plan.

A A A A. Living-rooms.

B B B B. Sculleries, &c.

NOTTINGHAM CHURCHES.

We gave in our last number a letter from the *Nottingham Journal* under the signature of "Siste Viator:" we find a second letter in the same journal of last week. For the reasons we gave before, we are glad to recur to the case now, but we must content ourselves with extracts and a note or two thereupon.

"Siste Viator," referring again to the Trinity Church, is disposed to excuse Mr. Stevens, the architect, on the presumption that he was overruled by the committee, but, says he, "an architect ought at once to have stated it to be impossible for him both to retain the lancet windows (especially the beautiful triplets there used), and to admit the broad flat Grecian roof, and the still flatter ceiling of Trinity Church. Let any one for a moment contemplate the high pointed chancel arch of this church with the almost level lines of the ceiling, and then say whether any thing more mongrel and disagreeable could be conceived? And yet there are very beautiful points in this church, and such as convict the architect of knowing better than he has

allowed to be executed. Can there be any excuse as to want of funds in this case? Was not Trinity of great expense for a modern church compared with the ground covered?"

We interpose for a moment, to correct the vice of that phraseology that assigns certain forms in an arbitrary sense to this or that manner or time of art. A flat roof, we will make bold to say, is no more "Grecian" than "Gothic." Lancet arches and flat roofs may not easily assimilate under certain circumstances of juxtaposition, but there is no more of the irreconcilable between them than there is between the lengthened horizontal eaves-line, the ridge of the roof, the cill-course, base, &c., of the side of Salisbury Cathedral, and the lancet windows with which it is pierced. There is much of that which appears superficial to us in the attempted distinction of styles under the terms "vertical" and "horizontal." Some of our best Gothic edifices are strongly marked by great features of horizontality, and it would be hard to say where greater abundance of vertical lines prevail than in the Greek Peripteral Temple.

Not only columns, but again the flutes and the triglyphs, in the Doric, assert a sort of vital dependence on this very character which is sought to be assigned to the Gothic manner exclusively. Flat roofs and Gothic arches have a wonderful expression of harmony, where the skilful artist strings the chords. It is a sad fault, we had almost said shallov babbling, to utter the common places with which our every-day smatterers din the public ear. ART is not the creature of rules, it is the creator.

We would extract more of "Siste Viator's" letter, but a double purpose has been answered. We are glad to shew an awakening interest in the public mind respecting architecture; and glad at the same time to put out our hand to steady the tottering step of the awakened. "Siste Viator" writes under the influence of fashion and accident, but it is better that he should do so, than not write at all. In the effort to think rightly, the tongued-tied mind will speak out; and if not he, others will acquire the faculty of correct speaking and thinking, in which we wish them God speed.

THE MONUMENT.

This column is of the Doric order, and rises from the pavement to the height of two hundred and two feet, containing within its shaft a spiral stair of black marble of three hundred and forty-five steps. The plinth is twenty-one feet square, and ornamented with sculpture by Cibber, representing the flames subsiding on the appearance of King Charles. The shaft, deeply fluted, measures fifteen feet in diameter at the base, and diminishing according to the proportion of its order, terminates in a capital, crowned with a balcony, from the centre of which rises a circular pedestal, bearing a flaming urn of gilt bronze.

The various notions of Sir Christopher Wren, the architect, concerning a suitable

termination, are worth recording: "I cannot," said he, "but recommend a large statue as carrying much dignity with it, and that which would be more valuable in the eyes of foreigners and strangers. It hath been proposed to cast such a one in brass of twelve feet high for a thousand pounds. I hope we may find those who will cast a figure for that money of fifteen feet high, which will suit the greatness of the pillar, and is, as I take it, the largest at this day extant. This would undoubtedly be the noblest finishing that can be found answerable to so goodly a work in all men's judgments."

The king, however, preferred a large ball of metal gilt. A phoenix was introduced in the wooden model of the pillar, but afterwards rejected by the architect himself, "because it would be costly, not easily understood at that

height, and worse understood at a distance and lastly dangerous, by reason of the sail the spread wings would carry in the wind." A statue of Charles fifteen feet high, on a pedestal of two hundred, would have looked small and mean; the king resisted the compliment.

This work, begun in the year 1671, was not completed till 1677; stone was scarce, and the restoration of London and its cathedral swallowed up the produce of the quarries. "It was at first used," says Elmes, "by the members of the Royal Society for astronomical experiments, but was abandoned on account of its vibrations being too great for the nicety required in their observations. This occasioned a report that it was unsafe, but its scientific construction may bid defiance to the attacks of all but earthquakes for centuries."



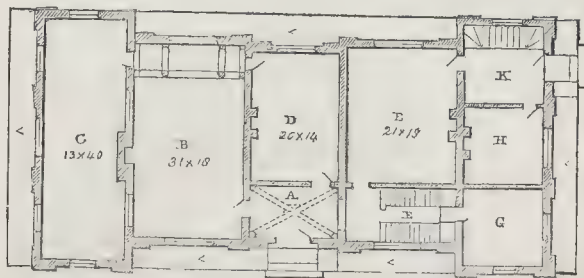
DESIGN FOR A NORMAN COTTAGE.

Description.

Ground Story.—A, hall. B, drawing-room; at the end is an arched recess, having on each side a lobby, one leading into the conservatory (C), and the other into the parlour (D); there is also a window on each side of the fire-place looking into the conservatory, which would have a pleasant and cheerful effect. E, principal staircase, with water-closet under part, and steps to the offices in the basement story. F, dining-room, with doorway to back entrance, and staircase to kitchen, for the purpose of serving the dinner quickly. G, study. H, bed-room for man-servant, with doorway to back entrance (K), which would be a protection to same in the night-time. I, areas to admit light to the basement.

On the one pair would be five or six bedrooms and water-closet, and one bed-room in the tower, making in all seven or eight, with one on the ground story. In the basement story are the domestic offices.

B.



Scale 1/4 inch = 1 foot

Ground Plan.

GALVANIZED IRON.

PUBLIC attention has been for a long time fixed upon this matter, waiting anxiously and with a large measure of expectation, the development and success of the process of galvanizing metals, seeing that upon it so much depended in a general commercial sense, for the restoration of health and activity in that great interest and district of our country connected with the Iron Trade, and upon which also many others so largely depend. It is not alone, however, in the merely commercial sense that it is to be viewed, but also in its influence upon art; in fact, it may be said to have its principal reliance in that direction, for it is under the auspices of the ascendant rule of science that the discovery has been made, and all experience as well as reason shews, that art is consort in every period of the other's domination, applying, regulating, and distributing, and ordering all with the devolved or delegated trust of premiership.

Little indeed! we may venture to affirm, would have been the progress of this discovery, if it were to end in its mere application to complete and to give security to, the products of the past. If all the inventions and applications of iron up to this period were only now to be rendered by this process of galvanizing more permanent or more diffuse, little would be the amount of our gain; but it is calculated to open up new sources of invention, and new modes of application, compared with which our past workings have been little and insignificant.

In architecture, we will risk to say it, the consequences will be incalculable. What the stone quarry and the forest were before the dawn of that science which brought light into their regions of existence, under them, and its laws new life was given to which, and of which law art was the prime administrator, — what these were in that previous chaos, the iron-mine is in this. A new world and a new people will spring up under the new régime.

Talk of the transmutation of metals and the ages of alchemy! we have surpassed the expectation of both, or rather we are in the advent of that which shall surpass them; this magnetic discovery through the rudest commerce, is as that of the earlier needle through infant navigation, and will be in consequence to the full as important.

Already is the movement beginning to be distinguished by the aggregation of active minds and men of master purpose. Our merchants and men of money are stepping out with cautious eagerness, ready to seize the advantages of early "ventures." Our learned societies are being agitated by the buzzing sounds of premonition, that species of recreation in science in which men appeared to indulge in respect of galvanic experiment is now passed by, and replaced with sober and serious industry, as it is discovered that it is not "all a jest." Art alone now remains to exercise her magic functions; her schools of design must be opened, her founts of invention unsealed, the license, as it is called, of the poet, but in very truth the grace and charm of the soul and the spirit, is to be breathed into the inert mass, and iron now, as marble, and stone, and wood in times before, will reflect the life which transcends mortality, and give to the age on which we are entered its undying meed of renown — will stamp it with the characteristics of originality and of greatness.

Withdrawing the glance from the far vision of the Canaan of promise, and confining it to this Egypt of our present bondage, to this toiling in the clay-field, to the making of bricks without straw, to which, and to a forty years' passage of the desert, we are doomed, come we to the practice of the day, to companies and communities engaged in the pioneer task of ushering forth these new inventions to the world. We have before us the prospectus of one, styling itself the Patent Galvanized Iron and Wire Rope Company; these have cut out for themselves the work of a quarter of a century, and that upon their *debris* shall be raised the most of that we have employed ourselves in sketching in of the picture. Let them go wisely to work, and there is a mine of profit for them. Let them get the best pay of pioneers, and their sixteen per cent. is certain. Let them complete their scheme, and its appliances, with all that judgment which the exigency may call for, and, like all

things of good appointment, their success is ensured. It is a junction of good elements, and under favourable auspices. Three interests are being consolidated to make one; and it really seems to be a union essential to the success of each, — the Iron and Coal Company of Porth Cawl, in Glamorganshire, the several patentees of the galvanized iron, and the patentee of the wire rope. It would be idle in us to run over the ground of eulogium, either with reference to the interest represented in the first named, or to the particular working and merits of that individual concern. Of the second we have given our estimate in the preceding remarks; and of the third it has fallen in our way to speak several times in connection with Mr. Smith the inventor, whose lightning conductors, iron shutters, spring hinges, floor ramps, &c., have rendered his name familiar to builders. Nor can we go into a reprint of the prospectus, and without this the particular merits of the consolidation cannot be much farther set forth. It will suffice to say that in shipbuilding, for fastenings and sheathing, for bolts, mooring and chain cables, and for the accessories of buoys, and floating breakwaters; for house building, in gross and in detail, particularly for roofing (covering as well as structure), for agricultural uses, and for the "munitions of war," there is an infinite suggestion of utilities — and, to sum up all, insurance, in the true sense of the word, against fire and decay.

GYPSOGRAPHY.

THE great demand for pictorial illustration to books and other publications within a few late years, and the difficulty and expense of obtaining the only description of engravings which will print conjointly with type in the method of surface or common letterpress printing, has induced several enterprising individuals to endeavour to produce an intermediate description of engraving, to unite as far as possible the cheapness of printing from the surface as in the case of wood engravings, and the very many advantages of copper or steel-plate engravings, which are uniformly printed at the roller press from incised lines in the plate, at once a tedious and expensive method, and which is apparently totally denied that rapidity of production which is eminently the great desideratum of the art of printing at the present day. To this end the subject of our present notice, the art of engraving on plaster, or, as it is termed, gypsography or metallic relief engraving, appears eminently to combine the above-named advantages of being at once simple in its execution, certain in its effect, and very much below the usual charges of any other method of engraving (lithography not even excepted, where long numbers are required). As we must not suppose that all our readers are acquainted with the various methods of engraving, it may not be uninteresting to some to give a short explanation of the different methods.

In copper-plate engraving the lines to produce the picture or engraving are cut more or less deep into the copper or steel when it is printed from the plate, is thickly inked all over, and then cleaned off by the hand of the printer over a charcoal fire, the incisions or graver cuts retaining a sufficiency of ink to produce a print; it is then, with paper on its surface, passed through a powerful roller-press, the pressure forcing out the ink from the interstices to the face of the paper. It will be seen that this is a most *tedious* method of printing, whereas surface or type-press printing is (the lines or figures to be reproduced standing in relief) extraordinarily rapid and easy in its execution.

In engravings on wood, the artist has in the first place to make his drawing on the wooden block, and the wood engraver carefully removes all parts of the wood untouched by his pencil; very often through the extreme care, and sometimes through the inability to follow the off-hand style of the artist, the engraver totally fails in producing the effect desired by the designer in the first-mentioned instance, producing a stiff and formal delineation of the artist's original idea, and in the second a total misrepresentation of the original sketch. These stringent remarks will not apply to those eminent artists (for artists they are as well as

wood engravers), Messrs. Thompson, Jackson, Landells, S. Williams, Linton, Clennell, &c. &c., through whose beautiful productions the present unceasing call for illustrated works has arisen; but these latter can only be employed on costly works to afford them a sufficiently remunerating price for their labour. The difficulty of preserving the original drawing of the artist is by gypsography completely removed, for by this method the artist is his own engraver, and has no occasion (a great advantage) to reverse the drawing or design, as is the case when a drawing is made on wood. The surface of a copper-plate is prepared with a thin coating or layer of plaster of Paris of uniform depth, through which the draughtsman etches with a point to the surface of the copper; he is enabled as he proceeds to observe the effect of every touch of the etching point. When the drawing or etching is completed, it forms a complete matrix or mould, and is cast in type metal, in a similar manner to the process of stereotype casting, and at once forms a block or plate, which must in every minute feature produce a perfect fac-simile of the original design of the artist, and from which at the type-press or steam-machine thousands of impressions can be worked in a few hours.

The patentees of this method have had the most flattering testimonials from a great number of artists and draughtsmen in London, but in the infancy of the invention it may be better to content ourselves by referring our readers to our own pages, where many specimens of gypsography have already appeared.

We cannot conclude this brief notice of this ingenious and useful invention without transcribing a portion of a letter we have before us, from the talented editor of the *Acanthus*, Mr. Page, a practical draughtsman and engraver on wood; he says, speaking with regard to the ease with which engravings may be produced by the gypsographic method, "The merest tyro in the arts will soon find on the first or second trial the facilities with which his ideas may be brought before the public without intrusting the effect, which in their mind's eye they would wish to produce, to the will and talent of the wood engraver, who may often unknowingly mistake the meaning of the artist, and completely foil the original idea."

In conclusion, from specimens which we have seen of maps, machinery, surveys, architectural elevations, plans, &c., executed by this process, we have no doubt of its complete success, and that in a comparatively short time it will be generally used for every description of illustration.

It will well repay the trouble of a visit to the office, in Racquet-court, Fleet-street, to inspect the specimens in this style of art, and to obtain instructions in the method of working on the plates. Many of our readers will find it a most interesting and valuable acquisition.

GRECIAN TEMPLES.

ACQUAINTED as we are to see puny buildings springing up around us, what can be more astonishing than the magnificent dimensions of the temples of ancient Greece? One of the largest of these edifices was the temple of Diana at Ephesus. It was 425 feet long by 220 broad; the columns were 60 feet 1 inch high. The temple of Jupiter at Agriguntum, described by Diodorus Siculus, was 34 feet in length by 60 in width. The latter measurement, however, is generally admitted as a mistake in the text for 160, since the great temple of Selinus, the next in size, was 331 feet in length by 161 in breadth, and 61 feet of width, compared with the length, an impossibility. The temple of Jupiter Olympius at Athens was 259 feet long, by 96 in breadth. That of the Parthenon, 22 by 102. The larger temple at Paestum, 19 feet 4 inches, by 78 feet 10. The temple of Segeste, 190 feet by 76 feet 8 inches. The temple of Syracuse, 172 by 74. That of Corinth 160 feet by 109. The temple of Apollo Epicurius at Phigaleia, 124 feet by 47. That of Juno at Agriguntum, 124 feet by 54 feet 7. The smaller temple at Paestum, 107 feet by 4. The temple of Jupiter, at Agriguntum, 96 feet by 45. The joint temple of Minerva Polias and Erectheus 74 feet long by 38 in width; the columns 22 feet high.

CHURCH EXTENSION.

A MEETING of the Incorporated Society for Promoting the Enlargement, Building, and Repairing of Churches and Chapels was held at their chambers in St. Martin's-place on Monday last, the Lord Bishop of London in the chair; there were also present, Sir R. H. Inglis, Bart. M.P.; the Venerable Archdeacon Lonsdale, the Revs. Dr. Shepherd, H. N. Norris, and B. Harrison; Messrs. W. Cotton, N. Connop, W. Davis, H. J. Barchard, B. Harrison, J. S. Salt, S. B. Brooke, A. Powell, J. Cocks, &c.

The secretary read the reports of the sub-committees, and the meeting having examined the cases referred to their consideration, voted grants of money towards building additional churches or chapels at Alltgyry, in the parish of Llangierick, Glamorganshire; at Kensal-green, in the parish of Chelsea, Middlesex; at Wood-green, in the parish of Tottenham, Middlesex; at the district parish of St. George, Leeds; at Cowhill, in the parish of Oldham, Lancashire; at Plymouth; and at Trawden, in the parochial chapelry of Colne, Lancashire; also towards enlarging or rebuilding the church at Bovingdon, Hertfordshire; enlarging the church at Owston, Lincolnshire; re-seating or otherwise increasing the accommodation in the churches at Batcombe, Somerset; Burton, Westmoreland; Stoke Golding, Leicestershire; Tavistock, Devonshire; and Wamborough, Wiltshire.

The population of these 15 parishes is 213,614 persons, and the accommodation provided for them in 37 churches and chapels is 29,411 seats, being less than one-seventh of the whole number: while the free sittings are only 9,672, or one free seat for 22 persons; to this insufficient provision of church room 5,753 seats will be added when the works above referred to (which include the erection of eight additional churches) have been completed, and 3,788 of those sittings will be free and unappropriated for ever. Among the parishes now assisted are:—One which contains 60,000 inhabitants, with church accommodation for less than one-tenth; another with upwards of 40,000, and church room for less than one-eleventh; another with 30,000, and church room for one-sixth; another with 23,000, and church room for less than one-fifth; another with 20,000, and accommodation for less than one-seventh; one with upwards of 12,000 inhabitants, and church room for less than one-eighth; one with 6,000, and accommodation for one-sixth; and in one parish, seven miles in length and six miles in breadth, with a population of 3,000 persons, and accommodation for rather more than one-tenth of that number; a church is about to be built in a district containing 1,500 inhabitants, five miles distant from the nearest place of worship belonging to the Establishment.

Certificates of the completion of the works in 10 parishes were examined and approved, and the board issued orders to the treasurer for the payment of the grant voted in each case; the population of these parishes is 36,727 persons; and to the former provision of church room therein, viz. 3,909 sittings, including 1,507 free seats, 2,300 sittings are now added, 1,861 of which are free and unappropriated.

In addition to the cases which have now been assisted, the committee have received notices since their last meeting that applications are about to be made for aid towards building churches at the Swindon station of the Great Western Railway; at Norland, in the parish of Kensington; at Coventry; at St. Lawrence, near Ramsgate; at Thorpe Acre, near Loughborough; at Seasalter, near Whitstable; at Lynn, Norfolk; and at Nenthead, in the parish of Alston, Cumberland; and also towards enlarging or otherwise increasing the accommodation in 14 existing churches.

MR. RICHARDSON, the sculptor who restored the monumental effigies at the Temple Church, has just completed the renovation of the beautiful screen of the south porch of Chichester Cathedral, and is now engaged on some of the monumental effigies in the nave. A further and more extensive reparation is contemplated.

On the laying the first stone of the church of St. Martin's-in-the-Fields, the king (George I.) gave one hundred guineas to be distributed among the workmen.

DESIGN FOR A SHOOTING AND FISHING LODGE.

TO THE EDITOR OF THE BUILDER.

SIR,—I have taken the liberty of sending you a plan and elevation for a shooting and fishing lodge, the cost of which (where labour and materials bear an average price) will be under 900*l.* including fixtures. I have designed a long room which I have called a corridor. I have drawn it open in the plan, but I think it would be perhaps advisable to have it inclosed, leaving two spaces between the pillars for windows; this would make a very convenient depot for all the shooting and fishing apparatus. I intend the floor to be

made with asphalt. In the sporting season, bed rooms are in great request. I have made four small sleeping-rooms for single gentlemen, large enough for a French bed, table, and chair, with a fireplace in each room for the double purpose of warming and ventilating the apartments. The door-way leads to the wine and beer cellars, which are under the parlour floor. The roof is intended to be covered with tiles cast in a mould; this makes a very excellent covering, and has a very good effect.

Bath.

C. E. D.



Elevation.



A. Closet.

Chamber Plan.

B. Bed-rooms.



Ground Plan.

A. Dining-room.
E. Corridor.B. Breakfast-room.
F. Kitchen.C. Hall.
G. Scullery, H. Pantry.

D. Alcove.

THE NELSON COLUMN SCAFFOLDING.

THE scaffolding is 170 feet in height, and 96 feet square at the base, and contains 150 loads of timber. It was first introduced into use by Grissell and Peto, in the erection of the Reform Club House, in Pall Mall, some three years since, and was found to possess so many advantages over the ordinary scaffolding made with poles, that it is not only used by Grissell and Peto at the New Houses of Parliament, and in all their other heavy contracts, where masonry is chiefly concerned, but is coming into general use by other large builders, as at the Royal Exchange, Sun Fire Office, and the new Club House in St. James's-street.

Its stability has recently been tested beyond all doubt at the Nelson Column both as to its resistance to wind at a great altitude, and in its strength and steadiness while hoisting heavy weights. One of the parts of the statue of Nelson weighed 12 tons, and the load, although eight hours upon the scaffolding, did not occasion the most trifling vibration to be observable.

One of the advantages of this mode of scaffolding is that the timber is all convertible for the building at which it may be used, as the scaffolding may be dispensed with as soon as the carcass is covered in, and it is generally used up in the internal carpentry of the building; the enormous waste in scaffold cords is also avoided, as well as the considerable expense of a number of masons' labourers, who are always necessarily in attendance upon a scaffolding of the ordinary kind during its use.

The machine which works upon the top, and by which all materials are hoisted, is called a traveller, and the facility by which the mason is enabled to set his stone-work is not of inconsiderable moment to the builder.

The simplicity and efficiency of this scaffold has been the theme of general comment. Many of our readers will remember the erection of the Duke of York's column, and the forest of poles which almost obscured it from view; the abundance of cords and ropes which were employed in it involving a large dead outlay for the stock, and a great loss in wear and tear. In this case, however, it has been far different; and as we find considerable interest has been excited in the minds of some of our readers to have the particulars of the timbers employed, and the mode of joining them, we have been at the pains to inspect the work minutely, and to append to what we had before prepared the following particulars:—

The principal structure of the scaffold may be described as a skeleton timber tower of upright posts and level plates, raised in different stories or stages. For the first, or ground story, however, there are four abutting squares, like the disposition of nave, chancel, and transepts around a cathedral tower or dome. These transept stories are shored up towards the centre, pressing inwards, and form in effect a great outspread platform or stage, wherefrom to shore or strut inwards again at the second range; or the whole may be likened perhaps still more aptly to a skeleton-framed pyramid. One principal feature of ingenuity, however, is the jutting-out limbs that, like a man's arms skimbo, obtain breadth and strength without a wider base than the original spread of his legs. The extended plates of the upper stories are shored up by struts raking outwards, by which a new sustaining point is gained for a platform, and also for an upper series of inward struts again. The posts and plates and a few of the first principal struts are whole timbers or Memel balk; the templates and remaining struts, or "braces," as the scaffold-master calls them, are of half-balk, with some inferior cross-braces of smaller scantling. On the ground, sunk and bedded carefully down, are timber-cills, or ground plates; into these are mortised, and housed or pocketed, the feet of the posts or struts; on the head of the posts, in like manner mortised, &c., are templates of half-balk, laid flat, and screw-bolted (*in effect* scarfed); upon the templates are the main plates or ledgers, running out to any required extension of length, so that, with the exception of the mortise-holes and halvings of the cross joints, and the piercing of the screw-bolts, the timbers are free from waste and wound, become seasoned

by exposure, and are applicable with advantage to the carpentry of other permanent works.

To enumerate the timbers again, they are—

1. The ground cills or plates.
2. Upright posts.
3. Struts or braces, set raking.
4. Templates or head cills.
5. Principal plates or ledgers.
6. Inferior braces and stays.

The greatest spread at the base is about 150 feet.

It was our intention to have illustrated the above remarks by an engraving, but we have been disappointed in obtaining it sufficiently early for insertion.

COMPARATIVE PROPORTIONS OF THE PORTICOS OF ST. MARTIN-IN-THE-FIELDS AND ST. GEORGE, HANOVER-SQUARE, LONDON.

THE splendid porticos of Roman Architecture executed in these churches have, at various times, excited considerable interest. An accurate examination of them would be an advantageous study for a young architect.

St. Martin's-in-the-Fields.

	feet in.
Extent of portico from end of one plinth to that of the other	64 10
Intercolumniation from plinth to plinth	7 4½
Diameter of columns	3 4
Square of the plinth	4 8
Projection of portico from line of wall to front of plinth	2½ 11
Height of columns	33 4
Height of base with the plinth	1 9½

St. George, Hanover-square.

	feet in.
Extent of portico from end of one plinth to that of the other	59 0
Intercolumniation from plinth to plinth	6 1
Centre ditto	8 8
Diameter of columns	3 2
Square of the plinth	4 4
Projection of portico from line of wall to front of plinth	16 7½
Height of columns	31 8
Height of base with the plinth	1 9½

The capital of St. Martin's has its abacus ornamented, and the centre volutes, or horns, are entwined similar to those of the temple of Jupiter Stator, at Rome. The base, as respects the contour of the mouldings, are the same as in Palladio's book of architecture. The cup of St. George's is plain Corinthian, and the base is Attic, or what is in general used for the Roman Ionic.

A PUZZLE.

TO THE EDITOR OF THE BUILDER.

SIR,—I want to know the reason why the operatives of this country evince so much apathy towards their general interests, for it is a notorious fact, that they do exhibit the most stolid indifference to the events which are daily occurring around them, for instance, an Act of Parliament passed which may either materially benefit or may seriously injure them, or a new work issuing from the press calculated to improve or damage their prospects, or if some new machine or method of working be brought into use which may have the same good or bad effects upon them, all these things are treated in the same way with perfect indifference, every one exclaiming what can I do, which is as much as to say I don't mean to do any thing, but leave it to somebody else to do it, and as this somebody else does not do it, it goes undone altogether. But this is not the case in other countries, France and more particularly America, for example, where if a master, an author, or any other person lifts upon any thing which in some way or other benefits the class alluded to, his praise is sounded throughout the land, and, on the other hand, should any thing be done which may operate injuriously to the interests of the artisan, a stir is immediately made by the parties injured, and generally the resolutions are so energetically acted upon, that some alteration is made in their favour. We have an instance of the truth of the foregoing remarks in the case of your well-intentioned work, *THE BUILDER*, whose pages are, I venture to say, more open to the humble workman than those of any other work previously published, and might be made the vehicle for disseminating improved methods, &c. throughout the various building trades, and thus enable them to keep pace with the present competition and general improvements of the times. Yet,

with some half dozen exceptions, but little use has been made of your pages by those who would most benefit by sending you their humble contributions, instead of which they grumble because the work is now assuming too high a character to be amusing to some of them; to illustrate this, I will just mention that an old acquaintance of mine observed to me the other day that he had seen my name in *THE BUILDER* upon more than one occasion, and was pleased to flatter me by approving of the subjects of my correspondence; also of the puzzles inserted in two or three of the numbers, and the plans of the skew arches pleased him very much, as well as several subjects of a similar kind, and he expressed his astonishment that there was not more of these sort of things inserted, instead of so much room being taken up with architectural drawings and the higher order of things generally; in fact, he wanted to see more of the above, more working rules and details, and something like Peter Nicholson's rules and lines inserted now and then, or he should get out of patience with the editor. Well, said I, this is really too bad of you, for instead of blaming the editor, you and such as you should take blame to yourselves, for not rendering your assistance, capable as I know you to be, towards furnishing the editor with matter more congenial to your and many other mechanics' tastes; for instance, you are a professed stair-case hand, and as Peter Nicholson is only well understood by those who know something of geometry and lines generally, why do you not communicate something of a more plain and simple character relating to the construction of stairs, rails, &c., and thus contribute your share of knowledge towards rendering the work more satisfactory to some of you grumblers. My friend then expressed a doubt about his language, sketches, &c. being good enough, but I called his attention to your oftentimes courted communications, assuring him that the editor put me in mind of a mother learning her child to walk, holding out her hands to give confidence, but using them only in case of a slip. Well, sir, I managed to much alter his opinion of the work, and I think I shall succeed in drawing him out, and to do this I purpose with your assistance, as he is fond of puzzles, to give him one, an answer to which from him and others of the same kidney may afterwards induce them to try their hands upon better stuff, the puzzle I intend to give has more than once stood my friend, and is useful as well as amusing; it is as follows:—

Suppose a joiner to be making a door, with panels an inch or more in thickness, and his panel stuff is too narrow, and he has no more than just length enough, and no more stuff, I wish to know how he will use his panel stuff, so as to make it wide enough, and some to come off. We will also suppose that he can in another case spare a little in length of each panel, what method can he in that case adopt to make it wide enough?

With my best wishes for the success of *THE BUILDER*, I remain, yours, Sir, respectfully,
CHARLES NEWNHAM.

Walcot-square, November 28, 1843.

METROPOLITAN IMPROVEMENTS.—We understand that it is intended to apply to Parliament, at the commencement of next session, for an Act to empower the Commissioners of Woods and Forests, Land Revenues, Works, and Buildings, to widen and improve the carriage-road on the south side of Piccadilly, lying between Bolton-street on the east, and Park-lane on the west, and to take and use for that purpose, by Her Majesty's permission, so much of the Green-park as will make Piccadilly, from Bolton-street to Park-lane, of a uniform width of 70 feet or thereabouts; and it is also intended by the said Act of Parliament to empower the Commissioners to take all lands, and to pull down all houses they may require for that purpose. Such an improvement of that portion of so great a thoroughfare as Piccadilly has long been a desideratum, and will, it is hoped, be carried into effect with the least possible delay.

MR. ROBINSON'S (LATE MESSRS. BRANAH'S) FOUNDRY.—We are happy to learn, that although the loss to the workmen employed on this establishment may be regarded as a serious one, considering their means, the carpenters having principally suffered from the destruction of their tools by the fire, the aggravation of that loss, through suspension of employment, will be avoided; temporary sheds are being set up for the continuance of the business, and the rebuilding will be carried on with activity. It would indeed have been a doubly serious affair, with the winter before them, for 120 men, or the larger number of those employed on this establishment, to have been thrown out of work.

SWISS COTTAGE.

"Aught that I could ever read,
Could ever hear by tale or history"

I am, Sir, your well-wisher,
Leamington, Nov. 22, 1843 NORMAN.

WORKING OF A SKEW ARCH.

Of what use is the twisted rule, and in what manner is it found from the twist of beds marked M? Hoping "G. S." will not overlook my inquiries, I remain, Sir, your obedient servant,
A SUBSCRIBER.

NEW ROYAL EXCHANGE.

NOVEMBER, 1843. SPECTATOR.

P. S.—Now that I have the pen in my hand, I may observe that there is a new stone just come, or about to come, I hardly know which, into the market, called the Otley Chevin stone, from a quarry near Leeds. From samples and certificates I have seen, this stone would appear to be unsurpassed either in beauty, durability, or resistance to atmospheric influences. But my object is simply to call the attention of your practical readers to it, as

BUILDERS' SOCIETY.

Should this prove acceptable to be inserted in your publication, the same would oblige, and in such a case I shall give you a true statement of the position in which builders stand as regards architects, and to what tyranny they are subject through the means of competition, and the arbitrary clauses inflicted in specification, for its protection.

A COMPETING BUILDER.

November 27, 1843.

Sir,—I am and have been from its commencement, a regular subscriber to your paper, THE BUILDER. I have been much pleased to see it gradually improving since the early numbers were issued, and now take a great interest in the publication. Will you, therefore, permit me to utter my angry protest against your inserting in future such articles as I feel must prove manifestly injurious to the work, and are, to say the least of them, an outrage on the patience of your readers. Your well-meant anxiety to encourage humble merit, &c., is, doubtless, very commendable; but, Sir, I am far from thinking with you that the columns of a paper magazine are a proper field for such people as "A Practical Builder," or a "Mr. Pollard, of New York," to try their weapons in. What in-

information to your readers *possibly* acquire by inspecting such plans for miserable, widowless "dwelling-houses," as those contributed by the former of these gentlemen in your last number? I say, what actual bad taste will they not acquire in looking at things as the "Washington Memorial," and reading the details of the wretched details of "*Gothic frieze*," "*Gothic frieze*," "*Gothic frieze*," "*galvanized cast-iron*," "*pepagan pinnacles*," "*104 feet high*," and "*rotundas*," wherein, forsooth, *aspiring* students are to cultivate the "fine arts" up heaven-knows-how-many-pairs-of-stairs? Of this design you say in your leading article, "What does it matter to us that this is the work of another nation and people?" For my own part, Sir, having been pretty considerably "galvanized" by Mr. Pollard's production, "425 feet high," I cannot help replying, "*it matters immensely*." I look at it, and bless my eyes, I see the work of another nation and people," and not a *cis-Atlantic* monstrosity; indeed, in the high tide of the "Gothic frieze," generated by Mr. P.'s design, I am tempted to question whether even your other correspondent, the *sio-danti* "*Practical Builder*" could (as be an Englishman) have perpetrated such an arrant architectural caricature. It is worse than his

As, of course, you do not hold yourself responsible for, and freely offer your columns for critiques on, the several productions of your correspondents, pray insert this letter. Many of these gentlemen ("An Old-fashioned Architect" for instance) are evidently highly talented men; and I am jealous of such *things* as I have adverted to passing muster in such a paper as **THE BUILDER** is becoming.

GUILLAUME LE JEUNE.

London, November 25, 1843.

[If we did not do more by the insertion of the "Washington Testimonial," and the dwelling-house plans, and the "Design for a Church in the Classical Style," than call forth the remarks and criticisms of our correspondent as above, together with the many other remarks, exceptionable and approving, our object would have been answered. Bad designs and bad criticisms rank together, and it is to excite or to provoke to reasoning that we now and then insert them. We have also given a long letter of Mr. Charles Newnham's, devoting thus an extreme space to correspondence for this week, and our comments in the leader. For next week we would reiterate our particular views and criticisms in anticipation of the commencement of the new series, when we hope to be well understood, and to have our purpose heartily approved of by a large circle of esteemed friends who may themselves accompany us in our career.—Ep.]

MEASURING AND VALUING.

Str.—In *Measuring's* and other price-books there is a column for the price of joiner's work headed "All Materials," and this, in the explanation given, is said to be the whole charge for the work. Now as I have met with contrary opinions, I should feel obliged if you will be kind enough to state whether these prices are intended to include the *fixing* of partitions, linings, &c., and the *hanging* of doors and sashes; that is to say, measuring the work when the house is complete, and taking all mouldings, soffits, architraves, &c., as they then stand, at the *book-price*? or does it mean, the "whole charge" for all these fittings as they are sent from the *bench only*, leaving the labour of fixing either to be charged or estimated according to circumstances?

I have known these book prices made use of in both ways, and it is calculated to produce great discrepancy in builders' accounts.

I am, Sir, your very obedient humble servant,
November 25, 1843. A FOREMAN.

[Under the head of "All Materials" is included the price for fixing the article; for instance, in a door, the labour of fitting and hanging is included, the hinges and screws to be charged extra; the fixing of the lock, latch, or other fastening, to be charged at so much per piece. It is a practice in many places to measure one edge of a door to allow for the fitting, and one edge of shutters, girthing the rebate; the hinges and screws to be charged extra, but the labour of hanging is included in the price per foot. Shutter-bars, rings, latches, &c., to be charged extra, and for fitting, the same as in door fastenings. In sashes and frames, the price includes fixing, fitting, hanging, pulleys, cords, and weights, when specified; but not sash fasteners, nor putting on.—Ed.]

KING'S CALORIFIC SMOKE CONDUCTOR.

A "Subscriber to THE BUILDER" would feel obliged by the information where the fire-grate shewn and described in page 59, March 11, of that journal, by S. King, of Bath, can be seen and purchased in London.

MEASURING BRICK-WORK.

SIR,—Will you please inform me through your widely-circulated paper the method generally used for reducing cubic feet to standard, as I find there are different ways of doing it: some multiply by 6 and divide by 7, which must be in the strict letter correct; and others multiply by 8 and divide by 9; if the latter, perhaps you can state why such an allowance is made—about 10 feet per rod?

 C, H, C

[The practice of multiplying by 6 and dividing by 7, we should say is erroneous, but proceeds on the assumption that a brick-and-half wall is 14 inches thick, 6 and 7 being in the same ratio as 12, the inches in a foot, to 14, the assumed number of inches in a brick-and-half wall. We prefer, and think the other method the only just one, there being eight

times $1\frac{1}{2}$ inches in a foot, and nine times in $13\frac{1}{4}$ inches, the true thickness of a brick-and-half wall.—Ed.]

THE LEICESTER MONUMENT.

SIR,—Seeing in your last week's number a letter in which your correspondent "E. B. T." communicates certain particulars relative to the Leicester Monument, the most important of which was quite at variance with the plan upon which I had been proceeding, I made immediate application to the secretary, from whom I have just received a letter, of which the following is a copy.

I am, Sir, your obedient servant,
Norwich, November 28, 1843. J. B.

"SIR,—In reply to your inquiry, I beg to state that the advertisement in the London and country papers was drawn up at a meeting of the committee, and was authorized by that body. The committees have not met since, and I am not aware of any other instructions authorized or sanctioned by the committee. I inclose you a copy of the advertisement for your guidance.

"I am, Sir, your obedient servant,

"R. N. BACON, Hon. Sec.

"P.S.—I have inclosed a copy of the advertisement to all gentlemen who have applied to me for instructions."

TRURO COMPETITION.

SIR,—Yourself and father "Senex" will, I know, allow me to differ when you two agree to attach no blame to the Architects for "availing themselves of the opportunity" afforded to them in the late Truro Competition.

After having read (with the greatest gratification, I assure you), and assented to the law of competition you appended to my letter, I resolved to be silent; but it is the breaking of that law—and it is one of honour—I complained of. Designs are forwarded by many on the specified condition that a certain body of men are to choose the which they will have (either the prettiest picture or the best design, that matters not); is it then honourable, that some of the many should possess a portion of the body in favour of some nice blue sky or finely-painted pig, whilst they know their fellow-competitors would either not stoop to such irregularity or have not the means to make the "opportunity?" The essence of fair competition is the equality of the circumstances of the competitors in it. This is admitted, and therefore we condemn the practice of doing anything which is not equally in the power of all. Talent will then decide—not favour.

Eminence is valuable when attained, and honour is the fair road to it; strip it of this requisite, and behold a naked thing!

I am, &c.,
A YOUNG CHIP.

Miscellanea.

NEW ROASTING JACK.—In this age of daily improvements in mechanics, &c. who can view with indifference a new invention, which is calculated to raise the character of our national cuisine in the form of a roasting jack? At the Senior United Service Club is a novel apparatus, used in the kitchen of that club, which is invented by the secretary to the institution, Mr. J. H. Willis. The fire-place or grate is so constructed as to diffuse the greatest possible extent of surface heat; and over it projects a light iron frame, upon which a series of clock wheels worked by a spindle, moved by the smoke as in the common smoke jack, revolve upon a disk. To the machinery connected with these the joints are suspended vertically in any number, according to the extent of the fire-place, and by the uniform motion of the wheels they are properly roasted, requiring, however, but little attention on the part of the attendants. The advantages thus obtained are, that the joints of meat are not disfigured by the marks of the spits, or cradle-spits; the meat swells more gradually; the rich juices are retained to the extent of 50 per cent. more than by the ordinary method, and no part of the joints are exposed to undue heat; and several may be roasted at one time, each joint being basted with its own dripping. There is a great economy in fuel, and the cooking can be retarded or advanced, by a key which regulates the distance required to obtain any degree of heat. This invention is one of a very ingenious character, and is a vast improvement upon the common smoke jack, to which the machinery is admirably adapted.

POLISH FOR GRANITE.—The most suitable substance for giving a fine polish to granite is the powder of corundum. It is not mixed with wax, but with lac; and the greater the care taken in effecting the mixture, the finer and more durable will be the polish. It is essential that the powder employed for this purpose should be extremely hard; and hence that of emery is preferred.

LINCOLN.—The great desideratum for every densely populated town, a public cemetery, has again become the subject of discussion in Lincoln. It is high time that it was taken up with the determination to effect what would so essentially contribute to the public health. The crowded state of most of the churchyards in Lincoln, which are all exceedingly small, begins to render it imperative that some better provision be made for the interment of the dead. St. Swithin's parish contains 2,600 inhabitants, and the burial-ground is extremely limited. St. Martin's has a population of 2,400, with two small churchyards, one of which is as full as it possibly can be. There is plenty of public land, and it is hoped that a sufficient portion for the purpose will be gladly conceded.—The whole of the heavy castings required for the new city prison have been run in Lincoln, by Messrs. Clayton and Shuttleworth; and last Saturday the same firm ran a loam-sand casting for the cake-mill of Harvey, Mackinder, and Co., which weighs upwards of four tons. The metal of which it is comprised is said to be the largest quantity ever run into one casting in this country.

STAMFORD.—A meeting under the Stamford Improvement Act, on Tuesday se'night, was attended by Fras. Jelley, Esq., mayor, in the chair, and thirteen other commissioners. The clerk read applications for the office of surveyor from the following persons, viz. Mr. Chas. Needham, of Wyomondham, Leicestershire; Mr. Jos. Herringshaw, of Bourn; Mr. Hareby Hobson, of Deeping Fen; Mr. Benj. Pearson, stone-mason, of Stamford; Lieut. Colls, R.M., of Stamford; Mr. Wm. Dixon, engineer, of Boston; Mr. Wm. White, stationer, of Stamford; Mr. Angelo T. B. Mott, civil-engineer, of Gordon-street, Euston-square, London; Mr. Henry Hutchinson, land surveyor, of Walcot, near Stamford; Mr. John Burton, maltster, of Stamford; Mr. Wynne Hill, surveyor, of Easton, near Stamford; and Mr. Wm. Gregory, builder, of Stamford. Mr. Colls was elected by a majority of ten votes, there being eleven for him, one vote for Mr. White, and one for Mr. Hutchinson; for none of the other candidates was there a single vote.

CLETHORPES.—This delightful and noted bathing place has been during the last summer considerably improved. The commissioners under the recent Inclosure Act have been engaged in making roads and allotting out land. During these excavations, a number of ancient coins have been dug up. A fortnight ago, a millstone and several other vestiges of a corn-mill were found, which proves that there has been a mill on that site, but the date is beyond the memory of the oldest inhabitant. As a singular coincidence, the ground on which these antiquities were found is assigned to Mr. Thomas Jackson, a miller by trade. Within the last few years, it is surprising to see what a number of neat and commodious dwelling-houses have been built and fitted up for the reception of visitors.

The terms of subscription to THE BUILDER are as follows:

UNSTAMPED EDITION.	
Quarterly	3s. 3d.
Half-Yearly	6 6
Yearly	13 0

STAMPED EDITION.	
Quarterly	4 4
Half-Yearly	8 8
Yearly	17 4

Part IX. (price 1s.), containing Four Numbers, is ready for delivery.

THE BUILDER can be supplied from the Office, 2, York-street, Covent Garden, on the remittance of a post-office order in advance.

The charge for Advertisements will be as under:

	£. s. d.
For Sixty Words or under	0 5 0
Every additional Ten Words	0 4 4
One Column	2 2 0
One entire Page	5 5 0
To workmen advertising for situations, the price will be reduced to	0 3 6

If more than One Insertion a Reduction will be made.

Advertisements for THE BUILDER must be forwarded to the Office on or before Wednesday in each week.

Tenders.

IMPROVEMENTS OF THE CITY OF LONDON IN CONNECTION WITH NEW FARRINGTON-STREET

TENDERS for a house to be built therein for H. Walker, Esq.—J. F. Fendon, Esq., architect—
Bridger and Ashby £1,492 || Ward | 1,480 |
| Smith | 1,466 |
| Glenn | 1,457 |

NOTICES OF CONTRACTS.

SUFFOLK LUNATIC ASYLUM, BURY ST. EDMUNDS.—Enlargement.—John Henry Borton, Clerk of the Peace.—From 21st December to 22nd January next.

COMPETITIONS.

Earl of Leicester's Monument, at Holkham, cost 4,000 guineas.—R. N. Bacon, Hon. Secretary. Dec. 20.

District Surveyor for the metropolitan parishes of St. George-the-Martyr, and St. Andrew, Holborn-above-the-Bars, and the Liberty of the Rolls.—Testimonials to be sent in up to 30th December. Election next January Sessions.—C. H. Ellis, Clerk of the Peace.

Design for a testimonial to the late G. Clendinning, Esq., to be executed at Westport, at a price of 800 guineas.—Dr. Dillon, Infirmary, Castlebar, Mayo, 20 guineas, Jan. 1, 1844.

Premium of a gold medal or money for the best mode of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

NOTICES.

TO OUR READERS.

"A Young Mason" is making a marble table of different colours (4 feet long and 2 feet 6 inches wide), and begs the favour of a design. We hope some one of our readers will oblige him; if not, we will see to it ourselves, but it may be more profitable to set other wits a working.

"A Correspondent" calls our attention to the filthy state of the Old St. Pancras-road, from the heaping up and long continuance of mud-scraps, &c. The road, he says, is in the Metropolitan district, and under its surveyor, who threatens a fine of forty shillings on those who may throw any thing upon it. He asks where is the consistency or justice?

TO OUR CORRESPONDENTS.

"A Builder" requests that we would give the portrait of Sir Christopher Wren. We cannot promise it soon, but will certainly not overlook it.

"Archimedes" will have no difficulty in meeting with a second-hand copy of "Nicholson's Carpenters' Guide," which, under the circumstances, we would recommend to him; and if any person should have such works, they would do well to inform us, stating the price. We can be of great service in assisting parties to mutually beneficial bargains in this way, and we shall be happy to do so. There are many to whom the money would be of more consequence than the book, and on the other hand, many to whom the book would be a great boon at a moderate price. The school is not yet established; meanwhile, we would recommend him to apply to Mr. Grayson's, Banner-street, Finsbury.

"R. Bran," Brecon.—If we make use of the sketch so kindly sent, it will be as a vignette, but we have not determined, we will hold it under the conditions named. Stamped copies of THE BUILDER, price 4d., are forwarded from this Office.

"E. E." may learn all the particulars of the Building Society of Mr. G. Payne, the Secretary, 12, Chapel-street, Edgware-road.

"A Poor Carpenter."—We will undertake to assure him that he shall very shortly have the drawing he asks for in the pages of THE BUILDER, namely "For a Scroll and Curtain Step." We could give it at once, but should be more happy to excite the thought and skill of our numerous readers. We therefore invite their efforts, and shall be proud to publish the best.

"H. W. S.," Cheltenham, inquires as to the best work on Gothic Architecture. It depends upon the purpose he would apply it to. Pugin's for practice, but they are very expensive. Rickman's is of a popular but less practical character, and at much less expense. Britton's Glossary and Examples are very valuable and not costly. Barr's, and Bloxam's works bring us down to the most popular rank of this class of publications, and they are the cheapest.

"J. C. R." Hampstead.—If he could procure a copy of "Malton's Perspective," and would apply himself steadily for a few nights copying the diagrams, he would be well-nigh master of perspective. We acquired the knowledge in two hours from that invaluable work.

"Mr. G. Backnell," of 9, Trinity-street, Boro', calls our attention to his patent scaffolding. We shall be glad to seize an opportunity of inspecting it, and, if valuable, communicating a description to our readers.

"J. West" will find an answer under "E. E." "A Constant Reader" will find the answer to his first inquiry above, but we dare not undertake to give an opinion as to his investing his money. We incline to think favourably of the matter, but can say no more.

THE BUILDER.

NO. XLIV.

SATURDAY, DECEMBER 9, 1843.

WORKHOUSES.

A CORRESPONDENT from Birmingham asks us to devote a portion of our paper to the question of the general construction of workhouses, how they might be improved, and a general history as to their introduction, &c. We can only say that we should be most happy to do so; but there are many of our readers and correspondents to whom the task would be of great profit and advantage, and we invite them to it. Important consequences would flow from the study and that spirit of reflection and inquiry which it would superinduce. If architects and builders would study the *morale* of the workhouse system, they would make none the worse plans and structures, but they would most likely become, in addition, the better philanthropists and patriots. Unfortunately, however, it would seem to be considered their duty to meddle with no more than extended to the obedience of orders. so that if cages were to be contrived for human incarceration, their only concern would be to be employed, to rack their best ingenuity, and receive their pay. Workhouses, madhouses, and prisons, are what the architects choose to make them, in more senses than one, and it is distressing to think that some of the greatest efforts of the ingenuity of the profession have been exercised in administering to the very questionable policy which prevails in the modern management of these institutions; as an instance, we may refer to the New Model Prison at Pentonville, the work of Major Jebb, military and in it is instance, civil engineer; if report speaks truly, the refinements introduced into that prison, in the way of separating and secluding the wretched criminals, are so nicely calculated to the line of human endurance, that it has in this instance *turned over*, and produced insanity. This is fearful, and is a question beyond the brick and mortar into which you shall say it is not our province to intrude? It reminds us of a trans-Atlantic anecdote, all in our own way. It is said that the architect of one of the American prisons had been experimenting, like Major Jebb, in the perfecting the system of solitary confinement, and, anxious to ascertain the result of his expected success, thinking he had so contrived it that the wretch who was to be immured in it could have no object on which to fix his thoughts, beyond himself and his condition—oh, how awful does this read, this compressing the vast infinite of the human soul into one little point, its centre—the architect required of one who had been immured in an ingenious cell, how it had impressed him with a feeling of absolute solitude. "Ah," said the criminal, "you are a very clever man, but I can give you a hint. It is very well to place us in absolute darkness; that, however, the eye gets accustomed to; it will make the cell smooth-lined within, without joint or crevice; but a square is not the shape, man; it should be a circle—a hollow globe! As it is, there are the angles in the room to divert oneself with; you should have made it a complete sphere. In the square I could live and commune with its features—in the sphere, I should have gone mad in a week."

How near to this maddening may not the

deadening and soul-subduing have they not to answer for? Can they not raise generous emotions; can they not destroy them? A workhouse might, by an elevation of the ingenuity of the architect, be rendered what it purports to be. It would be better to make an architect a Poor-Law Commissioner, than to have the tinkering of Poor-law Commissioners as architects, or architect's masters. However, we shall be most happy to aid in our correspondent's purpose, and wait to see whence proceeds the first effort at a profound handling of the subject.

DURATION OF LIFE AMONGST WORKMEN.

A CORRESPONDENT who signs himself "A toiling son of Adam," is pleased to compliment us on the introduction of the subject of statistics in *THE BUILDER* of the 25th ult. His view is that "intemperance in drinking" is one of the main causes accounting for the fearful mortality and shortness of life prevailing among the working classes, inducing, as he says, many diseases, such as rheumatism, gout, scrofula, ulcerated limbs, and giving also "carbuncled visages." The remedy, however, he says, is in their own hands. His words also are—

"I conceive it to be libelling the Deity to suppose he has placed the majority of the human species in a sphere of action inimical to their comfort and happiness, by having to toil for a livelihood. Does not all the knowledge which we can acquire of philosophy and physiology go to demonstrate that the means acquired, in the shape of wages for labour, properly expended and judiciously applied, furnish for the most part all the comforts that are needed for health and enjoyment? and these are certainly the essentials to a state of longevity."

"It has been," says he, "a matter of bitter lament to witness the occasions when some hard-working mechanic who had chanced to outlive the generality of our craft, was obliged to appeal to a parish board for that which a little economy and sobriety observed during his progress through manhood, would have enabled him so much better and independently to have enjoyed, in his own home, a home well stored with many comforts; and with a mind so cultivated by salutary experience as to be able with profit to ruminate on and still enjoy passing events of interest to his class, and to be enabled to take part in the numerous efforts now devised to encourage the workman to look above the degraded, sensual, and half bestial practices, I fear we must acknowledge, it is the habit of too many to acquire."

"Again, as to the sort of occupation which the following of our craft entails upon us, I conceive it, properly pursued, more likely to lengthen than shorten the duration of life; for what injury can our physical powers suffer from being called to inhale the pure air of the morning, or steadily to pursue our avocations during the rest of the day,—or at night, at a reasonable time, to congregate with our fellow-artisans to improve some mental opportunity, and then retire to enjoy that sound repose which, alas! but few of the rich can so fully participate in, in consequence of the day having been spent in killing time, and seeking pleasure, in ways and scenes which naturally bring disappointment, vexations, and possibly remorse?"

reprobates the practice, in kindness," of

fellow-shopsmen treating with drink those upon "tramp," or in search of employment,—a time, he would observe, when every consideration of prudence, judgment, and reasonable anxiety demands self-denial and circumspection.

THE CHURCH, WOOD-GREEN, TOTTENHAM.

THE beautiful church at this place, from the designs of Messrs. Scott and Moffatt, built by Mr. Jay, of London Wall, demands attention for the very effective expression obtained by the admixture of the Kentish rag-stone walling, with a newly-introduced sandstone for the drawings. The tone of colour is highly agreeable, being of a warm brown tint, of mixed ochre and amber, and the stone commends itself the more from the facilities for its importation into the London market. The quarries are not further, we believe, than forty miles distant, being situate at Broomhill, near Speldhurst, in Kent, and favourably for shipment. It is affirmed to be more durable than Bath stone, and yet soft and easy to work. Hardening by exposure, it is particularly well suited for carving, and for tracery, as may be seen in the new church at Tonbridge Wells. It is, however, not the less adapted for substantial and massive work, two bridges having been lately erected with it over the river Medway. Of its durability, the best evidence is afforded in many old structures, particularly in the Castle of Tonbridge, which many contend to be a work of about 1,000 years old. The very mouldings of the gateway are still beautifully sharp and fresh. It may be obtained in large sizes, and at moderate cost, and, being cheap to work, will be found a great accession to the London market and district.

VIEW TO YORK OF THE HEALTH OF TOWNS COMMISSIONERS. — Messrs. Chadwick and Smith were in at York in the most cordial spirit by the members of the excellent corporation of that city. At a meeting of that body, Mr. Smith fully explained the views of the commission, and placed sets of printed questions in the hands of such gentlemen as were most likely to be able to give information on the various subjects which in the interrogatories. These questions have reference to the position of the town and the geological character of the country; the liability to floods, obstruction to the natural drainage, or escape of flood water; the regulations as to drainage generally, public and private, and its efficiency or deficiency; the construction and cleansing of sewers, streets, alleys, &c.; the construction of school-rooms for the labouring classes; also as to the existence of open and convenient spaces for exercise, open bathing places or public baths, as to the supply of water for domestic use, for watering or cleansing the streets, or for the prevention of diseases. The *qualities of the water*, the *manner of distribution*, the number of houses in the town and suburbs, in how many of the houses the water is laid on, and as to each house having a separate tank;—as to how the poorer classes are supplied, the quantity, quality, and price, the means of redress in case of undue enhancement of the price, or of the supply being deficient in quantity or inferior in quality, the use of filters in private houses, the provision in case of fire, the average number of deaths in the year and the principal cause of loss to the stock of engines and machinery, the worst part of the town, the highest rate of mortality, the average duration of illness among the working classes throughout the year, the general structure and condition of the dwellings of the poorer classes, the number of persons living in one room or house, the ventilation of such room or house, and the state of the labouring classes in winter as to warmth. The questions also refer to the use of gas, the state of the public lodging-houses, the amount of medical advice and assistance afforded gratuitously to the poorer classes, the existence of hospitals, or dispensaries, the regulations they are under, the average number of patients, &c. &c.



Window in Clevedon Church, Somerset.

W. B., in writing to the editor of *THE BUILDER*, begs his acceptance of a small drawing of a window in Clevedon Church, Somerset; the only thing curious in it is the formation of the upper part of the centre bay (which probably was so formed to receive a painted cross), and it being three inches wider than the side bays, the general character appears to be of the decorated period.

Clevedon, December 4, 1843.

P.S.—Could the editor inform W. B., through the medium of his very valuable paper, the best covering for the wood floor of a balcony, to bear walking upon, and to be perfectly water-tight? He has been recommended zinc, but it being of large extent, he thinks the seams would be objectionable, and the expansion and contraction caused by the weather may crack it, and as iron rails are fixed on the balcony, there would be great difficulty in fitting the zinc round the rails, so as to be water-tight; but he thinks something in the shape of a cement, that would not crack with the sun, that would adhere to the boards, which have been painted, and that would stand the wear of persons walking on it.

Also, could the editor give W. B. any information respecting encaustic tiles for paving, where they may be procured, and at about what he could get them (fit for laying) at per square yard, as he is in want of some to pave a church, and has searched through all the advertisements in *THE BUILDER* from its first commencement, and cannot find any thing of the sort.

Any information on these subjects will greatly oblige a constant subscriber.

BEAUTIFUL IVORY MODEL OF WINDSOR CASTLE.—There is now exhibiting at the shop of Mr. Ekin, tobacconist of the King's Parade, Cambridge, a very splendid ivory model of the above royal residence, which is deserving of the notice of all lovers of art. It embraces the whole of that stupendous building, tower, terraces, and even the shrubbery round the tower, to the minutiae of the interior decorations, such as window-curtains with gold fringe, &c. The innumerable windows and skylights are also glazed, and the different apartments all labelled. Upon the whole, it is one of the most complete specimens of the art we have seen. We understand it is to be raffled for as soon as a sufficient number of members can be obtained.

PUBLIC WORKS.

Proposed New Dock, Kingston-upon-Hull.—The situation pitched upon for the new dock, it will be seen, is a little to the eastward of the Citadel, and to the site first recommended by Mr. Hartley, the company's consulting engineer, but abandoned in consequence of their being unable to come to terms with the Government for the occupation of the Crown property. It is a situation in every way as eligible as the other, and in some respects has advantages which the other did not possess. The dock will be approached by a spacious basin opening into the river Humber, the entrance gates to be 60 feet, and the area of the basin 2 acres, 4216 feet. The dock itself is to the dock to be 50 feet. The dock itself is to contain a water space of 12 acres, 3514 feet. The depth of water at the outer entrance of the Humber Basin will be at spring tides 28 feet, at neaps 19 feet; and the depth of water in the dock, springs 27 feet, neaps 18 feet. The head of the dock will communicate with the river Hull, the entrance lock of which is to be 180 feet by 45 feet, and to have an entrance basin of 400 feet in length, by 150 feet least width, giving a water space of 1 acre, 2794 feet. The entire water space of the dock and basin is 17 acres 844 feet. The estimate, including land, is about 300,000.

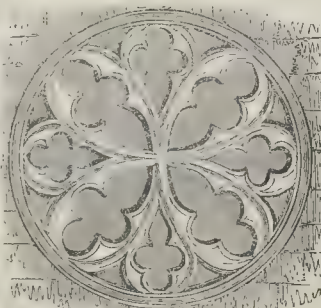
Ulverston.—There is now a scheme on foot to make a canal from Greenodd to the canal foot, through the land at Tridlay point. The ground has been surveyed, and the scheme has attained the approbation of the landed proprietors through whose demesnes it will pass.

NEW CHURCHES.

Kirkham Church.—The first stone of a new tower and spire, connected with Kirkham parish church, was laid on Tuesday, by Thomas Clifton, Esq., of Lytham Hall. A great number of the gentlemen of the neighbourhood were present. The tower and spire, the very beautiful design for which has been furnished by Edmund Sharpe, Esq., of Lancaster, whose well-known taste as an architect has been many times the subject of praise, will be one hundred and fifty feet in height, the style being that of the 15th century. It will be built of Longridge stone, the quality of which for such a purpose is already well known. It is expected that the top stone will be placed in little more than twelve months. Perhaps we shall give a better idea of the design, if we say it is that kind which abounds in the rich and highly ornamented churches in Lincolnshire; indeed, it will be a "Fen Steeple" planted in the Fylde. It will be about forty feet higher than that of the Roman Catholic chapel in that neighbourhood, and when finished, will be an object of considerable interest in the view even at a great distance.—*Westmoreland Gazette.*

The foundation-stone of another new church in the borough of Leeds was laid last week—it is to be styled St. Andrew's Church. The Ripon Diocesan Church Building Society have given 500*l.*, and the National Incorporated Society 200*l.* in aid of the work.

Lord Rossmore has granted a site for a church in the island of Arran, and given the munificent sum of 500*l.* to aid in the erection of the building.



Circular Window in Canterbury Cathedral.

(From a Correspondent.)

APPLICATION AND INTENT OF THE VARIOUS STYLES OF ARCHITECTURE.*

THE claims of any particular style, and the merit of any building, may be estimated according to a very simple and intelligible principle. The real architect ought not to work by line and rule; he should recollect that he is composing a work which ought to have a given intent. Whenever he determines to adopt any system which prevents him from yielding to the meaning of his structure, he ought to apprehend that he is in the wrong. Whenever he feels himself cramped by his pattern, he may be assured that the precedent, however good in itself, is bad for the purpose to which he makes it a slave. Lines of equal length, duly rhymed and well disposed in pages of equal dimensions, do not constitute a poem unless they have sense within them. Columns, however prettily arranged, pediments though classical, architraves, friezes, stylobates, do not make an architectural work, unless they are so disposed as to conform to the end and object of the edifice which they adorn. Should they not perform this duty, the builder is no architect. The fabric may be sumptuous, comfortable, and convenient, but as a production of the art it has no more merit than a barn—not even so much—because the barn door, the thatched roof, and the weather-boarded sides are all in keeping with the thrashing-floor within; and this is not the case with an unmeaning structure.

It is the business of the architect to unite splendour when a display of wealth is desired, comfort and convenience in all cases, with that intelligence which alone entitles him to an artist's name. As the poet seeks that every phrase and word which he employs should be poetical and analogous to the style and character of his poem, so should the architect try to keep every member and portion of his building concordant to its intent. It would be a grievous sin against good taste, that is to say, against common sense, if in a Christian hymn we were to introduce the mythology of Ovid or Virgil. This will be readily acknowledged, and the fault could not be committed by any one of the present day. But is it less incongruous to adorn the walls of a Christian church with the skull of a slaughtered bull and the sacrificial patera? Architects are perpetually introducing classical emblems, as they call them; but if they are employed as things without meaning, they are nonsense. And if we consider them as bearing a meaning, then their signification is out of place, and it becomes an absurdity.

An architect should recollect that he is not a pupil, whose merits consist in repeating a lesson by rote, but a man who deserves no praise unless he makes an intelligent use of the lesson. If he would take the liberty of thinking for himself, he certainly would remedy such gross and palpable errors. It would not be difficult to preserve some degree of consistency, even in a church built according to the Grecian or Roman orders. Instead of the lotus, honeysuckle, or the acanthus, there might be introduced the vine, the palm, or the olive, which in a certain degree have the character of Scriptural trees. Many of the emblems of Hope, Faith, and the Redemption, found on the tombs of the early Christians, might also be advantageously employed.

Texts or inscriptions may be so managed as to become very ornamental and impressive. But the letters should be large and deep, and cut in the hard stone, as a part of the original conception of the building, and not painted on, as a subsequent addition. The architect should also avoid the error, so often committed in printed books, of adding chapter and verse at the end of the line. Whenever a quotation is addressed to the imagination of the reader, we must assume that we are merely bringing to his recollection the words of an author whose works are already known to him. We should not appear to teach something new. The beauty of an illustrative quotation consists in its being apt, in its being familiar to our minds. It must seem to present itself without labour, not as if we had sought it out. The total want of inscriptions in our modern buildings is a further proof of the vagueness of modern architecture. It was not thus among the ancients. They built for the people, who saw their chronicles upon the marble. The lines were read by the fathers, the children,

* Continued from page 516.

the grandchildren,—and after the lapse of ages, the moss-grown characters add the most powerful charms to the majestic ruin. These means of giving interest to architecture are now neglected.

No church should be without a lofty steeple. The "heaven-directed spire" has a sacred dignity which should never be sacrificed except under the pressure of the most imperious necessity. There is considerable difficulty in combining a steeple with the orders of Grecian or Roman architecture. When mastered the difficulty, and produced combinations scarcely inferior to the Gothic. The Grecian or Roman steeple appears worst and ugliest when, as at St. Martin's-in-the-Fields, it is seen riding athwart a Corinthian portico, to which it does not bear the slightest affinity; and best, when, according to a favourite practice of Palladio, it stands by the side of the edifice as a campanile or bell tower.

All things fairly considered, the Gothic style appears to be the most reasonable order for an English church. It is consecrated by its associations, and the most ordinary architect may easily learn to avoid any marked impropriety. It should be managed freely, and although we would not admit of any fantastic or capricious alterations of the style as existing in the great master-pieces with which this country abounds, still the architect should not be inhibited from such a discreet power of adaptation as the circumstances of the case may require. Such variations, however, will be very rarely needed, and then only in the disposition of the subordinate parts of the edifice. Q.

EGYPTIAN PYRAMIDS AND HINDOO TEMPLES COMPARED.

THE most common form of the Hindoo pagodas is the pyramidal, of which one of the most remarkable is that of Chalembaram, on the Coromandel coast, about thirty-four geographical miles south of Pondicherry, and seven from the sea.

The whole temple, with its attached buildings, covers an area of 1,332 feet by 936 (according to others 1,230 feet by 960), and is surrounded with a brick wall 30 feet high and 7 thick, round which there is another wall, furnished with bastions. The four entrances are under as many pyramids, which up to the top of the portal, 30 feet in height, are formed of free-stone, ornamented with sculptured figures. Above the portal, the pyramid is built of tiles or bricks, to the height of 150 feet, with a coat of cement upon it, which is covered with plates of copper and ornaments of baked clay. On passing through the chief portico of the western propylea, we see on the left an enormous hall, with more than 1,000 pillars, which are above 36 feet high, and covered with slabs of stone; this hall might have served as a gallery for the priests to walk about in, like the hypostyle halls of the Egyptian temples. In the midst of these columns, and surrounded by them, is a temple called that of eternity. On the right or south side, we see the chief temple, with halls of several hundred pillars at the east and west end, also supporting a flat roof of stone. The pagoda itself rests on a basis 360 feet long and 260 broad, and rises to a surprising height. It is formed of blocks of stone 40 feet long, 4 feet wide, and 5 feet thick, which must have been brought about 200 miles, as there are no stone quarries in the neighbourhood. The temple has a peristyle round it, and thirty-six of the pillars, which are placed in six rows, and form the portico, support a roof of smooth blocks. The columns are 30 feet high, and resemble the old Ionic pillar. The whole pyramid surpasses in size St. Paul's Cathedral, in London. The roof of the pyramid has a copper casing covered with reliefs referring to mythical subjects; the gilding which was once on it is still visible. In the middle of the courtyard there is a tank surrounded with a gallery of pillars, and also an enclosure round it of marble, well polished and ornamented with sculptures and arabesques. In the eastern part there is still another court, surrounded with a wall, on the inside of which is a colonnade covered with large slabs of stone. Here also there is a

pagoda, which is but little inferior in size to the larger one; but it contains only one large dark chamber covered with sculptures, which have reference to the worship of certain deities, particularly Vishnu.

The interior ornaments are in harmony with the whole; from the nave of one of the pyramids there hang, on the tops of four buttresses, festoons of chains, in length 548 feet, made of stone. Each garland, consisting of twenty links, is made of one piece of stone 60 feet long; the links themselves are monstrous rings, 32 inches in circumference, and polished as smooth as glass. One chain is broken, and hangs down from the pillar. In the neighbourhood of the pagodas there are usually tanks and basins lined with cement, or buildings attached for the purpose of lodging pilgrims who come from a distance. It is, however, often the case that the adjoining buildings, as well as the external ornaments in general, are in bad taste, and the work of a later age than the pagoda itself.

The pyramidal entrances of the Indian pagodas are analogous to the Egyptian propylea, while the large pillared rooms which support a flat roof of stone, are found frequently in the temples of both countries. Among the numerous divisions of the excavations of Ellora, there is an upper story of the *Dasavatara*, or the temple of Vishnu's incarnations, the roof of which is supported by sixty-four square based pillars, eight in each row. This chamber is about 100 feet wide, and somewhat deeper, and as to general design may be compared with the excavated chambers of Egypt, which are supported by square

columns. The massy materials, the dark chambers, and the walls covered with highly wrought sculptures; and the tanks near the temples, with their enclosure of stone and the steps for the pilgrims, are also equally characteristic of a pagoda and an Egyptian temple. To this we may add the high wall, of a rectangular form, carried all round the sacred spot; it is, however, principally the massive structure of these surrounding walls which forms the point of comparison, as Greek temples also had a wall enclosing the sacred ground, and the temples and churches of all countries are, as a general rule, separated from unhallowed ground, if not by strong walls, at least by some mark which determines the extent of the sacred precincts.

Yet there is a further resemblance worth noticing between some of these Hindoo pagodas and the great temple of Phtha at Memphis. The Egyptian temple had four chief entrances, or propyla, turned to the four cardinal points of the compass; which is also the case with the pagoda of Chalembaram, with another at Seringam, and probably others also. The pagoda of Chalembaram, according to Indian tradition, is one of the oldest in the country, and this opinion is confirmed by the appearance of the principal temple contained within the walls; but other parts, such as the pyramidal entrances, the highly-finished sculptures, and the chain festoons, must be the work of a later date. It seems probable, then, that this enormous religious edifice was the growth of many ages, each adding something to enlarge and perfect the work of former days.—*Library of Entertaining Knowledge.*



FONT IN PRIORY CHURCH, BRECON.

TO THE EDITOR OF THE BUILDER.

SIR,—If you think the above sketch worth inserting in your valuable periodical, as a rare specimen of antiquity, you are perfectly welcome. It belongs to the Priory Church, Brecon, and there is little doubt but that it was executed at the time the church was built, which is generally supposed to be in the tenth or eleventh century; and at the present day, although greatly curtailed from its original state, considered one of the finest Gothic

structures in South Wales. The font is the largest I ever saw, the diameter of the orifice being 2 feet 10 inches, and the height of the whole 2 feet 8 inches.

The ornaments are very rudely carved, but by the seeming union of three in the different parts, are evidently emblematic of the Trinity.

I am, Sir, your obedient servant,
J. L. T.
Berkeley-place, Brecon, Nov. 9, 1843.

* The outer wall is brick cased with stone; the inner is all of stone. The four sides are turned respectively to the four cardinal points.—HERRIN, India, p. 74.

HISTORICAL NOTES ON ARCHITECTURE.

THE origin of architecture is unknown; that, however rude, it must have been practised in some degree, is evident from the sacred writings, where we are told that Cain, the second man, "built a city, and called the name of the city after the name of his son Enoch." Whether this city consisted of a series of huts constructed of branches and twigs of trees, like the wigwags of the American Indians, or of tents made of the skins of animals, we know not. Vitruvius, a celebrated architect in the age of Augustus, considered that men took their idea of huts from birds' nests, and constructed them of a conic figure; but finding this form inconvenient on account of its inclined sides, gave them afterwards a cubical form. Four large upright beams, on which were placed four others in a horizontal position, he considers the groundwork of the building, the intervals being filled with branches interwoven and covered with clay.

Mankind improving in the art of building, methods were discovered to make their huts more durable, and even handsome as well as convenient; the roof was raised in order to throw off the rain, wood buildings were set aside, and stately edifices of stone erected. So extraordinary, however, did architecture seem at, or a short time before, the Christian era, that Strabo and Pausanias, in conformity to an ancient custom, ascribe every architectural work of extraordinary magnitude, and to which the exertions of human labour then appeared inadequate, to the Cyclopes; and hence was that style which is supposed to have preceded the invention of the orders, termed Cyclopean masonry or architecture. Dr. Clarke says, the Cyclopean Gallery of Tiryns exhibits lancet windows almost as ancient as the time of Abraham!

The general character of the Cyclopean style, says Mr. Foshbrooke, in his *Encyclopædia of Antiquities*, "is immense blocks without cement, and though the walls are now irregular, from the smaller stones which filled up the interstices having disappeared, yet they were once so compact as to seem an entire mass. The stones at the foundation were smaller than those above."

The Egyptians, who distinguished themselves very early in a knowledge of the arts, borrowed their style of architecture from India,* whose columns, as being excavated in rock, were massy, and it was consequently heavy, but astounding by its massy grandeur. The general style of the Egyptian architecture consists of enormous blocks, thick columns, walls narrowing upwards with immense impending cornices, but no pediments, because as it never rains in Egypt, there was no necessity for these or roofs. The towers are in the form of truncated pyramids; and the capitals of the columns are continuations of the shaft, carved with leaves, for the first improvement upon the Indian plan was taken from the vegetable kingdom. The earliest Egyptian column was simply a stalk of the lotus topped by its calyx; the base of the column was the foot of the same plant, at its issue from the root, the part nearest the shaft being a bundle of lotus stems. At Philæ, where occurs the finest style of the last era of Egyptian power, the capitals of the columns are the most beautiful, the most ingeniously composed, and the best executed of all those which Denon saw in Egypt. The lotus is the ornament which reigned everywhere; and it is interlaced with infinite grace in the volutes of the Ionic and Composite capitals.

It was observed by Strabo, that "the Egyptians worshipped every divinity but the Graces;" and this remark was certainly true as to their buildings, which were distinguished by forests of columns, avenues of sphinxes, lions, or rams, large moles with immense colossal statues in front of them, &c. The most surprising feature in the architecture of the Egyptians is its massy and gigantic character, of which the pyramids are existing proofs.

From the architecture of Egypt we proceed to that of Greece, where less wealth but more taste prevailed, and where, indeed, architecture, as a science, may be said to have been cradled.

since it is to the Greeks that we owe the true proportions of architecture as exemplified in the Doric, Ionic, and Corinthian orders, which we derive from them.

Vitruvius says that the rustic cabin served as a model among the Greeks for the most superb edifices which men ever built upon the surface of the earth; but architecture and other arts do not appear to have been born in Greece; they were brought thither from Egypt and India. It is therefore the East, and probably Asia on this side the Euphrates, which must be considered as the birth-place of that architecture which Greece brought to the highest perfection.

The monuments which yet remain of Greek architecture are not only splendid, but so numerous as to show that it must have been very widely diffused. These vast remains of splendour and power in the public buildings of the Greeks are not only to be found in the great ruling states, such as Athens, Corinth, and Syracuse, but in little obscure republics, as Pæstum, Segesta, and Selinus, whose names alone can be gleaned from history by the diligence of the antiquary; yet has the last and most obscure of these little states left buildings, which surpass in size, strength, and solidity of the construction, not only all that the great potentates of modern times have been able to accomplish, but all that was ever produced by the unlimited resources and despotisms of the Roman emperors. The portico of the great temple of Selinus, in Sicily, consisted of a double peristyle of eight columns in front and seventeen in depth, each of which was ten feet in diameter and fifty feet in height.

It was in Greece and Italy successively that architecture received the different modifications which in the end were denominated orders. The Etruscans and the Dorians departed the least from the ancient simplicity and heavy style. The Ionians introduced some elegancies and a species of effeminacy; and when Greece afterwards became the metropolis of the Fine Arts, architecture was more ornamented, and luxury even entered into it.

The Romans borrowed their architecture from the Greeks, but did not imitate them in the modesty of their private dwellings, or in their general taste and judgment. It was distinguished by grandeur and magnificence, monuments of which are still to be seen in the remains of their temples and public buildings; but although this art continued for two centuries almost at its highest perfection, it declined rapidly with the fall of the Roman empire.

When the country was entirely overrun by the Goths, the conquerors, insensible to the beauty and grandeur of the palaces and temples they had become possessed of, or too proud to learn from an enemy they had subdued, introduced their own method of building, which, like that of the Egyptians, was more remarkable for its magnitude than its regularity. It must, however, be acknowledged, that the Goths did in some degree profit by the models the Roman edifices presented, but owing to their want of genius, they copied the defects as often as they imitated its beauties. M.

The Romans bestowed much labour and expense upon the construction of their roads. They strengthened the ground by ramming it, laying it with flints, pebbles, or sand; and sometimes by a lining of masonry, rubbish, bricks, &c., bound together with mortar. In some parts of the Lyonnais clusters of flints have been discovered, cemented with lime, reaching ten or twelve feet deep, and making a mass as hard and compact as marble itself; and after resisting the injuries of time for 1,600 years, it is still scarcely penetrable by all the force of hammers, mattocks, &c. Sometimes their roads were paved with large square free-stones; such are the Appian and Flaminian ways.

During the gale of Wednesday forenoon about 20 feet of the graceful spire of St. Stephen's Church was blown down. The spire, which is about 90 feet in height, was completed with the exception of fixing a cross on the top, and the scaffolding, which had not been taken down, was borne by the wind against the newly laid stonework, which was seen to resist the pressure for some time, and which gave the workmen an opportunity of getting out of the way. At length it fell with a terrific crash through the roof of the church. No person was hurt.—*Hull Packet*.

HOUSE PAINTING.

UNDER the head of DECORATION, there is in the *Athenæum* a paper promising to be one of a series which every house painter would do well to provide himself with. The article in this week's number of that excellent journal is worth far beyond the price of the number to the painter alone, although it is professed therein to be written more for the employer, the owner of the house, than the decorator or builder. We shall not pursue any such course as a purely selfish feeling would suggest by transferring the whole article to our pages—justice to our contemporary demands otherwise—but we cannot resist, nor will we, extracting so much as follows below on the subject of want of taste in professors, as well as patrons, to which we earnestly beg to call the attention of our painter readers. We shall seize an early fitting occasion to have our say upon the subject, and meanwhile invite the active consideration of it by the many who have prepared their minds in small or large degree for the discussion of it. The *Athenæum* says:—

"The great majority of domestic apartments at the present time, even in houses of the first class, have scarcely any marked features of decoration about them which indicate taste or knowledge. They present a monotonous sameness and deficiency of any principles of taste,—the varieties of character which occur, from time to time, being regulated only by the caprices of fashion. Sometimes every room you enter is of one colour. In one of the most splendid of modern houses in the metropolis—we mean in Sutherland House—we have been especially struck with the monotony of white and profuse gilding, in the forms of the Louis Quinze period. Sometimes the rage is for warm shades of colouring, at others for cold, though the preponderating taste seems to take refuge in dull, characterless, neutral colouring. 'People of refinement' (to quote Goethe again) 'have a disinclination to colours. This may be owing partly to weakness of sight, partly to the uncertainty of taste, which readily takes refuge in absolute negation.' During one season salmon colour, as it is called, reigned supreme; then sage colour succeeded salmon; drab follows sage or slate; and then all varieties of crimson put out the drabs. Each is employed in its turn, without the slightest reference to any of the questions which should determine its appropriateness or otherwise. It is the same with ornamental patterns. One year you find every drawing-room papered with patterns of flowers, another year scrolls will be all the rage. One year small patterns are correct—in the following large only can be tolerated; and whilst each fashion reigned, each was exclusively used. Crimson walls in south aspects, leaden-coloured ones in north aspects. Small patterns applied to rooms large and small, and large patterns to rooms small and large. A like absence of any recognized principles is seen in the carpets and hangings. When crimson walls were oftenest seen, then was the call for drab and light-coloured carpets. More by luck than any thing else, it is now the fashion to have the carpets darker in colour than the walls. We may often enter a room which, preserving something of each shifting fashion of the few past years, exhibits a violation of every principle of harmonious decoration. Walls of a hot and positive colour in a room with a southern aspect—blue ceilings fuller of colour than the drab carpets, with curtains and hangings of scarlet,—and perchance a huge sofa covered with black horse-hair. Not a single thing appropriate or consistent, but the whole a medley of unsuitableness."

This is well sustained and illustrated throughout the article, and a comprehensive handling of the whole question is in promise. A few more remarks in the body of the paper present themselves as being worthy of especial extract for their clearness and simplicity. The young student decorator will do well just to commit it to mind as a sort of catechetical rule, or summary of rules, glossarial as well.

"It may not, perhaps, be unnecessary to put in an untechnical form a meaning of the terms *warm* and *cold* colouring, which may be at once understood. Some colours are called primary, some secondary, some tertiary. Every reader, we assume, knows a blue from a red, red from green, yellow from purple,

* Some idea may be formed of the vast grandeur of the architecture of India, when we state that the dwellings and temples excavated out of a mountain of granite at Ellora, extend upwards of a mile and a quarter in length.

and the most obvious and common distinctions of colouring. Without entering into any theory on the subject, we say that blue, red, and yellow are *primitive* colours—that is, that they are self-created colours, because the compounding together of no other colours will produce them. Green, orange, and purple are secondary colours, and result from the admixture of the three primitive colours. The tertiary mixtures, such as olive, brown, slate, are formed by the union of the secondary colours themselves, or the colours which make them, in the same proportions. The two colours which represent the extremes of heat and cold are *red and blue*. Yellow stands midway between them, and by itself is neither positively warm nor cold, though it rather more inclines to warmth than coldness, as we see illustrated in the green colours. As greens contain blue, they are cold-looking, as yellow warm. Mixed colours, in proportion as they contain red, incline to warmth—as they contain blue, to coldness."

With this and our repeated recommendation to the reading, we conclude for the present, awaiting anxiously, however, the development of that frame of mind in our circle of the craft which predisposes to a profitable study.

CURVES OF FANCY EQUATED.

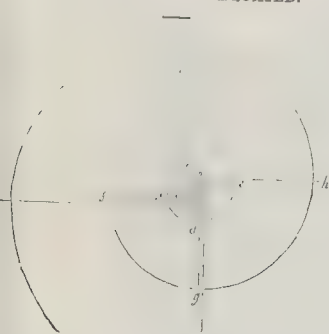


Fig. 2, Problem 7.

PROBLEM VII.—With compasses to describe spirals from centres, variable under a given law.

First, let a trace 1, 2, 3, 4, 5, 6, &c., be drawn round any regular polygon; and produce the lines 1, 2, 3, 4, &c.

With 2 as centre, and distance 2 1, describe the arc 1 a; with 3 as centre, and distance 3 a, describe the arc a b; and with 4 as centre, and distance 4 b, describe the arc b c; describe c d, with 5 as centre, and in this manner the spiral 1, a, b, c, d, &c., may be traced.

MADRID AS A CITY.—I have visited most of the principal capitals of the world; but upon the whole, none has ever so interested me as this city of Madrid, in which I now found myself. I will not dwell upon its streets, its edifices, its public squares, its fountains, though some of these are remarkable enough; but Petersburg has finer streets, Paris and Edinburgh more stately edifices, London far nobler squares, whilst Shiraz can boast of more costly fountains, though not cooler waters, than the population! Within a mud-wall scarcely a league and a half in circuit, are contained two hundred thousand human beings, certainly forming the most extraordinary vital mass to be found in the entire world; and be it always remembered this mass is strictly Spanish. The population of Constantinople is extraordinary enough, but to form it twenty nations have contributed—Greeks, Armenians, Persians, Poles, Jews (the latter, by the way, of Spanish origin, and speaking among themselves the old Spanish language); but the huge population of Madrid, with the exception of a sprinkling of foreigners, chiefly French tailors, glove-makers, and perruquiers, is strictly Spanish, though considerable portions are not natives of the place. There are no colonies of Germans, as at St. Petersburg; no English factories, as at Lisbon; no multitudes of insolent Yankies lounging through the streets, as at the Havanna, with an air which we use to take it; but a population which, however large and wild, and composed of various elements, is Spanish, and will remain so as long as the city itself shall exist.—*Barrow's The Bible Spain.*

OPENING OF TUMULI IN CLEVELAND.

An interesting event has just "come off" on the opening and exploring of tumuli at "Eaton Nab," in Cleveland. The working in the first of the two was interrupted by a little perfidiousness in the progress; but the eastern tumulus, distant from the other about forty yards, proved a rich reward to the adventurers. "It was found to differ widely from the former one in the materials of which it was composed, consisting chiefly of white loamy soil. After three hours' labour, they approached its centre, and in despair began to undermine the earth before they abandoned their researches, when one of the workmen struck his spade at what he considered to be a stone, and on repeating his ill-directed blow, he exclaimed, "There's a bit a summit wi' sum carved work on't," and was about to demolish the precious relic, when Mr. J. W. Ord, by whose invitation the party had assembled themselves, immediately arrested the arm of the destroyer. He then took the place of the workman, and with a small knife carefully cut away the soil, and on removing a flat stone which was placed on it, presented to the company a splendid Roman urn, containing a great quantity of human bones, several portions of the skull, small bones, and teeth; the latter were in excellent preservation, after being imbedded in the earth upwards of 2,000 years. It was in height about 16 inches by 12 inches in diameter, composed of burnt clay, upwards of half an inch in thickness, and in colour resembling a common tile; it had a broad rim round the top, and its sides were marked in a curious manner by the point of some sharp instrument. On the under part of the stone which covered the urn was a rude device representing what was considered to be a shield of grotesque character. It may be added that in turning over the mound innumerable small heaps of burnt wood, or charcoal, which, no doubt, had formed funeral piles for consuming the remains of the dead, were thrown up. Some fifty yards due north of the tumuli is what has hitherto been considered a Saxon encampment, of a semicircular form and of considerable extent. The result of these investigations proves, that though the Saxons may have occupied this position, the Romans had also posted themselves at, or at no great distance from this place of rendezvous."—*Great Northern Advertiser.*

CHIMNEYS.

It is not easy to determine the precise period when chimneys first came into use. The writers of the fourteenth century seem either to have been unacquainted with them, or to have considered them as the newest invention of luxury. The curfew-bell of the English, and the *courrefeu* of the French, seem to intimate that the people made fires in their houses in a hole or pit in the centre of the floor, under an opening formed in the roof; and when the fire was burnt out, or the family went to bed at night, the hole was shut by a cover of wood. In the year 1200, chimneys were scarcely known in England; one only was allowed in a religious house, one in a manor-house, and one in the great hall of a castle or lord's house; but in other houses the smoke found its way out as it could. In Henry the Eighth's reign the University at Oxford had no fire allowed; for it is mentioned, that after the students had supped, having no fire in winter, they were obliged to take a good run for half an hour, to get heat in their feet before they retired to bed. Hollinshed, in the reign of Elizabeth, describes the rudeness of the preceding generation in the arts of life: there were, says he, very few chimneys; even in capital towns the fire was laid to the wall, and the smoke issued out at the roof, door, or window. The houses were wattled and plastered over with clay, and all the furniture and utensils were of wood. In the year 1689, a tax of two shillings was laid on chimneys.

DAMP IN WALLS.—An essay and efficacious plan for preventing the effect of damp walls upon paper-hangings has been used with great success. It consists of lining the wall, or the damp part of it, with sheet lead, rolled very thin; this is fastened up with small copper nails, which not being subject to rust, are very durable, and the walls may be immediately covered with the paper.

THE LAKE OF MERIS.

A FRENCH engineer, in the service of the Pacha of Egypt, has to all appearance succeeded in identifying the site of this famous lake. The father of history, Herodotus, had been suspected of much exaggeration in reference to this extraordinary work of art, and it does seem probable he has been misread or misled in assigning to it a boundary or embankment of from 300 to 400 miles circuit. It would appear, however, that the present discovery would justify the assumption of its having been at least 70 miles long and 5 or 6 miles broad!

M. Linant, the engineer, has traced out (being led to it by an accidental discovery) the great dam of this "monster" reservoir; it inclosed an area of 150 square miles, and had a base of about 200 feet. Herodotus stated the lake to have been 300 feet deep, and to have had two pyramids standing within its ocean, and washed by its waters. At present the evidence makes it an elevation of not more than 30 feet of the dam above the exterior, and only 7 feet in the interior, but this last is to be accounted for by the deposit of ages from the waters of the lake. It will be understood that there is no water now lying in the tract; but three grand steps or platforms in the valley of Fayûm, six miles from the Nile, are the relics of this once gigantic labour of the marvellous people of Egypt.

ALTHOUGH something must be put to the account of a rather vain passion of eulogy in the following lines, yet, as we are not too frequently treated to the rhymester's flights in the survey of architecture,—perhaps our extract from the Scottish Muse may obtain a tolerant reception.

SONG—THE GEM O' EDINA.

INScribed TO MR. G. KEMP, ARCHITECT FOR THE SCOTT MONUMENT.

By Alex. M'Laggan.

Hail Scotland! my honour'd, my auld-fairant mither!

I ken you rejoice when true hearts meet thegither; And there's nae son o' thine this night, I'll be sworn, Whase saul does nae glow as he tooms his fu' horn, When the proud toast is "Kemp!" for the glorious gem.

Which his genius has set in thy chaste diadem! Lo! there's grandeur, and beauty, and poetry blent, In the gem o' Edina—the Scott Monument!

When with rapture we gaze on its beauties so rare, We but think that the name o' the Graces is there! Whilst fond fancy fashions the fabric so fair To a grand epic read'd in the sweet sunny air, We are proud of thee, Kemp, and long may thy name

Flourish green 'mang the leaves o' the garland o' Fame.

Then hurrah for the grandeur and beauty rich blent In the gem o' Edina—the Scott Monument! Though Fortune for favours could ne'er claim thy thanks,

More glory is thine that you rose from the ranks, And the light o' thy genius out-dazzles by far A' the gowd o' the "Garter" or blaze o' the "Star."

Lo! the eagle will soar, and in Heaven be heard Albeit the bare rock be the field of the bird. Then hurrah for the grandeur and beauty that's blent

In the gem o' Edina—the Scott Monument!

My laigh-flecin' Muse aft rows in a pet That the feck o' mankind are a fause flickle set, Whilst her rustic harp whispers, "Ye rouse up sic things,

Ye but anger the gods, man, an' spoil a' my strings."

But oh! when she meets wi' blythe Friendship and thee,

How the fire o' her saul lights up life in her ee, As proudly she cheers, at the top o' her bent, "The gem o' Edina—the Scott Monument!"

Auld Reekie may weel boast her palaces braw, But this last happy hit puts the cap-stane on a', Haith! ye coxcombs o' art, baith in canvas and stane.

A' ye leurn'd in nonsense, ill-willie and vain, Banish pride and conceit, before ye attempt To cope wi' the worth or the genius o' Kemp! Then wi' three hearty cheers let the welkin be rent To the gem o' Edina—the Scott Monument!

CHELSTENHAM.—A new Baptist Chapel to accommodate 2,000 persons has been just commenced here. Mrs. Gardner, the lady of the manor, has given 1,000*l.* towards it.



KING'S COLLEGE CHAPEL, CAMBRIDGE.

THIS magnificent structure has always been considered as a perfect specimen of Gothic architecture. When viewed from the outside, the massive stone with which it is composed, and the immense buttresses that support it, raise an idea of the most uncommon solidity; but this dwells only for a short time on the mind; the height and magnitude of the building, its open-worked battlements, and finely-proportioned pinnacles and towers, exalt the fleeting emotions that arise from the consideration of its strength, into the sensations that emanate from the contemplation of its sublimity and grandeur. The interior view is yet more impressive. The vast arched roof, unsustained by a single pillar, with its voluminous stones, displaying all the elegance of fan-work, and seeming to hang in air, as if "art had taught them to forget nature, and weaned them of their tendency to gravitate," at once astonishes and confounds.

The extreme length of this superb edifice is 316 feet, the breadth 84 feet, the height from the ground to the summit of the battlements 90 feet, to the top of the pinnacle somewhat more than 101, and to the summit of the corner towers 146 feet 6 inches. The space enclosed by the walls is 291 feet in length, 78 feet in height, and 45 feet 6 inches in breadth.

When this fabric was commenced by King Henry the Sixth, he made the Provost and Fellows a perpetual grant of a stone quarry at Heselwode, in Yorkshire, and likewise vested a part of his Duchy of Lancaster in feoffees, for carrying on and completing the

building. How far it was raised during the life of this prince is not accurately known, but it is probable that it was carried no higher than where the white stone reaches, which is pretty high at the east end; thence it recedes gradually to the west. In the year 1460 an entire stop was put to the work, for Edward the Fourth confiscated the Duchy of Lancaster, as well as all the other revenues of the College, regranting, however, a sufficient sum for the maintenance of the Provost and scholars, but nothing towards the completion of the building.

After an interruption of sixteen years, the work was resumed through the interest of Dr. Field, Warden of Winchester College, and the Provost of King's. In the four years following, 1,296*l.* 1*s.* 8*d.* was expended on the chapel, of which 1,000*l.* was given by the king, and 140*l.* by Thomas de Rotherham, Bishop of Lincoln. From June, 1483, till the end of March in the ensuing year, the business was again at a stand; but Richard the Third at that time appointed Thomas Cliff overseer of the works, who continued so till December; but nothing material appears to have been done, the expenses in the nine months only amounting to 746*l.* 10*s.* 9*d.*, of which sum Richard is supposed to have given 700*l.*

From this period the work was suspended till May, 1508, when it was re-commenced by Henry VII. The king died in the following year, but left directions to complete the chapel, and invested his executors with sufficient authority to defray all necessary expenses. The building from this time advanced with ra-

pidity, and the case of the chapel was finished in July, 1515. The money for defraying the charges appears to have been delivered to the Provost and scholars by the executors in sums of 5,000*l.* at a time.

The high honour of being the architect of this structure is generally conferred on Mr. Cloos, of whom scarcely any thing appears to be known but his name, or his son Nicholas Cloos, one of the first fellows of this college, and afterwards Bishop of Lichfield. It is probable that both these persons were concerned in it, but more particularly the latter; as a manuscript quoted by Mr. Walpole mentions Bishop Cloos as "a person in whose capacity King Henry the Sixth had such confidence, that he made him overseer and manager of all his intended buildings and designs for this college." Allowing full credit to this authority, it will not, in our opinion, warrant the architectural merit of the edifice being exclusively attached to the Cloos.

With the government of Henry, his patronage probably terminated; we have, therefore, no reason to imagine that the bishop was continued in his office of overseer by Henry's successors; and if he was not, he cannot be entitled to more praise than that of laying the foundation, and raising a portion of the walls.

About the middle of the chapel is a wooden screen and organ-loft very curiously carved. This was erected in the year 1534, when Anna Boleyn was queen to Henry the Eighth. The west side is ornamented with several lover's knots; and a panel near the wall displays the

arms of Boleyn, displayed with those of the king. Over the screen is a fine-toned organ.

This partition separates the ante-chapel from the choir. The walls on the inside of the former are ornamented with carved stone of excellent workmanship, representing the arms of the houses of York and Lancaster. The view from the screen at the entrance of the choir, towards the altar, has much grandeur. On each side are two rows of stalls of carved wood. Behind the Provost's stall is St. George and the Dragon, with other carvings, exceedingly well executed. The choir is paved with marble from the bottom of the stalls.

The roof assumes the form of the Gothic arch, but is somewhat flattened at the centre, wherein, at equal distances, ponderous stones are fixed perpendicularly, and appear to be designed as key-stones, more effectually to secure the division of the roof, that is sustained on the nearest buttresses. Each of these stones is reported to weigh a ton, and to be more than a yard in thickness; though the under parts, being carved with roses and port-cullises, in alternate succession, correspond with the other portion of the building in exciting those ideas of magical airiness to which we have before alluded.

The disposition of the materials of this roof, and the ingenuity displayed in its construction, may be justly classed with the most remarkable efforts of architectural skill. On each side of the chapel are eleven buttresses; and at each corner an octagon tower, terminating in a dome. The roof is divided into twelve parts, the separations being made by the eleven principal ribs which correspond with the buttresses. In the centre of each of these divisions is the key-stone mentioned above, which though apparently necessary to preserve the vault from falling, may be actually removed without endangering it. The walls likewise, between each buttress, at the sides, and between tower and tower, at the ends of the chapel, may be taken away with the greatest safety, the whole weight of the roof being so supported by the buttresses and towers, that if all the other parts were destroyed, the skeleton of the building would remain as firm as it is at present. These contrivances exemplify the cause of the admiration of Sir Christopher Wren, who, according to the tradition transcribed in Walpole's "Anecdotes of Painting," went once a year to survey the roof of the Chapel of King's College, and said, that if any man would shew him where to place the first stone, he would engage to build another." Over the inner or stone roof, is another of wood covered with lead. There is sufficient space between the roofs for a man to walk upright.

These are not the only circumstances that have promoted the fame of this chapel; an additional cause of its celebrity may be found in the exquisite beauty of its painted windows, which are in the Gothic form and each of them nearly 50 feet high. The side windows are separated by mullions into five lights; these are subdivided into upper and lower compartments by a stone transom. The east and west windows differ from all the others; the latter is unadorned, and appears to have been left plain, to give light to the chapel. The former is embellished with paintings of almost inconceivable beauty.

The great stone roof of the chapel, the finials of twenty-one buttresses, the towers, the stone roofs of the two porches, and sixteen small chapels (seven of which are annexed to the body, and nine to the choir), and the battlements of all the small chapels and porches, were set up, by contract with the master-mason, at the following sums:—

The great stone roof of the chapel, divided into 12 arches, to be built of Weldon stone, according to a plan signed by the executors of Henry the Seventh, and set up within three years, at 100*l.* for each severy or arch; 1,200*l.*

The twenty-two finials, to be built of Weldon stone, according to plans made for the same, and according to one other finial (or pinnacle) then set up, only somewhat larger, at 6*l.* 13*s.* 4*d.* each, the College allowing 4*l.* 5*s.* further for the iron; 144*l.* 5*s.*

For one tower, to be built of Weldon stone, according to a plan made for the same; 100*l.*

For three towers, according to the same plan at 100*l.* each; 300*l.*

For the stone roofs of two porches, to be built of Hampole stone, at 25*l.* each; 50*l.*

For the stone roofs of seven chapels in the body of the church, to be built of Weldon stone, at 20*l.* each; 140*l.*

For the battlements of eighteen chapels and two porches, at 5*l.* each; 100*l.*

The principal stone work of the chapel being completed, the next object was to glaze the windows. To have these executed with

painted glass, in a style corresponding to the other parts of the building, the Provost, &c. agree with different glaziers to fit up, "with good, c.ene, sure, and perfyte glasse, and orient colours and imagery," &c. twenty-two of the upper windows of this chapel: these were to be finished in a workman-like and substantial style, within five years, the glass to be provided at 16*d.* a foot, and the lead at 2*d.* a foot.



The Arch of Titus.

TRIUMPHAL ARCHES.

In the triumphal arch we have a feature in architecture purely Roman, to which sculpture added graces and embellishments, in a kind of panoramic record of remarkable events in the progress of that enterprising and magnificent people, towards attainment of the dominion of the world. Roman power and art! how immense were their developments when objects deemed worthy of achievement presented themselves; and how perfectly in keeping with their ideas of permanence was every work of great or public interest. The example presented to the reader was erected about the 73rd year of the Christian era, and has, consequently, endured nearly 1800 years!

No traces of any similarity to this mode of commemoration exists in Greek buildings or histories; that nation, or aggregate of independent states, arrived at a refinement never equalled by the Romans, and furnish, as well, innumerable instances of patriotism and devotion, yet less capable of the concentration that produced invincibility. The military arm of Rome never relaxed, but in its onward career was ever striking, or prepared to strike, until it had prostrated even the semblance of resistance; hence the institution of triumphs, as exciting emulation, and holding out an ultimate reward that might satisfy the cravings of ambition. In the early periods of Roman aggression, successful military exploits were celebrated by a pageant in which a mere temporary arch served the purpose of directing attention to the principal incidents of the scene; upon it were hung the spoils wrested from the vanquished, and as the victor passed beneath he was greeted with music and acclamations, and had the emblematic laurel placed on his brow. Repeated observances of this kind doubtless originated the idea of durable structures, suited to increasing wealth, military renown, and, above all, that peculiar combination of individual and national pride, of which no question of cost was suffered to bar the gratification.

The memorials of this class extant consist of a square mass originally crowned by an elevated pediment, and presenting one, two, or three arches. That before us, and those of Trajan at Ancona and Benevento, have a single arch; there is an example of the double arch at Verona; and those of Septimius Severus, and Constantine, at Rome, have a

large central arch, with smaller ones at each side. In speaking of the arch of Titus it may be well to note, that though extremely beautiful in proportions and execution, it is the least elaborate of the kind. This may have been caused by the parsimony of Vespasian, father of Titus, who, with all his virtues, was tainted with this failing; the former, a man of mean origin, but of indomitable bravery and exemplary conduct, was raised to the imperial dignity by the unanimous voice of the Roman legions serving in the East, among which the latter also held high military rank; and the prudent monarch, after a short interval, associated Titus to equal title and power with himself, thus securing the allegiance of the more influential portion of the army, by the presence of an imperial leader; and it is recorded to the honour of this good and grateful son, that he ever approved himself the humble and faithful minister of so indulgent a father; under the mild administration of Titus, the Roman world enjoyed a transient felicity, and his beloved memory served to protect, above fifteen years, the vices of his brother and successor Domitian, from the condemnation they eventually provoked. The structure itself is both the oldest and most interesting of its kind, as referring to a memorable event in the history of the world, the capture of Jerusalem, and sweeping away, together, of the locality and pristine formulae of the high altar of Judaism. Such of our readers who may have an opportunity of consulting the translation at large of *Josephus* (2 vols. fol. 1737, by Whiston) will appreciate the satisfaction arising from corroboration of many exis of Scripture in the circumstances narrated; the traditional statements of the Jewish writer have, indeed, in some instances been impugned, but to the taking and sack of Jerusalem he was an eye-witness; and subsequently to the triumph of which this arch is the memorial. The procession, are told, exhibited seven hundred captives, selected on account of their superior stature and personal comeliness; the *spolia optima* consisted of the golden table of shew bread, seven branched candlesticks, and sacred vessels of the Mosaic ritual, and an infinity of precious articles collected in the East. One human victim was offered on this occasion, Simon, the son of Gioras, a Jewish general, who had rendered himself obnoxious by protecting the siege, being slain at the temple of

Jupiter Capitolinus. The arch was afterwards built in Via Sacra, by the senate and people of Rome, in honour of the Emperors Vespasian and Titus, to perpetuate the victories they had gained, and particularly for the taking of Jerusalem, commemorated by two bas-reliefs on the sides of the passage under the arch, in one of which is represented the emperor in a chariot drawn by four horses abreast, attended by senators, all crowned with laurel; the other represents the triumphal procession wherein are carried the utensils and vessels of the temple previously spoken of. The edifice is entirely of white marble, and the courses are laid dry, without mortar. The base or pedestal of this monument is in height 8 feet 3 inches $\frac{1}{2}$; the column, including the capital, base, and socle under it, 20 feet 5 inches $\frac{1}{2}$; and the entablature 4 feet 11 inches $\frac{1}{2}$. The attic bears the inscription, *SENATUS POPULVS QVE ROMANVS DIVO TITO DIVI VESPASIANI VESPASIANO AVGVSTO*, the letters of which are cut deeper into the marble at some places than in others, which induces an opinion that they were originally of bronze. Over the arch there is a little chamber vaulted in the contrary way to the arch, probably constructed only to lighten the mass of the building.

Of modern triumphal arches, that called L'Arc de Triomphe de L'Etoile, at Paris, is the most imposing. It was designed by the Emperor Napoleon as a monument to the glory of the French armies; the first stone was laid on his birth-day, August 5th, 1806, but nearly thirty years elapsed before it was entirely thrown open to public view. The bas-reliefs adorning this structure are most elaborate; in fact, a sculptured history of the great events that followed the revolution, and which, together with minor accessories, are appropriately summed up in the brief designation applied to the four most striking groups, viz. *le depart* (1792), *le triomphe* (1810), *la resistance* (1814), *la paix* (1815). Thirty shields bear inscriptions of as many victories; and the names of three hundred and eighty-four veterans of rank are inscribed in four groups of six columns each. The dimensions of this arch greatly exceed those of the Roman period, its height being 161 feet, breadth 146 feet, thickness 72 feet; height of the grand archway 67 feet, and of the lateral arches 60 feet. The cost is said to have approached 40,000*l*; and it is remarkable that the work was carried on in something like equal portions under the empire, the restoration, and Louis Philippe.

When, after this, we look at our attempts at commemoration of the military prowess of Britain, they absolutely sink to insignificance; structures of comparatively small dimensions, inappropriately placed, and whatever of dignity may have been purposed, lessened by the bristling spear-heads of an iron fence, enclosing a few stunted evergreens. Built, too, of a material extremely friable in its nature, and already exhibiting symptoms of decay in the better efforts of the sculptor. Strange parsimony in a people proverbial for wealth, and lavish in bestowing it upon the transitory pageants of courts, and the more than luxurious support of their appendages!

GOVERNMENT EDUCATION.—The Privy Council have ordered the plans of the first Industrial School under the new system of education to be published in their forthcoming report. This is to be erected at Kirkdale, near Liverpool, from the designs of Messrs. Lockwood and Allam, and is for the support and education of 1,200 children divided into three classes—infants, boys, and girls. The plans are remarkable for simplicity of arrangement and capabilities for the master's and matron's supervision of the charges to be intrusted to them. Well ventilated workshops for the teaching of carpentering, tailoring, shoe-making, &c., are found upon the male side; and upon the female side are those of laundry work, straw plating, &c. Some notion may be formed of the extent of this edifice, by mentioning that the space occupied by the masonry alone will cover upwards of six acres of land. An infirmary, detached from the main building, is provided for all the diseases prevalent amongst the juvenile poor. The style is Tudor Gothic, executed in red brick and stone dressing. The site is on an open rising ground of considerable altitude, commanding the mouth of the Mersey;

Literature.

Companion to the Almanac, 1844. Charles Knight & Co.

It is not unlike a work of supererogation to speak in praise of a number of this series; we have now for many years been greeted on the advent of the new year with the "Companion to the Almanac of the Society for the Diffusion of Useful Knowledge;" this last, to our mind, is one of the best. It contains, as usual, a mass of information, the cream of volumes; but it claims our attention particularly for its bearing upon the Building Art; it goes to such an extent, in fact, in this respect, as almost to deserve the title of *The Builders' Annual*—of course, when we speak of the builders, we mean, as we have frequently explained, the architect, engineer, &c., as well as the constructor and operator. The fifth chapter is of sixteen pages, a complete treatise on "PAVEMENTS FOR TOWNS;" it is calculated to answer the purpose of the inquirer, even for practical ends, in many respects as well as Sir Henry Parnell's more bulky treatise, and it goes much farther, by bringing the information up to the present period, including, of course, roads of "wood, bitumen, and dressed granite." We will venture to say that many persons taking this essay in hand will be enabled to make good show of experience, and acquit themselves most creditably in road making; it might do very well, indeed, to be extracted and pass current under the title of the *Road Makers' Manual*.

In support of our opinion thus expressed, we have only to enumerate the heads of the paragraphs in the essay. It commences with one in reference to the late pavements of London and other large towns, which is also curious in reference to the condition of London three or four centuries back; it says—

"There does not appear to be any precise period named when London first became paved, for, like most improvements, it has been developed gradually. We have a kind of negative proof that Cheapside had merely a soft earthen roadway in early times; for the chroniclers relate that on one occasion, when Bow Church was unroofed by a violent storm of wind, four beams, each twenty-six feet in length, sank so deep into the ground that scarcely four feet appeared above the surface. Anderson, quoting the words of an earlier writer, states that in the year 1417, 'the highway named Holbourne, in London, was so deep and miry, that many perils and hazards were thereby occasioned, as well to the king's carriages passing that way as to those of his subjects; he therefore ordained two vessels, each of twenty tons burden, to be employed at his expense, for bringing stones for paving and mending the same.' Anderson also speaks of the first paving of one particular part of the metropolis in the time of Henry VIII.; of another in 1544; of others in 1571 and 1605; and of Smithfield in 1614."

The various modes of pavement are detailed and commented on, ascribing them to their authors, and giving the accompaniment, in important cases, of a careful estimate. Pebble paving, rubble paving, granite squares, granite tramways, and horse tracks, the different foundations and different structures of roads, all relating to stone pavements, occupy one section of the chapter. Then comes the mention of Seyssel and Scotch asphalt, the Bastenne and Parisian bitumen, accounting as to the ingredients, the composition, the mode of laying down, places where laid, result of trials and the like; and after this follows a notice of several new plans for road making that appear not to have been carried further than the Patent Office, or publication.

It is calculated to astonish on reading the account of the multitudinous traffic of carriages in the London streets, out of which arises the natural inference, how important it is to have the best system of paving in these streets. A total of upwards of 11,000 vehicles in twelve hours have been noted to pass and repass in King William-street, but since that account was taken it has been greatly on the increase. Hence has arisen a feeling among vestry and paving-boards of a desire to make selection of the best plan. Companies have been formed not only, as this paper observes, to manufacture and lay down pavements, but associations for the purpose of directing and

promoting the application of the best plan. We may instance as at the head of this class, "The Marylebone Practical and Scientific Association for promotion of Improved Street Paving."

A lengthened notice is, as might be expected, given of wood paving. All the important plans are spoken of, and the companies, and a descriptive *route* is supplied of the principal London streets, and the peculiar specimens of paving laid down and in trial in the respective districts.

Whitworth's Street Sweeping Machine takes its share of notice, and is followed by a reference to the general character of pavements in the provinces, concluding with that of the German Continent, of Paris, and even America.

If we dwell at length on a notice which is usually dismissed in half a dozen lines, it must be understood as arising out of the pleasure we experience in the perusal of the contents of this work. But we must not stand longer at the threshold of temptation. Chapters ten and eleven are devoted to the railways of Great Britain and America. The first refers to the Acts for new lines passed in the last Session of Parliament—gives an abstract of the Report of the Board of Enquiry—notifies the lines completed and opened during the last year, and describes the principal with some minuteness. The second is accompanied by a map of the railroads in the United States, and runs to a length which the interest of the subject both demands and justifies.

But it is with the seventeenth chapter we have principally to do, although we may dismiss it with fewest words: it is not to be transcribed nor abridged for any purpose within our province. Under the head of public improvements we have reference made to most of the important buildings carrying on during the last year, and some excellent wood engravings aid in the illustration. Of the number of cuts we give the following enumeration:—

1. Taylor's Institute, Oxford.
2. Cheltenham Proprietary School.
- 3 and 4. Lincoln's-Inn-Buildings, plan and elevation.
5. London Terminus. Dover, Brighton, and Croydon Railway.
6. Glasgow Corn-Exchange.

But many other works besides are noticed, and it is needless for us to add that the usual condensed mass of information, select and varied on all matters of public polity for the past year, chronicled and tabled out, will be found, as has been found in the pages of this superior annual heretofore.

Wood Pavement, its Origin and Progress.—By ALEX. S. BLACKIE, F.S.A. London. Sherwood, & Co.

This is a pamphlet of considerable length, devoted, we should say, more to an exposition of the peculiar claims of Mr. Stead, with whom the author is in some way associated, and in vindication of that gentleman's merits as an original patentee, than to a merely disinterested view of the subject, as might be inferred from the heading. Not that we say that it is not right it should be so; nor, on the other hand, that it is on this account less likely to be what it purports to be, for it would be hardly possible to treat Mr. Stead's case fully and fairly without bringing the whole question tolerably well under review; the best evidence in support of Mr. Stead's case may be at the same time the best evidence in support of wood paving; and we are bound to say that Mr. Blackie, in the discharge of his task as an advocate (assuming him to be such), has collected a great deal of valuable matter in the shape of estimates and reports, and furnished a history, or the elements of one, for wood paving practitioners up to this period.

Building Societies.—*Proceedings in the Court of Common Sense, in the case of Shareholders v. Directors.*—London, Simpkin & Marshall.

Our readers will recollect that in an early stage of our career we called attention to the important question of building societies, and threw out a word of caution, as it seemed to us necessary, to guard against the reckless pursuit

these sometimes too tempting speculations. It is predicted that which has come to pass as the wide extension of these societies, and only solicitude has been that the safety-valve of a manly prudence, working pretty well under the gauge of the Parliamentary statute, should regulate these proceedings. We hoped that the LAW as a guide, or constraint, and the natural spirit of men associated in a sense of provident amassings, excess, or, in other words, *abuse*, would be suppressed, and would result. Neither are we prepared to say that such has not or may not be the case; for, though the perusal of the pamphlet before might disturb the ground of such hope, yet we

are not either to take without caution the statements, highly coloured as they are, of one who seems to be in danger of *reasoning* himself into the being an adversary of what under other circumstances he might have staunchly upheld; neither, on the other hand, are we to say that his objections are the less entitled to the gravest consideration. It must be borne in mind, however, that there is nothing so good in its character and constitution, that it shall be free from abuse, and that to argue through all the round of the possibilities of perverse working and misdirection, may be a fault of over-caution. Nevertheless, this is a book well worth the reading, and it should be read carefully—the *proceedings in the court* first, and

then the introduction. There is much of what we would call rough benevolence enunciated in this tract, and it leads to this,—1st, that we insist upon an adherence to the original and the truly valuable aims of building societies,—and 2ndly, that we recollect that they were instituted for the benefit of the industrious and saving, who should aspire to the possession of their own little dwelling and freehold, and not for money-lenders and crafty speculators. This ingenious, though somewhat hard-strained handling of the case between capital and labour will have its advantages for most men's reading; but, as we have said, it must be read with allowances. No man, however, ought to enter a building society without reading it.



Front Elevation.

Side Elevation.

PLAN FOR A COTTAGE.

TO THE EDITOR OF THE BUILDER.

—Seeing in THE BUILDER some time inquiry for cottage plans, if you think accompanying plan and elevation are what your correspondent "B. H." asks for, I am at your service; the description of the plan. As a chamber-plan would only take space, without being of much service, I have not drawn it out. I will merely say that the heating apparatus is marked out somewhat similar to the plan laid down by you in

The room over the scullery for children may be entered either from the front or back bedroom.

I am, Sir, yours respectfully.

T. H. C.

REFERENCES.

1. Entrance and Staircase.
2. Parlour.
3. Kitchen.
4. Scullery.
5. Sink.
6. Water Cistern.
7. Boiler.
8. Firegrate.
9. Oven.
10. Cupboard.



Ground Plan.

FELL'S PATENT SCAFFOLDING.

—We have been greatly pleased with a visit to a house now erecting in Blackmanthorpe, where a scaffold is set up in an ingenious and economical principle, on of Mr. William Buckwell, engineer and builder. It fell to our lot last week to examine the scaffolding of the Nelson and to comment upon its simplicity and, particularly in that respect which relates to the use of timber scantlings, balks, and any material depreciation of value. It is the same ground that Mr. Buckwell's scaffolding attracts attention; but it is doubly commendable for the quality of economical application, not, however, in the use of scantlings, but in the use of boards. The very boards or battens are applied, and great strength is obtained by the mode of joining them together; the framing of rails and stiles is most carefully morticed and tenoned, so to

speak, without cutting or incisions of any kind; the poles, in fact, consist of fine battens braced or collared together by new light iron straps, and the ledgers of one battin set on edge resting between those of the uprights; the boards are seasoned, and being so very light and portable, constitute the *matériel* of a scaffold, every piece of which a mere boy might handle and as easily construct; no hoisting and heaving of heavy poles, no cords and wedging, no waste, and no stock of scaffolding. But we shall defer to give a further description until we procure a drawing and detailed particulars.

SOCIETY OF ARTS.

Nov. 22.—METALLIC CEMENT.—The secretary read a paper by Mr. H. K. Dyer, "On the Metallic Sand."—This sand is produced by grinding copper slag by means of powerful machinery, and consists of iron, zinc, arsenic, and silica, the iron predominating; the slag is procured in abundance in Swansea. In che-

mical analysis it is very similar to the pozzolano, and in point of durability is found to be equal to the latter. With blue lias lime, which is used for hydraulic works, the metallic sand readily enters into combination, and these having been used together for external works, exposed to all the changes of the atmosphere, have proved the indurating qualities of the metallic sand, after an experience of eight years. Specimens were laid on the table:—1st, brickwork of a fresh-water tank, which had been erected six years, was removed by a pick-axe; the bricks yielding to the strokes of the axe, but the cement remaining solid; 2nd, imitations of marble executed by a painter on the face of stucco-work, formed of metallic cement, in conjunction with common chalk, lime, and putty, and afterwards polished; 3rd, a specimen of fresco-painting, also executed on a face similar to the above; 4th, a vase, the figures on which retain their original sharpness, although it has been exposed to the atmosphere for many years.

archical taste than the present. Giving you the best wishes for the success of THE BUILDER, which I am happy to state is becoming more and more valuable, allow me to subscribe myself,
CANDIDUS.

ON MEASURING BRICKWORK.

Sir,—In answer to your correspondent "C.H.C." I think the less number of figures made use of in reading this work (so that it is correct) is the best. Now the shortest and best way to reduce brickwork to the standard rod is, I think, follows. Suppose I have 72 feet cube in my tract (or any other number of feet would do)—
fact thus:—

72 cube.
8 being 8th.

64 feet reduced work in 1½ brick.

Same result is produced by multiplying by 8 and dividing by 9, thus:—

72
8
9 576

64 feet reduced as before.

Both these methods, I am convinced, are correct; the first one is the shortest and best in my opinion, having made use of it since I have been practising; but the practice of multiplying by 6 and dividing by 7 must be incorrect, and the sooner done away with the better.

Reducing 9-inch work to 1½ brick, some per-
mille by 2 and divide by 3, which is correct;
it causes so many figures. The same result is
obtained by taking away ⅓ from the total, thus:—

13 2
26 reduced. 3)78

26 feet as before.

You think this letter worthy of insertion, you
welcome to it, and any further information that
I give your correspondent is at his service.
I hope your correspondent will let another
appear in your journal, stating whether
I have got his required information. I do
not all understand about the allowance of
it per rod; I have never made any allowance,
so not intend.

I am, Sir, yours, &c.

A SURVEYOR AND SUBSCRIBER.
London, Dec. 4.

4.—Observing in your valuable paper of Dec.
"Archimedes'" application for a copy of Nichol-
son's "Carpenter's Guide," I would be most
glad to supply him with a copy of the "Practical
Carpenter," which contains guides to all the different
connections with building, by that author. I
have two copies, one with the builders' book,
both in good condition, and half bound
in leather, which I would be willing to give at half
price, either in money or other architectural or scienc-
e books. I think they cost before binding about
£1.50, but on application to Kelly, London, the
other, you may obtain the price.

I have also a copy of the "Carpenter's or-
ders' Guide" (by A. Hay, of this place, a
copy of Nicholson), folio size, all plates of
architectural drawings, with small book of description,
and for half price as before.

Now I want to suggest the presentation of a nice
drawing of some public building, providing you
can afford it.

I ask if you intend publishing an index, or
reprinting THE BUILDER to be bound. Your an-
swer will oblige. Sir, your obedient servant.
Cochran-street, Glasgow. A. W.

We have no doubt of satisfying all the
able desires of our readers with our
efforts, and improved plates. An index
will be given, and THE BUILDER bound up—

—Upon taking up your BUILDER of this
day, my eye caught the letter containing the puzzle
of Mr. Newnam's, concerning the panel-stuff of
the door being too narrow, and the workman having
cut off independent of the said panels to in-
crease their width. At first sight, I thought it
would be hardly possible for a carpenter, surrounded
generally with edgings (which accumulate
faster than they can be disposed of), to
assist himself with solving the mystery; but, upon
further consideration, I remembered that a 2 foot 6
inch (a very usual size) made out of 9 inch
boards requires 9½ panel, a slip must therefore be
over an eleven inch plank ripped at a waste of
1½, unless some scheme is adopted. The fol-
lowing plan will be an answer to the puzzle:—Sup-
pose the panel to be 1 inch thick, and the width
of 9½, the plough groove in door ⅓, and the

stuff given for panels 9 inch deal. Having pre-
pared the piece-plough with a ⅓ iron in the centre
of the stuff ⅓ inch down, which will leave two ⅓
tongues on each side, with a strong cutting gauge
take off one of the slips from the face, and the
panel will be rebated on one side, glue and brad
the tongue so taken off on the opposite side, and
the panel will be the width required.

I know not whether this may be the manner in
which Mr. Newnam would effect the object, but
the end is attained by its means; and, therefore, as
you have courted in his letter the rough spun sug-
gestions of those who will furnish them, should you
think the above worthy insertion, you will please to
let it appear, and I have the honour to be, Sir,

A WELL-WISHER OF THE BUILDER.

December 2nd, 1843.

Sir,—Seeing the question of church architecture
continually agitated in the columns of your valu-
able paper, and the Gothic style particularly selected
as the style for church architecture, and even
termed "Christian architecture," I beg to ask
from whence this appellation is derived, also to
know in what style of architecture the first house
dedicated to the worship of the true God was built?

I am yours, &c.,

A CONSTANT READER.

Scarbro', December 6th, 1843.

Sir,—Seeing in THE BUILDER such great en-
couragement for men in the shop to come forward
and teach, I being one of the lucky squad, the un-
washed (as Linley termed himself), come forward
on the opposite tack to be taught, if any of the
three on the skew arch will be kind enough to ex-
plain to me the correct system to lay down the
joint lines of the quoins heads on the elevation. I
am aware that any other than a right angle from
the bed line of the soffit will not radiate to the
centre; neither is it a straight line, the case being
evident, a twisted bed to section. A few words in
explanation will greatly oblige a well-wisher to
THE BUILDER. L.

Sir,—Will you or any of your numerous readers
inform me of what the composition is made for
washing Paris-fabric casts with, to give them the
appearance of marble, or raw Italian alabaster?

If any one can give me this information, they
will oblige a subscriber, and one who ventures to
sign himself (although it has been said they have
impudence for any thing),

A REGULAR YORKSHIREMAN.

Hull, December 2, 1843.

Miscellanea.

CITY IMPROVEMENTS.—The tardy improve-
ments in New Farringdon-street, which is to
form the leading line of communication from
Holborn-bridge to Islington, have at last com-
menced, and a very handsome house, in the
best style of street architecture, has just been
completed at the Holborn terminus. Here
there will be a crescent of handsome houses
and shops, the effect of which, when completed,
will be good from Farringdon-street. Scaffold-
ings are erected, and excavations have been
made, for building six other houses in the new
street. Nothing has yet been done in the
pulling down any of the old buildings from
West-street to Clerkenwell-green, which is to
form the new line of street, although in no
neighbourhood is the necessity for such im-
provement more apparent.—*Evening Paper.*

SOUND.—The difficulty of transmitting
sounds to a great distance arises from the
sound spreading and losing itself in the sur-
rounding air; so that if we could confine it on
one side, as along a wall—or two sides, as in a
narrow street—or on all sides, as in a
tube or pipe—we should be able to convey it
to great distances. In the cast-iron water-
pipe of Paris, which formed a continuous tube
with only two bendings near its middle, the
lowest whisper at one end was distinctly heard
at the other, through a distance of 3,120 feet.
Hence we see the operation of speaking-tubes
which pass from one part of a building to
another. The intensity of confined sounds is
finely exhibited at Carisbrook Castle, in the
Isle of Wight, where there is a well 210 feet
deep, of twelve feet in diameter, and lined
with smooth masonry. When a pin is dropped
into it, the sound of its striking the surface of
the water is distinctly heard.

A STRAIN AT A GNAT.—Mr. Hope, of Paris,
fired of the bustle of the Chaussée d'Antin, and
resolved to pass over to "the noble faubourg,"
sold, some time since, his fine mansion in the Rue
Neuve des Mathurins, and purchased the hotel of
the late Marshal, the Prince d'Eckmühl (Davoust),
in the Rue St. Dominique, Faubourg St. Germain,
which he razed to the ground, and caused to be
erected in its stead a princely edifice. In the course
of a proceeding at law, before the Tribunal of the
Seine (Paris), on Wednesday last, it appeared that
already the shell of the new hotel of Mr. Hope
had cost him the following sums:—

	F.	C.
To the gilder and decorator.....	153,420	7
To another gilder.....	94,803	3
To roofing, slaters' work, &c.....	336,035	33
To the carpenter (gross work).....	321,142	86
To sculptors.....	298,667	70
For bronzes.....	190,967	80
To stucco and plasterers' work.....	37,057	13
To carpenter for interior work.....	158,283	76
To gas-fitters.....	570	0
To smith's work, locks, bells, &c.....	300,700	79
To painting the ball-room.....	44,440	0
	1,936,088	47

This last item referred, however, only to the
painting of the panels. It became necessary that
a different, and perhaps inferior artist, should connect
by fancy work the subjects represented upon them,
and for that performance a bill was furnished to
Mr. Hope for a sum of 9,000 francs, less by 1,500
francs, paid on account. To the balance, 7,500
francs, Mr. Hope objected, and tendered as pay-
ment in full 4,610 francs, being 2,890 francs less
than the amount of the bill furnished. The artists
refused to accept the sum, and brought their action
(as it may be termed) for the full amount, which
Mr. Hope defended. The Court decided that Mr.
Hope was bound to pay the full sum claimed. Mr.
Hope appealed. After hearing the celebrated advo-
cate M. Chais-d'Est-Ange for the appellant, the
Court, on Wednesday last, suspended its judgment,
in order that the architect who presided over all the
works be heard in evidence. Thus, after paying
1,936,088 francs 47 centimes (77,443l. 11s. 2d.
and one-tenth of a penny), Mr. Hope felt himself
obliged, at an expense probably of twice the sum
involved, to refuse payment of 2,890 francs (115l.
7s. 6d. 1).

HADLEIGH BRIDGE.—The magistrates acting
for this division of the county, in consequence of the
dangerous state of the old bridge, in July last adver-
tised for plans for the erection of a new one, and from
those plans submitted to them selected the design of
Mr. Hurwood, engineer, Ipswich. A new bridge
has since been erected by the firm of Messrs. Bond,
Turner, and Hurwood, of St. Peter's Foundry. On
Saturday last the magistrates assembled to open it,
and after a minute inspection, expressed their ap-
probation, and congratulated the engineer upon
the design and the manner in which the work has
been executed.

ARTESIAN WELL.—The Artesian well at the
Royal Hospital, Haslemere, sunk by Mr. T. Docwra,
manager of the large Artesian well now in progress
for supplying Southampton with water, has resulted
in producing a most abundant supply of water,
which has been analyzed by order of the Board of
Admiralty, and is found to be of the purest and soft-
est quality. What is most surprising is, that the
water rises through 125 feet of shingle and running
sand, which is full of salt water, being affected by
the tides. The trouble and difficulty in stopping the
salt water out has been entirely overcome. The
quantity of water that Mr. Docwra guaranteed to
obtain was 12,960 gallons per day, but the actual
quantity obtained from the spring, 156 feet deep,
was 59,328 gallons per day. This quantity can be
pumped every day without reducing the water in the
well more than about 40 feet from the surface.

The force necessary to move a stone along the
roughly-chiselled floor of its quarry is nearly two-
thirds of its weight; to move it along a wooden
floor, three-fifths; by wood upon wood, five-
ninth; if the wooden surfaces are sanded, one-
sixth. If rollers are used on the floor of the
quarry, it requires one-thirty-second part of the
weight; if they roll on wood, one-fortieth; and if
they roll between wood, one-fiftieth of its weight.
At each increase of knowledge, as well as on the
contrivances of every new tool, human labour be-
comes abridged.—*Babbage.*

A fortnight ago a dreadful fire broke out at
Wexia during a storm. In eighteen hours it
destroyed four-fifths of the town; so that of the
new houses built since the last fire only eight remain
standing; and 1,400 persons are burnt out. The
cathedral is saved. The insurances are to the
amount of 300,000 dollars.

PRESENCE OF MIND.—An extraordinary instance of presence of mind lately occurred at the quarries in the Ross of Mull, Argyshire, now wrought for the pier in connection with the Skerryvore lighthouse, by the Commissioners of Northern Lighthouses. On the 17th ult., as Mr. Charles Barclay, the foreman of the quarries, was engaged in removing a splinter of stone from the face of a block of ten tons weight, which lay on an inclined ledge above him, the block slid forward and enclosed his left hand, which was bruised in such a manner that two of his middle fingers were destroyed, and the sharp points of rock came in contact at the palm of the hand, so that it was held completely fast, as in a vice. In this dreadful situation, Mr. Barclay's great presence of mind and strength of nerves proved the means of saving his life and those of the men who were along with him. The first impulse of the men was to fetch a lever to raise the stone and liberate the prisoner; and had Mr. Barclay's presence of mind deserted him, or had he fainted under the excruciating torture he endured, this rash purpose would have been executed, and the stone would have launched forward and crushed him and his comrades beneath its mass. He, however, was enabled to direct their proceedings with a wonderful degree of composure, and after some fruitless attempts to raise the block, Mr. Barclay resolved to cut out the stone round his hand as the only means of escape. This painful operation occupied about twenty minutes, during which time the tortures he endured did not prevent his working with the remaining hand in effecting his liberation from his extraordinary captivity. Mr. Barclay afterwards walked without assistance to the neighbouring village of Banessan, two miles off, where Dr. McDiarmid, a gentleman who had lately returned from the Arctic expedition under Ross, removed the shattered bones. Next day Dr. Campbell, who acts as surgeon to the Skerryvore works, arrived from Tyree, and conveyed his patient to the barracks at Hynish Workyard, where he is fast recovering.—*Scottish Guardian*.

Mr. Thomas Rumball, who has been for some time past a pupil, and employed under the superintendence of Sir I. M. Brunel, the engineer, had the honour of submitting on Wednesday last, to His Royal Highness Prince Albert, a drawing representing a longitudinal section of the Thames Tunnel. The Prince Consort, in a letter from the Honourable G. E. Anson, expressed himself warmly interested with the inspection. The drawing is 12 feet in length, exhibiting the tunnel with the two shafts and staircases for foot passengers, and the shipping above, giving to it not only importance as a record of the engineering difficulties of this truly great work, but a highly graphic and interesting description. It is furnished with a scale of weekly progress, shewing the number of feet and inches made during the space of one week; on the same scale is marked the places where the eruptions of the river occurred. We were highly pleased with this clever drawing, combining the most laborious exactness with a perfect and correct delineation, and have great pleasure in pronouncing it as very creditable to this young gentleman's taste and talent.

DAMP IN WELLS OR PITS.—Last week it was necessary for some workmen to descend a well at Beeston Royds, near Leeds, the depth of which is 23 yards. Upon trying it with a lamp the flame was extinguished by the damp within four yards from the top. The common remedy was then tried for dispersing it, by throwing in a quantity of water. When about a dozen buckets full had been used, it was found that the damp had only been raised about a yard and a half nearer to the top. Close by was some quick lime, which it was suggested by a bystander to try, and a bucket full was cast into the well, which had an instantaneous effect, and in less than five minutes the workman descended to repair the pump at the bottom of the well, without the slightest obstruction from the damp. So simple a remedy, in a district where lives are frequently lost from the effects of the damp, is well worth remembering.—*Leeds Mercury*.

A few days since, as Mr. Doncaster, builder, of Bingham, and four or five other persons were in the act of putting up a cornice round the ceiling of the New Temperance Hall, lately erected in that town, the scaffolding upon which they were standing gave way, and precipitated them all to the ground, being a height of, at least, six or eight yards. Fortunately no bones were broken; but besides being severely shaken, they were all more or less bruised, particularly Mr. Doncaster, who, we understand, is now confined to his bed in consequence.

The astonishing power with which God has endowed the vegetable creation to multiply its different species, may be instanced in the seed of the elm. This tree produces one thousand five hundred and eighty-four millions of seeds, and each of these seeds has the power of producing the same number.

ST. PAUL'S CLOCK.—The following are the dimensions of the outside of the clock in St. Paul's Cathedral:—

Diameter of dial plate	18 10
Hour hand	5 8
Minute hand	9 8
Hour figures, each	1 0
Minute figures, each	2 2
Minute strokes	0 6
Rim to the minutes	45 0

Accumulation of power arises from lifting a weight and then allowing it to fall. A man, even with a heavy hammer, might strike repeated blows upon the head of a pile without producing any effect. But if he raises a much heavier hammer to a much greater height, its fall, though far less frequently repeated, will produce the desired effect.

SOUTH-EASTERN RAILWAY.—The viaduct over the Foord valley was finished on the 13th Nov., and on the following day the engine and tender passed over for the first time. The viaduct itself was ornamented with flags, and the men employed on the works were treated. It must be gratifying to the feelings of the contractors, Messrs. Grissell and Peto, that this stupendous work has arrived at completion, without any appearance of settling in any part, and without the loss of any one employed on the works. We understand this is one of the highest viaducts in England.—*Suffolk Paper*.

QUADRATURE OF THE CIRCLE DISCOVERED.—A correspondent informs us, that the question which has engaged the attention of the mathematical world, and respecting which so many unsuccessful attempts have been made, in order to ascertain the true proportion borne by the diameter of a circle to its circumference, has at length been discovered. By many this has been thought impracticable; but the important desideratum has been gained by G. Butt, land-surveyor, of Longfleet, near Poole, who, after fifteen years' application and intense study, is enabled to shew by diagram the true contents of the circle in all its parts, and every part drawn with its contents demonstrated by rules founded on Euclid.—*Wiltshire Paper*.

GROWTH OF LONDON.—Since the year 1829, according to inquiries made by the commissioners of police, no less than forty-five thousand new houses, forming seven hundred and fifty new streets and squares have been erected, or are in the course of building in London and the suburbs.

In France, bar-iron, made as it usually is with charcoal, costs three times the price of the cast-iron out of which it is made; whilst in England, where it is usually made with coke, the cost is only twice the price of cast-iron.

NOTTINGHAM.—A new circus has just been completed here for Cooke's company of equestrians. It is erected in a most substantial manner, Mr. Hunter being the builder, and Messrs. H. and W. Lewis the slaters. It is 100 feet long and 80 feet wide.

The British Association has, since its establishment, expended 83,000*l.* in scientific investigations.

PRICE CURRENT OF TIMBER GOODS IN HULL.

TIMBER, Riggs, per load,	
best	£4 12 6 to £0 0 0
Memel, best ..	4 10 0 .. 0 0 0
Dantzic	4 7 6 .. 0 0 0
Memel, Seconds ..	3 17 6 .. 0 0 0
Quebec red ..	3 10 0 .. 3 0 0
Lowport ditto ..	2 15 0 .. 3 0 0
Quebec yellow ..	3 5 0 .. 3 10 0
Lowport ditto ..	3 0 0 .. 0 0 0
Quebec Oak, per foot	0 2 0 .. 0 2 6
Elm	0 1 6 .. 0 0 0
Memel and Riggs Crown	
Wainscot Logs, per foot	0 5 0 .. 0 5 6

DEALS, Archangel and	
Onega	18 10 0 .. 0 0 0
Petersburg red, best	16 0 0 .. 0 0 0
Seconds	14 5 0 .. 0 0 0
Wyburg ditto ..	14 15 0 .. 15 0 0
Memel	14 5 0 .. 0 0 0
Petersburg White Deals	14 5 0 .. 0 0 0
Riga ditto ..	14 0 0 .. 0 0 0
Quebec first ..	15 10 0 .. 0 0 0
Second	11 0 0 .. 0 0 0
Spruce	10 10 0 .. 11 10 0
STAVES, Memel, crown	17 0 0 .. 0 0 0
Quebec, single ..	0 0 0 .. 0 0 0

—Hull Packet.

TO OUR CORRESPONDENTS.

"F. A. G."—In his strictures on the *Camd. Society*, commits, we fear, a similar error to that which he deprecates. It is not necessary to rescue the genius of a Cockerell or a Wilkins from the whifflings of every puny assailant nor to mix in a controversy on a point of art impatience against the religion of any man or set of men. We shall endeavour to embody "F. A. G.'s" remarks in another form with his permission.

"Kata Technen" received; will be weighed and observed.

WOOD PAVING.—"S. B." is anxious to see wood pavements extensively adopted, but due upon one "grand defect" in the insufficient foundations for which he says he has a remedy. His address is, with the above initials, care of Mr. Gladding, bookseller, Whitechapel Road, and says he shall be happy to communicate his plan a fair valuation, every one having, as he says, right to live by his wits as well as his labours, especially in a matter for the public benefit. The public can well afford something for improvement after so much waste of wealth on imperfect systems.

"Scroll and Curtain Step."—We have received two drawings, and may have more, for which we will wait a few days, and then select the best.

MALTON'S PERSPECTIVE.—"J. W." inquires the price and where one could be purchased.

"Mr. Green."—We thank him for his proffered favours, but cannot pay for it.

"G. S." on Skew Arches, is unavoidably postponed.

"A. K."—The price of 4-inch Portland cement will vary much according to the size, as much from 1*s.* 4*d.* to 2*s.* 1*d.* per foot superficial. We are happy to inform him that his wishes will meet. An annual index is in preparation.

"J. L. T., Brecon," shall have our earliest attention, as he has also our best thanks.

"H."—We can unfeignedly assure him that we shall be most happy to give him satisfaction.

"E. E."—A rectangle is a figure of four sides and four right angles. A square is a rectangle, but it is not necessary to a rectangle that the four sides be equal, two parallel sides may be long than the other two.

"G. S."—He is mistaken in ascribing the inquiries to the quarter named. We are, however, very glad and much interested in the little account he gives, and sympathize with him as to the detail of circumstances. Let us hope that a sweet reward of honest exertion may fall where it is so well due, and so much needed.

NOTICES OF CONTRACTS.

The following contracts are advertised in different papers, and we have kept a register of the particulars of each at the office, which may be referred to on application. In the continuation of this plan, which flatter ourselves will be of service to our readers, material assistance will be rendered by the forwarding papers from our country friends, or by any other means of notification of which they may choose to avail themselves.

ENLARGEMENT OF SUFFOLK LUNATIC ASYLUM.—SPECIFICATIONS, &c.—Dr. Kirkman, the Asylum; J. H. Burton, Clerk of the Peace, Bury St. Edmunds. January 23, 1844.

COMPETITIONS.

Earl of Leicester's Monument, at Holkham, cost 4,000 guineas.—R. N. Bacon, Hon. Secretary, Dec. 20.

District Surveyor for the metropolitan parishes of St. George-the-Martyr, and St. Andrew, Holborn above-the-Bars, and the Liberty of the Rolls.—Testimonials to be sent in up to 30th December Election next January Sessions.—C. H. Elliott, Clerk of the Peace.

Design for a testimonial to the late G. Clendinning, Esq., to be executed at Westport, at a price of 800 guineas.—Dr. Dillon, Infirmary, Castleblayney, Mayo, 20 guineas, Jan. 1, 1844.

Premium of a gold medal or money for the best mode of cleansing streets.—March 1, 1844. J. N. G. Gutch, 20, Vere-street.

NO. XLV,

SATURDAY, DECEMBER 16, 1843.

MESSRS. MOREWOOD'S PATENT GAL-
VANIZED TIN PLATES.

The appearance of the plates in their completeness is very beautiful, presenting a bright crystalline surface, which is the result of the action of junction between the tin and the zinc. We have seen the articles manufactured in this metal, such as eave spouts, piping, &c., and have been much pleased with them; zinc spouts are a nice article, but they want the strength which the body of this metal secures; in fact, spouts made in this metal may be said to be iron spouts painted two coats, one coat of tin

For roof coverings it is applicable with great economy, whether in flat plates with turned up seams or joints, or in the corrugated sheet. We have not yet sufficient experience of its application in this respect, but the testimonials from America, where it has been in use these five years, speak satisfactorily in its favour. In point of economy, it may be observed that the price for the metal laid down, is from 33s. to 46s. per square (of 100 feet); and when it is considered how much flatter the pitch, and how much lighter the rafters may be, it will be readily understood in how many cases it may be applied with advantage. For those who require more particulars, we may refer them to the depot of the necessities, 34, Gracechurch-street, or they may be necessary to write, they may address Mr. Holland, by whom they will be supplied, as we have been, with every information.

CAMBRIDGE CAMDEN SOCIETY.

The Rev. T. Myer, of Trinity College, detailed the efforts of the Yorkshire Architectural Society (of which he is a member), in the restoration of the ancient stained glass in the churches of York, particularly in that of All Saints, and stated the cases in which success had attended the exertions of the society to

The Rev. H. GOSWAMI, M.A., Fellow of Jesus College, then read a paper on the orientation of churches, and explained the method he had adopted for marking the orientation accurately. He then proceeded to point out some remarkable instances in which the churches of this town confirmed the suggestion thrown out by the Camden Society of the chance of most churches pointing to that part of the east where the sun rises upon the day of the saint in whose honour the church is dedicated.

WORK LINES.

One hundred and nine workhouses were opened up to August last in Ireland; twenty are not yet prepared; total cost, 1,360,000*l.*, or 10.54*d.* each.

LAWRENCE J. HUGHES

"(1) If the name contains the name

... contains the name of a prominent architect. About the time of his death an attack of paralysis, which was thoroughly recovered, was suffered by him. He had been suffering from this ailment for some time. His death took place at his home, at the age of 72, on Tuesday last, to the deep regret of his numerous

friends. He was in the seventy-sixth year of his age.

"Mr. Hamilton's professional abilities were of the first order; and in private life, he was distinguished for the singular amiability of his character, the unaffected modesty of his disposition, the vivacity of his conversation, enlivened as it often was with anecdotes of the olden time, and for his genuine worth of heart, disinterestedness, and nice sense of honour. With the national sin of 'mammon worship' he was in no way tainted. Had he cared more for money, he must have died rich. His professional charges were considerably below what his distinguished merits entitled him to claim, and his purse was always open to assist the needy and unfortunate. It is doubtful whether he has left an enemy behind him, or whether indeed he ever had one. Certainly, few men had more attached friends or were more warm in their friendships. By his professional brethren he was much esteemed; and jealousy or unworthy rivalry had, it is believed, no place in their intercourse. He has passed from the scene of his earthly labours; but he has bequeathed to all who knew him the memory of a good example—he survives in the affections of his friends—and the numerous splendid works he has left behind may be regarded as so many monuments commemorative of his genius.

"The number of elegant and splendid structures designed by Mr. Hamilton, particularly in the West of Scotland, is very great. Independently of Hamilton Palace, the princely seat of the Duke of Hamilton, which is enough of itself to stamp his reputation as a great architect, he produced the splendid Royal Exchange of Glasgow; the Western Club-house; the British Linen, the Glasgow and Ship, and other magnificent banks; Toward Castle, the seat of the late Kirkman Finlay, Esq.; Dunlop House, Ayrshire, the seat of Sir John Dunlop, Bart.; the elegant structure of Lennox Castle, the residence of John Kincaid, Esq., of Kincaid, so much admired by all professional men; and numerous other buildings, remarkable for their taste and effect. Mr. Hamilton was also a competitor for the New Houses of Parliament; and although his design was not adopted, it was so highly esteemed by the government that it was rewarded with a prize of 500*l*. In this competition he was the only Scotch architect who was successful, although several of them sent in two or three different sets of plans, while he submitted only one. In July 1840, Mr. Hamilton was entertained at a public dinner in this city, when he was presented with an elegant service of plate, enclosed in a gold box, a distinguished proof of the estimation in which he was held by his fellow-citizens. Mr. Hamilton is succeeded in business by his son, who possesses, we believe, much of his father's fine architectural taste and talents."

[Since the above was in type, we have been favoured with the following more detailed sketch of Mr. Hamilton's professional career, from the pen of one of his former pupils, and a successful follower in his footsteps.]

"It would have given us great pleasure to have had time to collect materials sufficient to enable us to give a more lengthened memoir of Mr. Hamilton, than we can at present lay before our readers; for of few of her men of genius may Glasgow be more proud than of him who is this day to become a tenant of the grave.

"It is now more than half a century since he commenced his professional career as an architect in his native city. Tutored at first in an important department of the constructive art, he early displayed a fondness and taste for a higher and more refined exercise of his abilities. Self-taught, he prosecuted with the most untiring assiduity the profession towards which the bent of his genius naturally led him; and by his perseverance and talents he soon reached that eminence which he continued to sustain during a long and useful career.

"It was a mind which could not remain satisfied with one triumph; drinking deep of the wells unfilled of the architecture of Greece and Rome, in every new effort he pushed the progress of his mind, and so far as it could reach beyond the reach of art."

"Nor was it merely the first design which engrossed the exercise of his fertile mind.

The most minute details were all considered by him as so many expressions of the design, and received the most careful study. This, indeed, forms a prominent part of Mr. Hamilton's excellence, and doubtless the attention to detail exhibited in his various works has been greatly influential in improving the architectural taste of our own city. Although he certainly yielded to Grecian art a greater reverence, yet there never was any mannerism in his works. Whatever style he adopted received from his hands the most perfect embodiments, and a grace all his own.

"Among the numerous works in Glasgow and the surrounding country, so many monuments to his fame which he has left behind, we can only particularize a few. And beyond all doubt the princely Palace of Hamilton ranks the foremost. Not only in regard to its magnitude does it claim this superiority. The dignity and gracefulness of the whole structure; the commanding features of the grand facade, with its magnificent portico; the careful arrangement of every detail; the general effect and the most minute parts; the adaptation to an earlier structure; and the well-arranged descent from the more correct and chaste architecture of the new to the olden and less classical features of the previously existing fabrics, give to this dual palace an importance in the architecture of our country, honourable alike to the princely munificence and correct judgment of the noble duke, and the skill and taste of our talented townsman.

"We cannot but allude to the pride of our city, the Royal Exchange. Mr. H. in his greatest works seems to have been trammelled by some old fabric, which interfered with the proper expanse of his talents. And yet, in regard to the Royal Exchange, fettered as he was by the old house, he surmounted these difficulties, and produced a work of which every citizen of Glasgow may be proud. Its noble portico and beautiful campanile and its gorgeous hall, graced with the most correct detail, fully entitle this splendid edifice to hold the second rank in the monuments of Mr. Hamilton's fame.

"In regard to many of its churches, hospitals, schools, banks, and private edifices, Glasgow is largely indebted to him. In almost every portion of the city, he has left traces of his master-hand: we have but to look around us to see his monuments.

"We cannot fail, however, to notice the buildings of the British Linen Bank and the Western Club, which are conspicuous for their palatial dignity and richness. They mark an era in the improvement of our street architecture, and contribute largely to the adornment of the city.

"Of the castellated and manorial residences which Mr. Hamilton has designed, we would especially refer to Toward Castle, which in the grouping of its various parts has been so much admired; to Dunlop House, a beautiful application of the Scottish manorial style; and to Lennox Castle, one of the finest seats in the west of Scotland. In this most effective structure, which in the mass and the details has been so successfully worked out, we have an example of the adaptation of the Norman style of architecture to a modern mansion; the combination of all the necessary requirements of an advanced state of civilization with the rude magnificence of an earlier age.

"In the coast and country villas, which are dotted here and there in endless variety, Mr. Hamilton has shewn at once the sportive, picturesque, and highly imaginative play of his truly poetical fancy.

"Nor is it to be forgotten, and it is most creditable to Scotland, that Mr. Hamilton alone, of all the competitors out of the metropolis, was adjudged worthy of one of the government premiums awarded to the best designs for that national structure, the new Houses of Parliament.

"Mr. Hamilton was born in Glasgow on the 11th May 1764."

At the annual election on St. Andrew's day of office bearers of the grand lodge of Scotland, William Burn, Esq., was appointed architect.

GREENWICH HOSPITAL.—The foundation-stone of this magnificent building was laid June 30, 1696, by John Evelyn (the treasurer), with a select committee of the commissioners, and Sir Christopher Wren, the architect, precisely at five in the evening, after they had dined together!

On Saturday last, being the 75th anniversary from the foundation of the Academy, a general assembly of the Academicians was held at their apartments in Trafalgar-square, for the annual election of officers and other business, amongst which was the ceremony of delivering the prizes to the successful candidates in the various classes of students. The distribution took place in the grand saloon of the Academy, before a very numerous assemblage of Royal Academicians, artists, and persons of distinction, amongst whom were his honour the Vice-Chancellor, Sir R. H. Inglis, Bart., M.P.; Sir Stephen L. Hammick, Bart.; the Rev. Sir H. Dukenfield, Bart.; the Right Hon. Sir Edmund Ryan; Sir Richard Westmacott, R.A.; Sir John Rennie; Sir H. Ellis; Sir W. Ross, R.A.; Messrs. M. Farraday; C. König; Richard Partridge; T. Tooke; C. Babbage; C. L. Eastlake, R.A.; H. Hallam; Samuel Solly; William Etty, R.A.; A. Cooper, R.A.; C. L. Cockerell, R.A.; C. Stansfield, R.A.; R. Collins, R.A.; B. Bond Cabbell; Bransby Cooper; B. Anstie; P. Hardwick; S. Hardwick; S. A. Hart; W. Turner; C. Leslie, &c.; but the President was absent, and, on inquiry, it was ascertained that he had been suddenly attacked by illness that day, and, although the symptoms were not of a dangerous nature, yet it rendered him incompetent to perform the duties of the evening.

Mr. Jones, R.A. (the Keeper of the Academy) took the President's chair, and announced officially and with great regret the cause of their accomplished President's absence, which he truly stated they all felt as a great disappointment, but the cause of which he could assure them would not be of long duration. Of course, it fell to his lot as the senior officer to go through the duties of the evening, however unprepared he might be for that purpose. The prizes were fewer this year than on any former biennial distribution, for there was not a single candidate in the first class (historical painting). This incident had, doubtless, arisen from the exertions to get up the cartoons having occupied the time of those who were in a condition to compete for these prizes. The chairman then bestowed the prizes on the following students:—

To Mr. E. Bowring Stephens, for the best composition in sculpture—The gold medal, and the Discourses of the Presidents Reynolds and West.

To Mr. Henry Bayly Garling, for the best architectural design—The gold medal, and the Discourses of the presidents (as above).

To Mr. J. Harwood, for the best copy made in the School of Painting—The silver medal, with the Lectures of the Professors Barry, Opie, and Fuseli.

To Mr. A. Rancley, for the next best copy made in the Painting School—The silver medal; but, this student having received a similar medal in 1842, this medal, though adjudged to him, could not be given.

To Mr. Abraham Solomon, for the best drawing from the living models—The silver medal. There was only one medal given in the class this time.

To Mr. George Perry, for a drawing of the west wing of Greenwich Hospital—The silver medal.

To Mr. John Everett Millais, for the best drawing from the antique—The silver medal and the Lectures of Professors Opie and Fuseli.

To Mr. G. Ellenthorne Sintzenich for the next best drawing from the antique—The silver medal.

To Mr. Joseph Engel, for the best model from the antique—The silver medal, and the Lectures of the Professors Opie and Fuseli.

To Mr. Alfred Gatlif, for the next best model from the antique, the silver medal was adjudged, but not bestowed, as he had already (in 1842) received a similar medal.

To Mr. William Thomas, for the next best model from the antique—The silver medal.

On the audience retiring, the Academicians proceeded to the election of officers, &c., for the ensuing year, according to the following rotation, when Sir Martin Archer Shee was unanimously re-elected President.

Council.—New List.—Sir William Charles Ross, Sir Augustus W. Calcott, Mr. Clarkson Stansfield, and Mr. Charles Robert Leslie. Old List.—Mr. Charles Barry, Mr. George

Jones, Mr. Alfred D. Chalon, and Mr. Thomas Phillips.

Visitors in the Life Academy.—New List.—Mr. Abraham Cooper, Mr. John James Chalon, Sir William Charles Ross, Mr. William Eity, and Mr. Solomon A. Hart.—Old List.—Mr. Edward Hodges Bailey, Mr. Alfred E. Chalon, Mr. R. Cook, and Mr. W. Frederick Witherington.

In the School of Painting.—New List.—Mr. J. J. Chalon, Mr. William Mulready, Mr. H. William Pickersgill, and Mr. William Frederick Witherington. Old List.—Mr. H. Peyronet Briggs, Mr. Charles Robert Leslie, and Mr. Thomas Evans.

Auditors Re-elected.—Mr. William Mulready, Mr. J. M. W. Turner, and Sir Richard Vestmacott.—Times.

SOCIETY OF ARTS.

[We gave a report of this paper before, but not so fully as we could wish; we have pleasure in extracting the following from the pages of *The Mining Journal*.]

PATENT METALLIC SAND CEMENT.—On Wednesday evening last, Benjamin Rotch, Esq., F.R.S., in the chair, a highly interesting paper, by C. K. Dyer, Esq., of the firm of Manson, Logan, and Co., New Broad-street, on their Patent Metallic Sand Cement, was read (Mr. Whishaw, the secretary). The paper, pointing out the peculiar chemical value of the metallic sand, stated that this cement has now been in extensive use upwards of ten years, without the slightest failure, except in cases where, from the ignorance of the workmen, it had been improperly applied. The cement was composed of blue lias lime, mixed with the metallic sand, which was stated to be similar to Italian *pozzolana*, the value of which in concrete, and in all sub-aqueous uses, was undoubted, but the expense and difficulty of procuring which had prevented its extensive use. The metallic sand contained a larger proportion of iron than *pozzolana*, and other material yet introduced to the public, hence the indurating property which it possessed; and its granular form, and sharpness of angles, would be admitted as an additional reason for its extraordinary tenacity. As a concrete, it was mentioned that the metallic had been successfully employed in the foundations of the new Houses of Parliament, and was used by the Metropolitan Paving Company in forming the sub-structure on which their blocks were laid, and were so convinced of its efficiency, that they had secured from the patentees the exclusive right of using it for such a purpose; and to the indurating nature of their foundations may be attributed, in a great degree, the successful result which have attended the work executed by the company. As a mortar, it was adapted for tunnels, sewers, sea and land walls, and inverted arches, as being impervious to damp, and increasing in hardness under atmospheric influences. As a stucco for interior as well as for all architectural ornaments, from the agreeable tone of colour it assumes naturally, and retains without fading, and from its freedom from vegetation, it was the perfect substitute for stone ever yet introduced. Several large and highly enriched architectural ornaments were erected in the counties of Surrey, Devon, and Devonshire, during the last nine years, coated and ornamented with metallic sand cement, and had been found, on examination, free from the slightest decay. Among the mansions referred to was the Earl of Egremont's, Silverton, Devon, erected from the designs of Thomas Knowles, Esq., and which was one of the largest and most improved of the private residences of the nobility in England. In the list of specimen buildings, recently executed, were mentioned the range of offices built by Grissell and Coleman-street, and the joint station at the South-Eastern Railway, at Margate, on which an observation of considerable height and exposure, was conspicuous. It was further stated, that the Government had resisted the severity of the New York without receiving the desired effect, as also had it done the extensive action of the sea spray in the pier at Herne Bay pier, which was

stuccoed with the metallic cement about nine years ago, and now bears the appearance of granite, both in hardness and colour.

In fresco painting—a matter which was at this moment exciting so much attention for decoration in the new Houses of Parliament—the metallic sand stucco had been found highly valuable; the combination of the colours with the material imparting an almost endless durability to the work, and the face of the painting to the highest polish. It was well known that some of the finest frescoes in Italy have suffered most materially and irrecoverably from damp, and the insufficiency of the walls upon which the *intonaco*, or outer coat, had been laid. The process of fresco painting in Munich, adopted by the Professor Hess, had been inspected by Mr. W. B. Simpson, a decorator in London, and, in his opinion, the metallic sand cement was equal, if not superior, to any substance with which he had met, from its extreme density and hardness, and its effectual resistance to the entrance of any moisture. A splendid specimen of fresco painting—a portrait of Henry VIII.—executed twelve months ago, the ground being formed of metallic cement, surrounded by a grotesque vignette border, and foliage, &c., was exhibited, and was much admired; it will be left over the mantel-piece a short time for future inspection. The colours are so brilliant, that at a distance it has somewhat the appearance of enamel.

After the paper was read, Mr. Dyer explained the nature of the cements, and described the various specimens, which were left in the society's rooms for examination. The metallic sand, formed from copper slag, consisted, it was said, principally of iron, accompanied by zinc, arsenic, and silica, and is ground and sifted to different degrees of fineness, according to the nature of the work.

Some specimens of slabs, painted and trowelled up equal to *scagliola*, were handed round, and attracted considerable attention; the cost of the different variety of marbles would depend upon the artist, as, in all cases, the wall or slab to receive the painting is considerably less expensive than any other description of cement. Some casts were upon the table, having the perfect appearance of chiselled stone, and an ornamental vase, which had been exposed to the atmospheric changes and influence for seven years, had its edges, lines of foliage, &c., as sharp and perfect as the first day it was cast. Much conversation ensued, and the paper and specimens gave great satisfaction to the numerous body of members present.

ALTERATION OF THE CHELMSFORD GAOLS.

It is known that the committee appointed by the Court of Quarter Session, for the purpose of ascertaining and considering what alterations should be made in the gaol at Springfield, with the view of adapting it as far as practicable to the new system of discipline, have been for some time actively engaged in the inquiry. On Wednesday last, a general meeting of the body was held at the Shire Hall, there being nearly thirty magistrates present, when the question was fully discussed in all its bearings; plans were examined, estimates and calculations were entered into, and the debate and inquiry occupied the committee nearly three hours. Eventually Mr. Disney moved, and Mr. Luard seconded the following resolution:—

"That the plan marked A by Mr. Hopper, approved by Major Jebb, be adopted."

It is necessary here to explain that, by the plan referred to, it is proposed that two of the radii of the prison shall be extended and arranged on the new principle, so as to admit of about 300 prisoners being confined in them, and rendering the gaol altogether capable of holding 500. This would afford ample room for the debtors and the female prisoners, who, on this plan, are to be removed from the old gaol. The chapel, respecting which complaints were made in the inspectors' reports, is also to be enlarged and altered; and the governor's house, and also a house for the chaplain, to be erected outside, at the front of the building. The principal argument used against the adoption of this plan was the expense, which it was considered, looking to the state of the county, would be exceedingly ill-timed; and eventually the following amendment was

moved by Mr. Tower, and seconded by Mr. Gordon Rebow:—

"That this committee are of opinion that it is not advisable, in the present uncertain state of the agricultural interest, to encounter so heavy an expense as it now appears will be incurred in the gaol at Springfield, under the plan at present submitted to it, however disposed it feels to apply the system of separate confinement to the existing prisons at a more convenient season."

The committee divided upon the question, when the numbers were—

For the original resolution..... 14

For the amendment..... 8

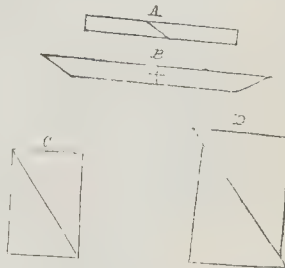
Majority 6

Consequently as far as the committee is concerned the plan alluded to was adopted, and they will now recommend it to the court at the next quarter session, when the body of the magistracy will decide upon it. The estimated cost of the alterations is stated at 30,000*l*.

PANEL PUZZLE.

TO THE EDITOR OF THE BUILDER.

Sir,—I beg to send you a rough sketch in answer to Mr. Charles Newnham's puzzle in your paper of the 2nd inst.



Suppose I have a given piece of board, by cutting it as shewn at A, and gluing the reverse edges together, will give an extra width as shewn at B; the longer you cut your slay at A the wider you may get your panel, and likewise longer. C shows the length of the panel, by cutting it from angle to angle as C, and gluing it as D, and by the panel being wider than required will give you the extra length.

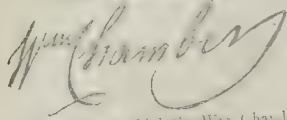
With my best wishes for the success of THE BUILDER,

I remain, yours, Sir, respectfully,
Wilmington-square. STEPHEN PALMER.

EXTENSION OF LIVERPOOL.—During the summer and autumn of the present year, new rows of houses have been begun and carried on for some distance, at four or five different places between Edge-hill and the Old Swan. They are none of them very choice specimens of architecture, but still each row will serve as a nucleus for fresh exertions; and thus, in ten or twenty years, the town of Liverpool will be carried as far as the Old Swan ridge, just as, during the last generation, it was carried from the top of Shaw's-brow and the neighbourhood of Saint Peter's Church, to Edge-hill, to the Dingle, to Kirkdale, and beyond St. Domingo House. Already the gas has been laid down upwards of a mile beyond the Old Swan, which used a few years ago to be thought a long way in the country; and if it had not been for the introduction of steam-boats, which have taken between twenty and thirty thousand persons to the opposite side of the river, the population would by this time have extended in an unbroken line as far as the gas now extends.

PUBLIC WALKS.—In the year 1840, a sum of 10,000*l* was voted by the House of Commons for "public walks," and it appears from a Parliamentary return that only 500*l* of the sum has been expended. It is stated that 300*l* was advanced to the Provost of Dundee for improving Magdalen-terrace, and 200*l* for improvements in the neighbourhood of Arbroath. It is added, "the remaining 9,500*l* is still in the Exchequer."

BRITISH ARCHITECTS.



The family from which Sir Wm. Chambers descended was of good standing and estate at Rippon, in Yorkshire, and a merchant, having claims upon the Scottish government, which required him, and proceeding to bring to a satisfactory termination, the subject of this sketch first came to light about the year 1725. Though not above 20 years of age, and the professional business was not yet for classing him with the distinguished British Architects, his talent and success afforded examples worthy of emulation by a considerable portion of our teachers.

We find the future architect at the early age of seventeen engaged as supercargo of a ship, freighted by the Swedish East-India Company, and in consequence he visited various settlements in the Eastern Hemisphere.

At Canton, during a short stay, he not only discharged the immediate duties of his office, but, availing himself of some proficiency in drawing, found leisure to make sketches of whatever occurred to him as interesting in the Chinese style of building and gardening. A number of years since, that country and its peculiarities had scarcely been described; little of graphic illustration existed beyond the grotesque representations of native painters, on the exportable wares of China, a domain which young Chambers ventured in some measure to supply by publishing, on his return to England, a set of well-executed engravings from his original sketches. This step, though at first not very profitable, laid the foundation of his future success. It must be presumed that, about this time, his skillfulness as a draftsman gave him a taste for architecture, for in his twenty-second year, finally abandoning commercial pursuits, he passed over to Italy, and employed himself in studying the science, not only by measuring and drawing the more ancient works of art, but those of modern times, and the sixteenth centuries which are distinguished as those of the revival. At Paris, also, he became acquainted with all the works of celebrity in that capital, studied under Le Blond, and under him, it is said, acquired a freedom of pencil in which few excelled him. Thus prepared, he ultimately sat himself down in Russell-street, Covent-garden, to await the exertion of his talents in the execution of commissions, and the eternal request of a brother architect; Chambers had, however, foretold, a thorough knowledge of the world, and says Allan Cunningham, "a most considerable and winning power, which enabled him in the pursuit of his art to procure." At this juncture, the Earl of Pembroke desired him to select a tutor for his son, the Duke of Wales, afterwards George the Third, and Mr. Carr, of York, being consulted, strongly recommended him, as not only skilful, but well qualified by conversation and manners; these qualities were appreciated by the Earl in a personal interview, he was introduced to the Prince, who became so much attached to him, that, on his accession to the throne, he appointed him Royal Architect. The various examples now absorbed the royal mind, in consequence of the professor being exercised in realizing them in the grounds of Kew Palace; and here commenced, if not the royal road to science, at any rate, that to the office of Surveyor-General of Works.

The tutelage of the Prince having expired, Mr. Chambers, in 1743, was, by virtue of the dignity of a Knight of the Polar Star, conferred by the King of Sweden, and confirmed by the special license of his own sovereign, was at liberty to undertake commissions of a general kind; of this description were the villa of Lord Besborough, at Roehampton, and the more magnificent mansion of Lord Ahercorn, at Daddington, near Edinburgh, which may be deemed the most successful of his works; out of the immediate circle of court

influence, he was rather unfortunate than otherwise, and frequently met competitors of at least equal ability. In the competition for the building of Blackfriars Bridge, he was defeated by Mylne; and in that for Claremont, the mansion of Lord Clive, at Esher, by Browne; these are prominent cases, but others of a minor nature might be adduced. As holding the highest public rank in the profession, and entrusted with almost unlimited means of embodying his conceptions in some one or more memorials of use and importance, in a national sense; we can refer but to a solitary example—Somerset House. This building, familiar to a large number of our readers, is situated on the river bank, and in a favourable position for being viewed from Waterloo Bridge, or in passing up or down the Thames. The front towards the Strand is seen to disadvantage, from being in a line with the houses. The river front has always appeared to us deficient in that degree of majesty the site and means at the disposal of the architect might have commanded; the disproportioned height of the basement takes away from the effect of the order adopted; and, in the numerous dark recesses, the columns appear diminutive or dwarfish; the nearer view from the Strand increases the effect of an undue height of the basement, and upon the whole the impression conveyed by the exterior, is that of a crowded and laboured effort at grandeur. The square of this building, comprising an area of 300 feet north and south, and 200 feet east and west, is entirely from Sir W. Chambers's designs, and was executed under his personal direction. It presents a fatiguing repetition of rustic work, but there are many fine door-cases and windows, and several specimens of sculpture worthy of inspection. The interior is arranged with much care, and we should say, judicious appropriation of space. The stair-cases are also well placed, and upon a commanding scale.

Apart from the Chinese toys of his early years, the bent of Chambers's mind was steady and persevering; his mature views led him to bestow all his energies upon the Roman style, which he cultivated with care and fondness, but without manifestation of original genius. His "Treatise on Civil Architecture," is a work of laborious research, compiled under the most favourable circumstances a professional man could enjoy. He there calls upon all who aspire to distinction to study the principles adhered to by the Italian artists, and, consistently, affords reference to the purest of their works. Prejudices and pretences, however, beset the greatest men, and our author was by no means an exception, and is, in truth, the most valuable legacy he has bequeathed. Will it be believed by those who may not have looked closely into the opinions and works of our public professional men that Chambers, who, though he did not "trod the classic ground of Attica, or visited the older monuments of Sicily and Paestum," lived in the days of Le Roy and Stuart, yet prided himself in an affluence of utter ignorance of Greek architecture, disputing both its perfection, or that it had ever been practised upon so vast and magnificent scale by the people of that country?

In 1763, Sir W. Chambers was mainly instrumental in procuring the great benefit conferred upon the art, by the establishment of the Royal Academy, to which end his personal influence with George the Third was successfully urged; which office he continued to hold, with every advantage to its progress, during his life. In private life he was universally respected; the sunshine of royalty warmed, but did not spoil, the prudent man; his familiar circle embraced all of note in the scientific and literary world, among which may be enumerated Dr. Johnson, Goldsmith, Garrick, Burney, Sir J. Reynolds, and many other celebrated characters.

Few men are destined to experience the entire good fortune that fell to the lot of Sir William Chambers, and which extended to the whole of his immediate descendants, all his children having married into families both wealthy and above the rank of their progenitor. He died full of years, on the 8th of May, 1796, and was honoured with a final resting-place in Westminster Abbey.

ANCIENT PAINTINGS IN CHURCHES.

THE celebrated and highly interesting Norman church of St. Werburga, Castor, in Northamptonshire, has been lately under restoration. Here, also, a large portion of fresco painting, in very fair preservation, has been uncovered on the north-west wall of the north aisle. It consists of three subjects (probably passages in the life of some saint), each below the other, and under wide and low ogee canopies of the same form and size. On the west side of each of these canopies, is a smaller and narrower canopy or niche, containing a female figure erect. The form of the canopies, and the ground being semée of fleurs-de-lis, a common ornament of the fifteenth century, render it probable, in the absence of any definite mark in the costume of the numerous figures, that the painting is not earlier than 1400. The lowest subject is the passion of St. Catherine, who stands with her hands bound behind her back, between two wheels, each of which is turned by a man, while an angel above with a sword in each hand is striking the martyrdom. In the smaller canopy, St. Catherine is being led bound to the spot. The middle series exhibits a man bearing a woman over his shoulder, and holding her by the head, ready to throw her into a cave or den, in which a crowd of persons are seen, one a prominent figure in white, either dead or leaning backwards. One woman has buried her face in her hands. On the ground sits a man pointing with his extended finger to the cave. The smaller canopy contains a female effigy, holding in her hand something like a basket; the highest series, which is just below the cornice of the roof, exhibits a castle or church, from which a procession appears to be issuing forth. In advance is a figure, apparently of a knight (if so, the armour dates about 1430, but it is confused and indistinct), grappling with another carrying away another figure.

Partial restorations have also brought to light some paintings on the eastern wall of the south aisle at St. Stephen's, Elton, Northamptonshire. These are highly curious, and for their great antiquity and excellence of execution would be perhaps among the finest specimens extant, were they in tolerable preservation; but they are greatly mutilated and partially effaced in the process of uncovering them. The subject appears to be the Stem Jesse; two oak boughs interlace each other a series of oval loops (each about two feet long by one and a half wide), in the manner of figure 8. In each loop a figure is seated across a bough, while on other boughs or twigs, at the sides, a series of figures, one above the other, are standing. Green leaves terminate every twig, and are relieved by a ground semée of clusters of six red spots. Every figure has his side an inscription, of which only two or three letters are here and there legible. The inscription of the highest loop is filled by a black-leaf inscription, manifestly of subsequent date, since the earlier painting remains perfect beneath it. The lowest loop to the north contains a figure of King David playing the harp, and his face, and limbs are very finely depicted. The form of the letters, and of the crown on several of the figures, as well as the general style of the painting, enable us to refer this very curious work to the age of Henry III., when the church was probably built. It evidently formed the decoration of a chantry altar.

These frescoes, and that lately found at Andrew's, Impington, Cambridgeshire, go to confirm the opinion we have always expressed, and more than once expressed, this kind of pictorial and didactic emblem was formerly general even in our most humble village churches. That fresco should hitherto have been so recklessly destroyed in every case as soon as discovered is a matter of surprise as well as regret; we can see no objection generally to restoring and retaining them where they occur. We indeed think that the time is not far distant when foolish prejudice against fresco painting in churches shall be entirely removed. We recently equally strong dislike was felt away, and we hope that its appropriate necessary accompaniment, painting of the roof, will speedily be revived also.

SUBSTITUTE FOR GLASS IN GREEN-HOUSES.

LIGHT is an agent perfectly indispensable to plants in a growing state, and they generally thrive in proportion to the amount of it they receive. It is the stimulus which puts in action all their most powerful and important vital forces. Hence it is a principle in modern gardening to provide houses used for cultivation with the most transparent substance that can be procured for their roofs, and to employ means of diminishing the quantity of light at those seasons when, under the artificial circumstances to which plants are exposed in greenhouses, it becomes necessary to do so. For as end glass is universally employed, and it is not likely to be superseded. But some plants never require bright light; cucumber for example. Others need it only during the summer; as many sorts of greenhouse plants. Hence, again, can dispense with it at an early period of their growth, though it is indispensable to them afterwards. In all such instances a substance which is cheap, waterproof, and brittle, although not more transparent than ruy, would be invaluable to gardeners; and accordingly various attempts have been made to deprive paper or cotton linen of their opacity some greasy or resinous preparation which all repel water. We cannot say that the attempts have been hitherto very successful. In some cases the application of the substance employed has been difficult; in others its separation has proved an obstacle; and sometimes even in its cost. At last the proposed seems to have been attained by Mr. George Whitney, of Shrewsbury, if we are to judge from the statements that have been made to us, and by the specimens we have seen. There is now before us a piece of cotton linen, and a piece of muslin, which are certainly all that can be wished for on the score of transparency of texture, both prepared by some waterproof substances which Mr. Whitney has conceived. We understand that this gentleman has led to turn his attention to the subject in consequence of having lost the larger part of his wall-fruit for three or four years consecutively. Early last spring, he covered his trees with common calico coated with the composition, when the blossoms were found to expand, and a crop of fruit much greater than the trees could support was the result. He did not take the coverings off by day, except when the fruit, till the latter end of May, the crop was not only abundant and very fine, but a month earlier than his neighbours'. This success naturally induced him to try a thinner material (muslin) for cucumbers and melons, and the fruit grown under them is represented to have been of good quality. No doubt can be entertained of the plan being successful for any purposes, and we recommend our amateur readers to put it in practice—on a small scale, however, at first, until they have ascertained the best means of proceeding.—*Westmorland paper.*

NEW CHURCHES.

Trinity Church, Hull.—This beautiful and venerable church is likely to undergo a complete and long-desired restoration. We understand the "pitiless pelting" of the elements made such an inroad upon some portion of masonry, as to threaten the destruction of important portions of the beautiful and venerable edifice. The very appearance, whether inside or out, of this once richly adorned and stately structure, plainly enough bespeaks its long-neglected condition. The very first appearance which the stranger approaching this ancient and important town, whether by land or sea, obtains of the sacred pile, must convey an impression most unfavourable both to Christian piety and public spirit of the age, for its very pinnacles are shattered and decayed; whilst it wears throughout a most mournful aspect. And this of a building that ranks amongst the finest sacred edifices on land, and of which Hull had once so much reason to be proud as its highest honour and its crowning ornament.

The state of the entire building, fittings and ornaments really most deplorable, dirty and dilapidated in the extreme, within as well as without, if anything be not immediately done to arrest the progress of that decay which down to neglect has introduced, the venerable pile will soon begin rapidly to crumble away.

Tenders had been received from several parties, the most reasonable of which was from Mr. Crosskill, of the Beverley Iron Works, whose offer was 260*l.*, including masonry. The cost of removing the galleries and re-peaving the church, according to the plans and estimate, would be 1,947*l.*, added to which 100*l.* for the architect, made the estimated expense 2,307*l.* As a set-off against this, the old materials were estimated at 100*l.*; the committee proposed further to reduce the expenditure by foregoing the organ-gallery and screen which had been proposed to be erected at the west end of the church, at an expense of 200*l.*; also to do without doors to the pews, by which 50*l.* more would be saved. This would reduce the estimated cost of the undertaking to 1,957*l.*, towards which the churchwardens had voted 1,000*l.*, and the public subscribed 782*l.* 10*s.*, together 1,782*l.* 10*s.*, leaving a balance of 174*l.* 10*s.* yet to be raised.

Walcot, St. Stephen's Church.—It appears from a letter in the Bath paper that the Rev. H. Widdrington, the Rector of Walcot, is much involved with the expenses of building the above church. His predecessor, Dr. Moyses, had entered upon the project, but not further, it would seem, than as to the determination to build a church, and the decision of the site. Mr. Widdrington says—

"The building committee, immediately on my arrival, requested me to join them in their proceedings; and the first part I took in the matter was to vote in the selection of the building plan. Several designs were presented to the committee; and had it not been that a very beautiful design of a church by another eminent local architect could not be carried out under 3,000*l.*, his plan would have been selected; but I expressed to the committee my strong conviction that, as we had only the immediate prospect of 2,000*l.*, we were not justified in adopting any plan which should exceed that sum; and I protested against any arrangements by which debt could be incurred."

A plan, therefore, was agreed upon, and proceeded with, the contract being, as above stated (2,000*l.*). Presently came the objections of the Bishop's Commissary to the *mal-a-propos* direction of the communion-table, which involved "the throwing out a transept arch" on one side, and afterwards another transept projection on the opposite side by way of balance; then followed other necessary and consequent enlargements, until the contract rose from 2,000*l.* to upwards of 5,000*l.*! One member of the building committee, who had been most active, suddenly leaves Bath, embarrassments ensue, and the rest of the committee, excepting only the churchwardens and the vicar, resign; thus, the rev. gentleman is driven to the alternative of appealing to the parish to make good the large deficiency of 2,500*l.*, now remaining to finish the church. The vicar sets a good example by placing his former subscriptions to the cause as a precedent.

Restoration of St. Olave's Church, O.—On Thursday the committee appointed by the vestry to direct and superintend the restoration of the above church, met at the O. Charity-school, Maze-pond, Southwark. It was determined to restore the church, and not rebuild it, which will be an important saving. A tender was accepted from Messrs. Rider and Son, of Union-street, Borough, for the performance of the whole work, to restore the church as it originally stood, at 4,610*l.*

Rouen, France.—A church for the English residents of this town is about to be built, a chaplain having been already appointed by the Bishop of London: it is thought that an edifice for 500 persons may be set up for 1,200*l.*, part of which sum will be contributed by the Ecclesiastical Commissioners, and the remainder by subscribers.

T. Round Church, Cambridge.—A statement that a meeting of the parishioners of St. Sepulchre's was held on Thursday night, before which the chairman of the Restoration Committee was respectfully invited to give some explanation with respect to parts of the work lately objected to by the incumbent.* Before

* The objection, we understand, was to the introduction of a stone altar instead of a communion-table. Not to speak irreverently, it would seem the Rev. R. Falkner was disposed "to look the gift horse in the mouth."—*Ed.*

the meeting separated, a resolution was passed, "thanking the president of the Camden Society for his obliging and courteous communication, and expressing the obligation the parish was under to the committee of that society for completing the work of restoration in so satisfactory, praiseworthy, and excellent a manner."—*Cambridge Paper.*

PUBLIC WORKS.

Hull—Improvements in the Trinity House.—The Corporation of the Trinity House are extending their improvements. They have ordered the demolition of the old chapel in Trinity House-lane, adjoining to the Trinity House hospital. This chapel, which was erected in 1772, and was of very substantial brick-work and masonry, is now nearly levelled with the ground. Its site and the ground adjoining are to be covered with a complete set of new offices, for the wardens and their clerks, &c., for receiving the dues, paying the pensioners, and transacting other business of the corporation. Mr. Foale is the architect, and Mr. Earle the mason employed.—*Hull Packet.*

Street Improvements in Hull.—It will be remembered that about three months since, the Hull Dock Company advertised for plans for the best mode of laying out the grounds, formerly the site of the well-known Dock Office-row, and the old dock office, and offering a premium for the best. In consequence, several designs were submitted by local and other architects. After due deliberation on the merits of each, the company came to the unanimous resolution of adopting the design of Mr. Charles Evans Lang, architect, of the Adelphi, London. Mr. Lang's entire design contemplates still further improvements in the appropriation of that piece of ground now used as a ship-building yard, to warehouses, &c., for which it appears to be most eligible; forming, as it will, a corresponding feature to the pile about to be erected on the site of Dock Office-row. By this design, Bridge-street will be completed, and a street formed from Trippett to the drawbridge into the old town, by shops on each side. This is the first improvement in the approaches to the town attempted in Hull. We congratulate the Dock Company on its originating with them, and would hope that the Corporation, when such opportunity may offer, will not hesitate to follow so laudable an example.—*Ibid.*

Bath.—It is proposed to erect a new bridge here in lieu of the old and inconvenient one, and a meeting of the inhabitants of the parish of St. James is shortly to be called for the purpose of determining upon it. A public fountain is also to be set up in Laura-place, under the auspices of the Bath Improvement Society, aided by the grant of a supply of water from Lord Wm. Paulet.

Birkenhead.—At a meeting of the Improvement Committee last week, it was ordered that 5,000*l.* be expended on seven lodges, to be erected in the new public park.

UNION OF THE LEEDS AND LIVERPOOL CANAL WITH THE RIVER.—The formation of a short cut connecting the terminus of the Leeds and Liverpool Canal with the river Mersey, is so evident and so great an advantage to this port, and to the trade with those parts of Lancashire and Yorkshire which are traversed by that fine line of communication, that it is surprising that it has not been effected sooner. When the plan for effecting it, which is now before the committee of the dock estate, is completed, it will enable the flats coming down the canal to go directly into the river, and to discharge their cargoes of coal and other articles in whatever part of the docks they may be required. It will also enable flats for Leeds, or any of the places on the line, to take in their cargoes, or any part of them, directly from the shipping in the port, and thus save the expense of cartage. The cut, by means of which this is to be effected, will be about a thousand yards long, and will have four small docks in different parts of its course. It will cross Waterloo-road and Great Howard-street, and join the canal not far from Leeds-street. If the proposed steam-boat dock, at the north end of the town, should be formed, this cut will be doubly useful, as it will enable the coal flats to go alongside the steamers without entering the river.



FACADE OF THE BRITISH MUSEUM.

FACADE OF THE BRITISH MUSEUM.

WE have decided, after much conflict, not to proceed further in this business than by presenting the view, enlarged from the published copy, of Sir Robert Smirke's elevation of the Museum, and to follow it up with the plan. It is this plan that has subdued all the little of that spirit to carp and criticise which a first view of that of the façade and of the elevation engendered in us. Not that we think any thing the better of the elevation, after all; but somehow we are struck with a sense of profanity in baiting and taking to task the possessor of that mind whose evidence of talent is not alone in the grand general plan of the Museum, although there were enough in this, but in a reputation sketched out on many previous works of eminently fine disposition and arrangement, and which mind is surrounded by the bright halo of a high character for integrity, industry, and gentlemanly bearing. No, we must part with our right hand before it can pander to the attack on a noble and generous nature—and that such is Sir Robert's, we are well convinced, or the plan of the British Museum is a forgery.

The better to justify us in all we have said, and now say, it may be as well to explain that we have no personal knowledge of Sir Robert Smirke—we know not that we ever saw him. We need not disclaim expectancies; we are not in the way of such, nor dependent on them. Our paper, whatever may be its demerits in any other respect, and whatever our own, is not, so long as it is ours, to be disgraced by servile dependencies; therefore, it will be understood that, right or wrong, our convictions are honestly made up, and these convictions are that we should be doing an injustice to fall in with the cry of *unqualified demerits*, nay, to join in that which would affirm as much as, that great talent, great judgment, and a rare assemblage of eminent qualities as an architect and a man of business, had not reigned supremely in the mind of SMIRKE when he concocted and while he directed the plan and execution of the works of the British Museum.

Again we say, we are not in love with—the exterior character which Sir Robert has given to his building; we will say, without knowing him, that there is more of hypocrisy in it than there is in himself; it is a mannerism of times recent and times present; it is a bastard product of classic fancy, a false face (though a fair one) put on a noble carcase; yes, it is the carcase that redeems it, or rather redeems the misappropriation.

But would the public, the discriminating public, be pleased with a truer face? Would they so well dispense with the agreeable mask? We trow not. Show they will have, pompous and pedantic though it be. Elevations all mimetic, whether at the Museum of Russell-street, or the "New Palace" of Westminster; the facile transposition of an attic colonnade obtains their applause, though it serve duty in front of a trustee's parlour or a keeper's sleeping-rooms, just as much so as Gothic garnitures that encase committee-rooms, or still more ignoble apartments. The good public crave a style! That of the Post Office was wonderfully fine in its day, but it has lived out in the short life of realization in the British Museum. So we fear that a brief age will say as much for the appropriation in the Parliament Houses; but are Smirke and Barry less the men of leading mind for that? Measure them both, we say, by their plans—it is in their utilitarianism they shine. Who expects, in an age of cold craft of that ilk, to meet with graces and adornments? It is not in the nature of such times, and of the people born in them, to be marked with such. Strike off the fetters of "style," or seal the mouth against the cant of it, and "a soul will be created under the ribs of death."

Have we then no suggestions to offer? We will attempt to bear with ourselves while we do something in this way in accompaniment of the Plan.

BRITISH MUSEUM.

TO THE EDITOR OF THE BUILDER.

SIR,—In answer to a hint thrown out in *THE BUILDER* of last week, I venture to send you a hasty sketch of what might, in my opinion, be made of the façade of the British Museum, not greatly disturbing the arrangement. The plan is drawn to half the scale of that in *THE BUILDER*, and which, I presume, was taken, as mine is, from the plan published by autho-

city in 1838. It will be seen that I have carried the wing five intercolumniations farther on each side from the centre, leaving the latter the same; the wings, also, are brought forward five more intercolumniations, and they are terminated by pediments, instead of placing one in the centre, where it would not agree with the practice of the best ancient examples. I would prefer the Corinthian to the Ionic order. In the published plan, apartments for the officers are placed in buildings on each

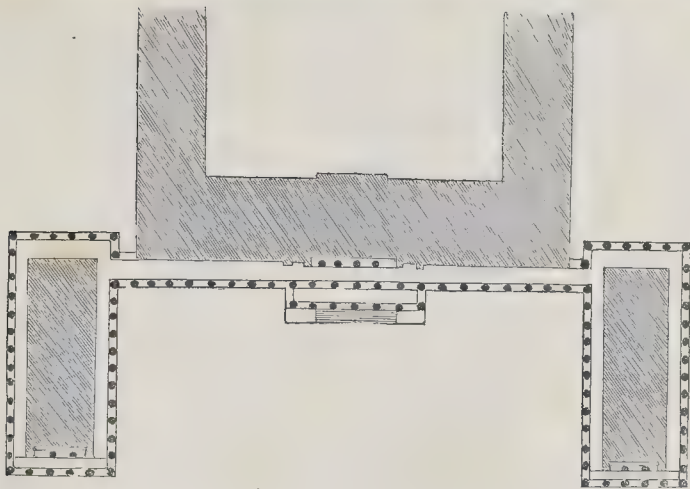
side of the columnar arrangements: in mine they would form part of the latter. A space of forty feet would still be left between the wings and Great Russell-street. I would flute the front columns and leave the shafts plain of those behind; an instance of the good effect produced by this practice may be seen at the Bank. If you think the inclosed worthy of notice, it is quite at your service.

I remain, your well-wisher,

Monday, 27th November, 1843. G. R. F.



Elevation.



Ground Plan.

LEAMINGTON PARISH CHURCH.

The central elevation of the west front of the new parish church was completed two or three days since, by placing an ornamental stone above the arch of the large window, and we are happy to record that the whole of the stone-work of the first part, of the intended design, is now finished, excepting the parapets, which cannot be placed upon the nave or side aisles until the roofs are fixed. Upwards of fifty workmen were discharged last Saturday night till the spring, a sufficient number of masons only being retained to complete the parapets, &c., the masonry of which is now in progress. We believe it is the intention of the Vicar to proceed with the central tower and chancel in the spring, but a strong appeal having been made by a great number of mechanics, who, by the temporary suspension of this important work, are thrown entirely out of employ, has given rise to a requisition to the parish autho-

rities relative to the bell tower, as a means of finding work for them during the winter. In this requisition there is an expression of good thrift and true benevolence, and we are glad to subjoin it for the force of example to many others:—

"To the Churchwardens of the Parish of Leamington Priors.

"Gentlemen,—Some time since, when the masons and labourers who, with other workmen, have been employed at the parish church, assembled, with their wives and children, in the Town Hall, at a dinner provided by the Vicar, their number was one hundred and ninety, and upwards. Most of these will be turned out of employment, as it appears to them and the Vicar of the parish, most unnecessarily. The Vicar is under a pledge to build up a tower to hold the present peal of bells, and no more; but as the parish generally are desirous of a larger peal, it is necessary there should be a larger tower; the difference, therefore, must be provided for somewhere. Now, as many persons who said they were opposed to a rate for this purpose, at this moment

affirm they opposed it under a mistake; we who are ten pound rate-payers and under, find to our cost that the real friends of the poor are all persons who are willing there should be a rate for the purpose above named—for, though the poor man may have to pay a rate amounting to all to tenpence, or thereabouts, still by employment he can earn pounds; and we find that even the loss of one day's work causes us to suffer much more than the loss of the tenpence for the rate, which we are all willing to pay. And we, the poor men, but rate-payers, request of you to call a vestry meeting, for the purpose of forthwith considering the expediency of laying on a sufficient rate to cover the expenses of the difference between the cost of re-erection of the present small tower, and a larger and more suitable one, to hold the future bells; and your doing so, on an early day, will give us employment through the winter."

We are happy to add that the churchwardens and overseers have complied with the above call. A meeting was to take place on Thursday last.

DESCRIPTION OF CHATSWORTH.

THIS mansion, magnificent as regards its internal arrangements, and the splendid demesnes which surround it, and now for the second time rendered remarkable by the presence of a Queen, was among the domains originally given by William the Conqueror to William Peverill, one of his attendants, but it afterwards passed into the noble family of Cavendish. The present building was designed by William Talman, comptroller of the works in the reign of William the Third, but the whole extent of his plan has only been carried out by the present duke and his predecessor.

Chatsworth was for some time the residence or prison of Mary Queen of Scots, a circumstance which caused her name to be given to a suite of apartments in this building. The house was also the residence of Marshall Tallard, who was taken prisoner by the Duke of Marlborough at the battle of Blenheim. On taking leave of the Duke of Devonshire, with the happy politeness of his nation, he said, "When I reckon up the days of my captivity in England, I shall leave out all those I have spent at Chatsworth."

The chapel at Chatsworth boasts the masterpiece of Verrio.

The orangery is 180 feet long, 27 wide, and 21 feet high. Some of the trees were selected from the fine orangery of the Empress Josephine at Malmaison. There is a specimen of rhododendron arboreum, one of which bore upwards of 2,000 flowers in the summer of 1840. At the northern end of the orangery there is a communication with the baths and ball-room, and over them is an open temple, which commands very extensive prospects.

The water-works and the great cascade were designed by a French engineer, situated to the south and south-east end of the house, and where, on playing, a vast body of water rises from a square building, surmounted by a dome ornamented by dolphins, sea nymphs, &c., through which it falls into a basin, and then descends a series of 24 ledges for about 300 yards, when the stream disappears amidst masses of rock, and passes beneath the lawns to the river. The "willow tree" consists of a series of *jets d'eau*, the pipes of which are in the form of a decayed tree; one of the fountains throws up the water ninety feet.

The grand conservatory is 300 feet long by 145 feet wide. The elevation of the central cove or arched roof is 67 feet, with a span of 70 feet, resting on two rows of iron pilasters 28 feet high, dividing the building. The interior comprises an area of about an acre, in the centre of which is a carriage road, the plants being ranged on either side. The tubes for hot water are six miles in length. A perfect view of the whole interior is obtained from a circular gallery at the base of the dome, the access to which is by a series of rustic steps amidst arches of rock-work. A tunnel surrounds the whole building, for the purpose of obtaining access to the stoves and pipes for conveying water.

During the Queen's visit to Chatsworth, the interior of the conservatory was illuminated by 12,000 lamps of all descriptions, 11,000 being variegated. The ensemble of the interior was a complete realization of some of the gorgeous and enchanting scenes described in the "Arabian Nights," and no words could convey an appreciation of the effects produced by the novel and dazzling brilliancy of the different coloured hues imparted by the mode of illumination adopted. The *coup d'œil* was superb. The cascade was lighted on either side to its source at the top of the mountain by 500 Russian flambeaux, and the several fountains and *jets d'eau* in the gardens and terraces were illuminated at dark. The orangery, with its exquisitely sculptured reliefs hung with Chinese lanterns, and otherwise lighted by additional lamps, contributed to carry out the illusion of some oriental tale of enchantment and princely luxury, hardly compatible with our northern notions or chilly climate.

WHITEHALL.—According to the intention of its royal founder, and the plan of Inigo Jones, this palace would have occupied 24 acres. It was to have extended 874 feet along the side of the Thames, and the same length towards St. James's Park, presenting one front to Charing Cross, of 1,800 feet long, and another, the principal, of similar dimensions towards Westminster Abbey.

ARCHITECTURAL COMPETITIONS.

TO THE EDITOR OF THE BUILDER.

SIR,—By your fearless exposure of the various abuses which have crept into the building system, you are doing an essential service not only to the profession generally, but to the community itself, the honour of the one and the interest of the other being both deeply involved in the matter. A correspondent, in your journal of the 2nd inst., powerfully advocates the formation of a builders' society, which, he contends, if founded upon certain fixed and equitable principles, would have the effect of checking that increasing mania for competition among a certain class of builders, who recklessly and indiscriminately enter into contracts upon terms far inadequate to cover the original cost of the materials and labour employed. The inevitable result of acting upon such a system is ruin to the contractor, loss to the merchants and others with whom he has dealt, and injury to the mechanic and the labourer, by forcing upon them reduced and inadequate wages.

Nor is this all, the master builder is too often subject to bad debts and actions at law, arising either from the tyranny of the architect employed, or from the rigid and impartial enforcements of some despotic, capricious, or ill-defined clause in the specification, or from some disputed accounts relating to alterations from the original drawings. The crying evils to which I have referred are not confined to one class of building engagements only, but to all. The contracts for churches, hospitals, workhouses, and, indeed, almost every other description of public building erected upon the *cheap* principle, present the same hideous features of deception and dishonesty, over-reaching cunning, and cruel despotism, which bring in their train certain ruin, more especially those indeed the work of men who, to use your own significant phraseology, "are thrust forward, or thrust themselves forward, to show their skill in cutting and paring down before the contract is made, reducing the builder's estimate to the lowest possible straining of his credulity and confidence, and afterwards enforcing and watching to the turn of a screw or the driving of a nail."

The Worthing new church building transaction, of which you have furnished so ample a report, will, we trust open the eyes of every master builder in the country, who wishes to maintain a character for honesty among his fellow men, and evince a due regard for the honour and prosperity of the profession to which he belongs.

The experienced practical builder, in addition to the evils already adverted to, has to combat with the puppyism, self-sufficiency, and practical inefficiency of beardless architects, who are too frequently chosen by building committees, not as they ought to be, principally from the excellency of their qualifications, but from the personal influence of family connections. Hence the many glaring blunders which disgrace some of our large public and private buildings; hence the accidents, attended with loss of life, which have occasionally occurred, owing to the defective principles used in the formation of certain works which have given way. We admit that this censure does not apply to the general mass of architects in this country, than whom a more useful, honourable, and better educated class of men probably does not exist. The mis-deeds and mischiefs of the would-be architects of the day are unhappily not confined to this country, for we find by your journal of the 25th ult. that our Gallic neighbours are infested with a similar species of nuisance, as will be seen in the article announcing that the Tribunal of Valenciennes has recently severely fined an architect, through whose ignorance and presumption the splendid Gothic tower in that city fell to the ground, by which accident several persons were killed or wounded. He had been previously warned of the unsafety of the building by a man more skilled in the building art than himself; the warning was disregarded, the edifice was tinkered by the self-sufficient architect himself, who had scarcely finished his task, and pronounced the tower to be perfectly secure, ere it fell to the earth and was entirely demolished. A somewhat similar accident might possibly have occurred to a large public edifice within our own country, but for the timely interference of the practical builder employed in its erection.

I am, Mr. Editor, yours truly,

A PRACTICAL BUILDER.

[We have read the communication of our correspondent "A Practical Builder," with much attention, and regret that the very great space it would occupy prevents us inserting it entire.]

RABY CASTLE.—The Duke of Cleveland is about to enlarge, by additional wings, this splendid baronial seat, from designs by an architect from Edinburgh.—*Sun*.

ROYAL SCOTTISH SOCIETY OF ARTS.

AT the annual general meeting of the Royal Scottish Society of Arts, recently held—James L'Amey, Esq., of Dunkenny, F.R.S.E., president, in the chair—the following, among other prizes, &c. were awarded by the society:—

To Mr. William Gale, F.R.S.S.A., civil engineer, Glasgow, for his "Remarks on the Utility and Defects of the Moveable-Jib Crane, according to its present construction in Glasgow; with proposed improvements to obviate its defects," with drawings and models. Read and exhibited 13th March, 1843. (975.) The society's silver medal, value five sovereigns.

To Mr. Charles H. Wilson, A.R.S.A., V.P.R.S.S.A., Director of the School of Design, Somerset House, London, for his "Observations on the Decorative Arts in Germany and France, and on the Causes of the Superiority of them as contrasted with the same Arts in Great Britain; with suggestions for the Improvement of Decorative Art." Read, and specimens in illustration exhibited, 24th April, 1843, and printed in the society's Transactions. (995.) The society's honorary silver medal.

To Mr. Alexander Mitchell, watch and clock maker, Glasgow, for his "Description of an improved Water Meter." Read, and the Meter exhibited, 12th December, 1842, and printed in the society's Transactions. (945.) The society's honorary silver medal.

To Messrs. Thomas Shanks & Co. engineers, Johnstone, Renfrewshire, for their "Specimens of Screwed Bolts, as executed on their new Lathe, as cheap or cheaper than Bolts screwed by Dies." Communication read and bolts exhibited, 13th February, 1843. (963.) The society's honorary silver medal.

SKEW ARCH.

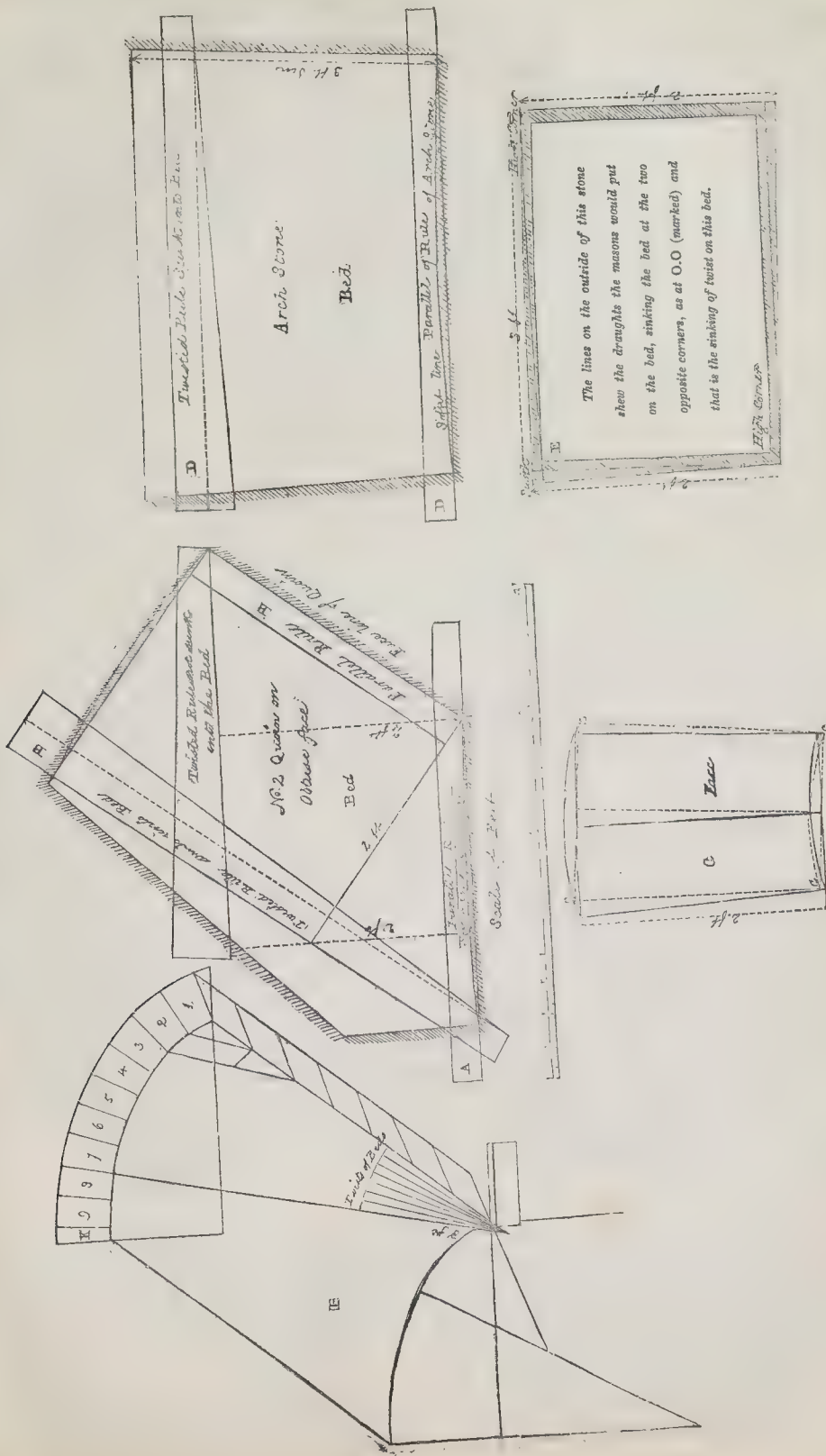
TO THE EDITOR OF THE BUILDER.

SIR,—A subscriber to THE BUILDER has asked me some questions concerning the skew arch that you were so kind as to publish in No. 41. I shall answer the subscriber to the best of my ability, but it is sadly impaired, my memory is bad, and should the answer not prove correct, I hope that some kind reader will correct it for me. Now, to the first question,—"Of what use is the section I from a to a on arch development?" *Question second.*—"Would not a section on the same line on the cylinder development be the true curve of the rules for the soffit?" The first question would be answered by the second. Now, I believe, when I view and measure the diagrams over again, that the line on the cylinder development is the correct curve, at least as far as I see the thing at present. I believe I was in error before, but then as to the use of getting such a section, it was to make the rules *k k* from. The next question is—"Of what use is the twisted rule, and in what manner is it found from the twist of beds marked M?" I have made another diagram or two showing the use of the twisted rule, and how the mason applies it on the stone. The rule is $\frac{1}{4}$ of an inch wider at 12 inches from the end (say the narrow end of the rule to be 3 inches, then at 13 inches it will be $3\frac{1}{4}$ inches, and at 2 feet will be $1\frac{1}{2}$ inches wider, and so on). In the figure F, I have made the divisions; they are the same as on the plate in No. 41 of THE BUILDER, and I believe that to be a correct method of getting the twist of the beds—at least I know no other,—and should that not prove correct, I shall be obliged to him that will set me right. The twisted rule and parallel rules marked A are put on the quoins at 2 feet distant from the soffit, but not sunk into the bed, but only the twisted rule and parallel rule marked B; the twisted rule shows it is sunk on the bed from a to a, and by taking over the top of the two rules B, they will be found to be out of twist, while, by taking over the rules A A, they will be found to twist $1\frac{1}{2}$ inches in two feet.

In the common arch stone marked D, that also shows the rule sunk into the bed from a to a, or until you bring the tops of the two rules to be out of twist. In the stone marked E is shown the sinking of the bed a little at the two low corners marked o o, which does not cause so much waste on the first bed, but it is still the same twist. The figure C shows the face of an arch stone, with the twist at 2 feet back, denoted by the dotted lines c c c c. I have enlarged the stones, to make them the clearer to understand, and now, having answered this, I do not think I can explain any further; but should any other, or the same subscriber, ask for further explanations, it is my duty to do my best towards it.

Your humble servant,

G. S.



SKEW ARCH DIAGRAMS.

LIAS LIME.

In passing through Dunster, from Minehead to Watchet, as all the buildings in that country were erected with *lias* lime, I took care to remark the appearance of every kind, both wet and dry, and though the workmanship in general appeared but coarsely performed, yet the mortar bore to me the evident marks of being excellent, for wherever I saw it, however coarsely it was done, yet it appeared full and flush in the joints, without cracks, losing its original skin, or becoming crumbly, as often is the case with mortar of a tender kind after having gone through two or three winters or more; and in one place I remarked the foundation of a little bridge, that by some accident had been driven down, but the mortar over which the current was making its way, I found, on trying it with my knife, to have acquired such a strong hardness as, with a coat of moss, effectually secured it from the action of the water; still it was inferior in hardness to the same lime mixed with terras or pozzolana. It will, perhaps, seem wonderful, that for a lime so excellent in quality there should be no great demand, for, in reality, I found but one small lime kiln, and that not kept constantly at work; but considering that it does not suit the purposes of agriculture even upon the very spot where it is produced, the wonder will cease. The limeburners themselves told me that for the use of their own farm they were obliged to get lime from the rocks of *St. Vincent*, near Bristol hotwells; or of a similar quality at a distance of not less than 46 miles; for they had to d me, were they to lay their own lime, though reduced to a fine powder, upon the land, the first shower of rain would turn it all to stone, without affording any sensible cultivation to the land, and as the *St. Vincent* rocks are somewhat like the *Plymouth marble*, this circumstance affords another proof that the qualities of lime for different uses, do not depend upon the hardness, but upon the specific qualities of the stone from which it is burnt. This lime, if burnt to a due degree, and quenched hot from the kiln, falls freely to powder; and to prevent its imbibing moisture from the air, should be mixed up as soon, or hot, as possible for works under water. *Lias* lime, slaked at the kiln and packed in light casks, preserves its virtue for a considerable length of time. I had now determined as to the composition of the mortar for the Eddystone.—*Sneaton*.

RAILWAYS.

South Eastern Railway.—In consequence of the late heavy rains, and the engineering operations in the great blast, an immense fall of chalk has taken place at the bottom of the cliff on the east side of Abbot's Cliff Tunnel, which has for the present completely blocked up the entrance, and will occasion great expense, loss of time, and labour, to remove the obstruction, and we fear delay the time of opening to Dover beyond the appointed time. Above the fall to the top, the cliff looks in a very dangerous state, with a deep fissure in the middle; and if it does not fall, there is little doubt it must be taken down or blown up before any train can pass safely travel below.

Margate.—Plans have been made and estimates proposed for an atmospheric railway from Ramsgate to Margate. The idea of a railroad from Ramsgate to Margate has been many years in agitation, and, after being dormant for some time, is now revived with increased energy. The contemplated atmospheric railway is to be on the plan adopted between Dublin and Kingston, and there found perfectly practicable and successful.—*Dover Paper*.

The sum of 11,970*l.* has been sold out of the British funds, by direction of the Right Hon. the Paymaster-General of the Forces, for the purpose of securing a plot of land at present contiguous to Chelsea College, but which is to be added to the grounds of that institution. This sum is the residue of the munificent legacy bequeathed in trust by the late Colonel Drouly, formerly Captain of Cowes Castle, to the Lords and others, commissioners of the above establishment, for the benefit of its pensioners. The first portion of this donation was expended in the purchase of the site of the once celebrated "Ranelagh," which adjoined the eastern boundary of the College, and which was converted into gardens and pleasure-grounds for the use and recreation of a select number of veteran in-pensioners.—*United Service Gazette*.

GRAND CANAL OVER THE ISTHMUS OF SUEZ.

The project of cutting a canal across the Isthmus of Suez is attracting a great deal of attention both here and in Egypt. By our last advices from Alexandria, we learned that a young Arab, who, having studied engineering in Europe, had returned to Egypt, gave it as his decided opinion that a canal would be preferable to a railroad, the question having been seriously put to him by the Pasha. Here several pamphlets have made their appearance, and the subject is discussed in all its bearings, reference being made in some instances (especially in a pamphlet by Mr. Clarkson) to an ancient canal, mentioned by Herodotus, to illustrate the feasibility of the scheme. The most practical observations seem to have been elicited by the report of M. Adolphe Linant, a French engineer, who has now been for several years in the service of Mehmet Ali. The results of an elaborate survey of the isthmus by this gentleman are, that the nature of the soil and the chain of lakes present great facilities for excavating a canal; that the Red Sea at Suez being 32 feet higher than the Mediterranean at Pelusium, the water let into the canal would form a perpetual current flowing with great velocity; and that a breakwater or pier might be constructed on the bar formed at the embouchure of the canal in the Mediterranean, to shelter vessels anchoring off its entrance.—*Times*.

The estimated cost of this great work is four millions sterling. The total shipping to and from Europe on account of the Eastern trade is reckoned at one million tons per annum, and its value twenty-six millions. This canal would effect a saving of four or five weeks by sailing vessels, and a diminution of insurance risk to the amount of 50,000*l.*; this, with a toll of 8*s.* per ton upon one-fourth the amount of tonnage as above, and 50,000*l.* for passenger traffic, mails, and parcels, would give 5 per cent. return upon the outlay.

The value of this project, however, is at present in a state of complete uncertainty. The surveys on which it is based yet want verification. Nevertheless, the temptation of affording the same facilities in the carriage of goods that are at present enjoyed in the carriage of letters is so great, that calculations, even on an assumed practicability, cannot be deemed premature.

CHURCH DESECRATION.

The church of the Holy Trinity, Deerhurst, near Tewkesbury, will be known to some of our readers as associated with the history of S. Alphege and the Venerable Bede, and as being one of the most curious and interesting of our Saxon churches. The chancel has been long pulled down. The eastern end of the nave, now converted to supply the want of one, is fitted up with arabesque woodwork running round north, south, and east walls, while the holy table stands lengthwise in the middle, according to the old puritanical arrangement which in this case has suffered to remain. The monastic buildings, what is left of them, are now turned into a farmhouse, and the site of the former chancel forms part of the present farm-yard, the pigsties of which actually abut on the east wall of the church, and occupy the position of the original altar. This, too, in a church of which the rural dean of the district is incumbent! The churchyard contains the burial-place of the Coventry family, and two hay-stacks.—*Ecclesiologist*.

Correspondence.

SIR,—I have no doubt many of your readers will appear a little astonished at the letter of "Guillaume Le Jeune," in your 43rd number, the tone of which, to say the least, is not very encouraging. True it is, that the "Church in the Classic style," or the "Cottages" of the "Practical Builder" are not precedents many would wish to follow; but gentlemen ought to bear in mind, the building public do not live altogether by erecting

The "Washington Memorial," if not a weighty matter, is at all events a *high one* to write a dissertation on, taking into account the scanty materials furnished by the American newspaper, as noticed in your Leader of the 25th ult. In my humble opinion, it is rather premature in "Guillaume le

Jeune" to enter the lists against Mr. Pollard under these circumstances.

The most serious part of the subject remains to be explained, and that is the "galvanizing," which, if the question was really in earnest, would have the effect of upsetting his countryman's (Sorel's) patent.

J. K. L.

Killarney, December, 1843.

SIR,—Living in a part of the country amidst large farms, I wish either you or your kind correspondent "P. T." would tell me where the five-acre farms are adopted; whether they are sufficiently large for a man and small family to obtain a livelihood on without being employed as a day labourer? and also, what is the system of cultivation which they adopt; and whether there is a work published on the small farm system that can be recommended? By answering these in your valuable paper, you will confer a great favour on a casual labourer.

I remain yours respectfully,
Spalding, December 9.

H. X.

[We recommend to our correspondent Col. Blacket's pamphlet on small farms, it may be had of Ridgway, Piccadilly, through a country bookseller; he will there see how much may be done by the soiling system, and we dare say will come to the conclusion that with proper efforts, and a wise system of economy in the employment of his family, a comfortable living may be enjoyed on a five-acre farm. We wish ten thousand such farms could be created in this overgrown and over-monopolized country. We greatly desire that some of our practical farmstead builders, architects we may most honourably entitle them, would turn their attention to uniting the ingenious in arrangement with the picturesque in character, so as to render attractive under the guise of art what is so eminently entitled to be regarded as such in all the respects of a wise and generous national policy. A district studded over with small and beautiful farmhouses of the class we advocate, would be quite as pleasing as street rows, and infinitely more susceptible of adornment and general interest.—*Ed.*]

TRURO MARKET COMPETITION, AND THE LEICESTER MONUMENT.

SIR,—After forwarding to you my remarks on the Truro market competition, under date of the first of this month (which you have considered worthy of insertion at length in your journal of this week), I observed another letter in your paper of Saturday last, in which it is boldly asked "Is it honourable that some of the many (competitors) should prepossess a portion of the body (committee) in favour of some nice blue sky or finely-painted pig, whilst they know their fellow-competitors would either not stoop to such irregularity, or not have the means to make the opportunity?" I would simply beg to ask, is your correspondent able and willing to prove what he here asserts, for his statement amounts to more than an *insinuation*, though "conveyed under the form of a question?" and are the parties alluded to as some of the "many" (who, I take it for granted, see or hear of your paper, if they see or hear of any journal connected with their profession), ready and willing either to rebut it, or do they consider that silence on the subject is the best resort remaining to them, even though it may be interpreted as an acknowledgment of their—?

Regarding the Leicester monument, I see that a correspondent, "J. B.," from Norwich, 28th ult., states that "E. B. T.'s" communication is at variance with the answer he has received from the *honourable secretary*. It may be so; but having myself this week received from the *chairman* a reply similar to that given to "E. B. T.," I consider it right to mention it as a hint to the wise, lest it may hereafter turn out that between "Two" the competitors, *en masse*, fall to the ground.

Your constant reader,
Saturday, Dec. 9th, 1843.

Φ.

SAUVAGE, THE INVENTOR OF THE SCREW PROPELLER.

SIR,—In your number for Aug. 5th, you were pleased to insert a letter of mine, signed, "A Friend to Inventors," calling the attention of your readers to the hard case of a Frenchman named Sauvage, the inventor of the screw propeller, destined to replace the paddle wheels, which incapacitate steam-vessels for war, then in prison at Havre for a paltry debt, contracted by the necessary expenses for bringing his invention into notice.

"Nul n'est prophète en son pays" is a maxim too well known to dwell upon; and thus, notwithstanding many energetic appeals on the part of sundry French writers, Sauvage appeared destined to waste his best years, if not to end his days, in prison, while the *Napoléon*, built at Havre, and

exemplifying his system, was launched in triumph, and sailed forth with a committee of engineers and naval men on board, and touched at Portsmouth and Southampton in her successful course. *Sic vos non vobis*. But, meanwhile, THE BUILDER, ever ready to open its columns to all subjects bearing a character of general utility, raised its voice to demand the enlargement of one of the martyrs to invention, and to promote a subscription in favour of the unfortunate prisoner; and this number having been forwarded by me to M. Alphonse Karr, one of the most zealous patrons of the unhappy Sauvage, it found its way into the hands of the *Ministre du Commerce et des Travaux Publics*, whom, according to the above quoted proverb, it seems to have touched in favour of the poor prisoner far more than any native remonstrances had been able to do. Honour therefore where honour is due! By the publicity you kindly afforded my letter, you have been the real promoter of the tardy reward the French government has conferred on poor Sauvage, who is now no longer a prisoner, and has just been granted a pension of 2,400fr. (96*l.*) per annum. This clever man is likewise the inventor of the *Physiotype*, and the *Machine à réduire*.

Thinking your readers would feel an interest in learning the result of an appeal which THE BUILDER alone, of all the various newspapers addressed on the subject, had the good feeling to bring before the public, I took the liberty of troubling you with this letter, which I should be happy to see inserted in your pages, were it only as a piece of justice to yourself. Your obliged

LE CHEVALIER DE CHATELAIN.

December 12, 1843.

NEW STYLE OF ARCHITECTURE.

Sir,—A few days ago in the course of conversation, the subject of architecture was introduced, and a lady who was present wondered much that there was no encouragement held out to the professors of the art, to prompt them to set their wits to work and produce a new style of architecture. My reply was, that I believe there is an award of 1,000*l.* offered by the King of the French to any one who would produce a different style, laid down upon strict rules. I may have been misinformed; perhaps you could set me right on this point. Yours,

December 11, 1843.

CLEVERUS.

[We are not aware of any thing of the kind referred to by our reverend correspondent, but print his inquiry, to elicit a better answer, if such there be. It would occupy us at some length to remark on a subject so fertile as that involved in the invention of a new style. A reward of 1,000*l.* for such a thing sounds to us like a reward for the discovery of a new age, for styles are things of slow

birth and growth; like ages and empires, they do not flash out like meteors, or they would pass away as such. It would be apt enough, however, in Louis Philippe to bid after this fashion, of whom it is reported that he imprisoned a son of the muses in the Chateau d'Eu until he should be delivered of a poem, commemorative of our gracious Queen's visit to France. Spinning poems and styles, or weaving them, would be in keeping with the manufacturing spirit of the times.—Ed.]

ON STOVE WARMING OF CHURCHES, &c.

At this season of the year, almost unexampled for mildness in this variable climate, should a sudden change occur to extreme cold, the effect of what is called heterogeneous attraction would be most powerful and dangerous, and likely to involve the damage, not to say destruction, of many valuable structures.

You can easily imagine a large building filled with cold atmospheric air, the walls, and all the interior almost at freezing point; the person superintending the furnace is ordered to produce by a certain time a certain degree of temperature. Take, for example, the warming of a church on Sundays; a large fire is kindled as quickly as possible, to supply the quantum of heat by ten o'clock in the forenoon, the furnace is forced with as much coal as it can contain, regardless of the consequences, and, ignorant of the attractive principle, the flues are heated to a degree which would baffle mathematical calculation.

A few years since, the church of St. Mary-at-Hill, Thames-street, was fired in this way, but, providentially, only partially damaged. On examining the flues, which were constructed with fire-stone 6 inches thick, I discovered, at the distance of 50 feet from the furnace, fissures and broken parts, through which the flame had escaped, set on fire the boarded floor and pewing, and had extended to the galleries. I have reason to believe the Royal Exchange, the Tower, and many other buildings, have been destroyed by the operation of this kind of action.

With a view to prevent a repetition of these calamities, I would suggest that a superior be appointed over the subordinate, that the furnace be supplied gradually with fuel, as it will be generally found a gentle fire will answer all purposes, only a little more time is required. Coke, instead of coal, to be used, as there is but little flame produced thereby.

If these few hints are worthy a nook in your valuable and widely-circulated publication, they may not be unacceptable, on the principle that prevention is better than cure. Yours obediently,
Dock-Head, Bermondsey. THOMAS SMITH.

Miscellaneous.

NEW ROYAL TERRACE PIER, GRAVESEND.

—A meeting of the commissioners appointed under the act 5th and 6th Victoria, sec. 42, for the improvement of the town of Gravesend and its district, was held at the above place, for the purpose of receiving and considering reports relative to the erection and progress of the works of the proposed Royal Terrace Pier. It appeared that the works had been in progress since April last, from plans drawn in accordance with designs approved by the Lords of the Admiralty and the Court of Conservancy of the river Thames, under the superintendence of Mr. J. B. Redman, the engineer, so as to furnish a continuous water-way throughout. The pier, which is to be formed of cast-iron, with approaches and a carriage-way from the Terrace Gardens, is to be 240 feet long, including office and entrance, by 30 feet wide, the whole to project 190 feet into the river, from the line laid down by Mr. Walker, the government engineer, and Capt. Bullock, in their report on the Thames embankment to the Lords of the Admiralty. The platform is to be supported by twenty-two cast-iron columns of the Doric order, covered by a light iron roof on ornamental pilasters, surmounted by a clock with bell turrets; and next the river by a beacon light for the safety of the steamers and shipping, subject to the approval of the Trinity House. The construction of it has arisen from the insufficiency for the traffic of the piers at present in existence at Gravesend, during the summer months and other portions of the year, when the traffic is estimated at about 100,000 passengers. The present wooden pier is to be removed, and it is expected that the new structure will be completed and opened to the public in the ensuing summer.

MISS ATHERTON'S CHURCH, MANCHESTER.

—Dedicated to the Holy Trinity.—A testimonial of respect to Mr. James Evans, clerk of the works to Messrs. Scott & Moffatt, architects, London, from whose plans he has so ably carried out this noble structure, was this day presented by the founders and trustees with a very handsome and richly chased "silver cup," on which is the following inscription:—"Presented to James Evans, the superintendent of the erection of the Holy Trinity Church, Manchester, by Eleanor Atherton, the foundress, and the Hon. and Very Rev. W. Herbert, LL.D., the dean; the Rev. J. Gatliff, A.M.; and the Rev. C. D. Wray, A.M.; and the Rev. O. Sergeant, A.M.; and the Rev. R. Parkinson, B.D., canons of Manchester, and trustees of the said church, 1843.—A testimonial of their approbation."—*Correspondent*.

We have already stated that Mr. Cubitt, the engineer, who was charged with the survey of the country between Boulogne and Amiens, with a view to the formation of a railroad between those towns, had sent in his report, and that it is highly favourable to the project. The mayor and municipality of Boulogne have just published this report, and appended to it some documents shewing the increasing importance of Boulogne, and the claims which it has to a railroad, as being the most direct point of communication with England. Amongst these documents is a long table of arrivals and departures, from which we find, that in the months of August, September, and October last, of the travellers who arrived at or left Boulogne and Calais, the former had 78 per cent., and the latter only 22 per cent., and that the opening of the Folkestone Railroad has increased this advantage in favour of Boulogne 6 per cent. In another document it is shewn that the Customs duties at Boulogne for the first ten months of 1843 were 1,595,670*fr.*, whereas at Calais, in the same period, they were only 1,044,985*fr.*—*Boulogne Gazette*.

FRENCH AQUEDUCT.—Louis XIV. began an aqueduct in the year 1684, near Maintenon, to be the means of conveying water to Versailles; but the works were abandoned in 1688. When completed, this would have been the largest aqueduct in the world, the whole length being 60,000 fathoms, the bridge being 2,070 fathoms in length, 220 feet high, and consisting of 632 arches.

The Provisional Government of Hayti has sent an agent to England, to endeavour to form companies for working the mines and clearing the forests of that country.

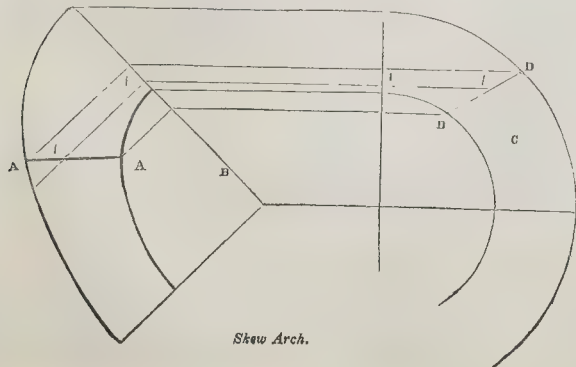
SKEW ARCH.

TO THE EDITOR OF THE BUILDER.

Sir,—The understanding of your correspondent "L." of last Saturday, is either obtuse or he is a quizz,—I should say the latter is the case; however, whichever of my conjectures be right, or whether both of them are wrong, I send a diagram to endeavour to explain what he asks. He will find that the curve of joint is so slight, that for practical purposes a straight line will do as well. I would remind "L." that he is rather overleaping the mark when he mentions any of the three skew arches; if he will refer to page 413 of THE BUILDER, he will find that the beds of the arch there illustrated are parallel to the springing line, and consequently do not twist. Trusting this will tend to the edification of "L."

I remain yours truly,

ONE OF THE UNWASHED.



Skew Arch.

MOULTON.—The top stone of the spire of Moulton church, through which the spindle of the weather-vane passed, weighing nearly half a cwt., fell to the ground on Sunday evening, the 19th ult., fortunately without doing injury. It is evidently modern, and has the date 1810 engraved on it; it is very porous, and consequently was unfit for such an exposed situation. An opportunity, in all probability, will soon be afforded for removing the present unsightly weathercock, and placing one more suitable for the elegant spire. In Woolley's sketches of this village we find the following prediction. "In 1810 a youth named Thornton (now residing at Spalding) after climbing up the spire by the crotchets, just as he was about to raise himself to the top, holding by the weathercock, it broke off at its socket, and actually fell into his arms, swinging him half round; he had, however, the presence of mind to hold fast to the stone-work with the other hand, and, letting the enormous burthen fall, he himself afterwards reached the ground in safety. A new weathercock was put up in 1810, but much too large for the light and airy spire it is intended to ornament; it appears as though it would at no distant day break down the top of the stone-work."

In all directions there is a vast exchange of property going forward in Lincoln; and, in addition, much capital is finding its way into bricks and mortar for business purposes; but no private individual seems to venture on the sort of building which for Lincoln promises, we think, the safest and most profitable investment for money, namely, the building of houses for the retired part of the community. For such houses there is a great demand, and many are promised four and five deep to persons anxious to occupy them. With this fact before us, it would be thought that eligible spots would be seized upon for buildings for that most profitable class to a trading community, retired persons. Two or three capitalists suggest the formation of a company for effecting the object that has been so often mooted, and so often suffered to die away again. Could not a public meeting be obtained to discuss the question in all its bearings? With the beginning of any thing in real earnest, three-fourths of the difficulty always vanishes.

REJOICING AT CREWE.—The Grand Junction Railway Company having transferred a great portion of their work to Crewe, a new town has suddenly arisen there. The extensive workshops have been built by Messrs. Samuel and James Holme, and are regarded as models of architecture in reference to the purpose for which they have been constructed. There are now dependent on the company there about twelve hundred persons, for whom neat and comfortable dwellings have been provided. The company gave them all a public entertainment in celebration of the establishment of this new town.

A project exists for the erection of a public building in Leeds on a scale much more capacious than any that at present exists. The principal room is to seat three thousand persons, and the edifice is to consist of an hotel of a very superior kind (resembling some of the hotels in Manchester and Liverpool), a masonic lodge, and a picture gallery, with other accommodations applicable to public purposes.

PUBLIC BATHS, ABERDEEN.—The Lord Provost of Aberdeen convened a public meeting for Wednesday last, at the requisition of a most respectable body of the inhabitants, "to consider the propriety of establishing public baths."

TO OUR CORRESPONDENTS.

"A Member of the Institution of the Builders' Foremen" has our thanks for his kind communication; it just happened, however, that we had received the same from another quarter. We hope he will not fail to oblige us in a similar way on every similar occasion.

"S. N.'s" complaint being anonymous, and affecting the character of a tradesman, is inadmissible. "S. N." and all others will please to bear in mind that we are not answerable for the advertisements that appear in our paper, or at any rate could only exercise our discretion in extreme cases; if he will substantiate the case by his name, we shall feel bound to take it up; it is a serious charge that an article should be advertised and refused on such a plea as the one alleged. We must set our faces against being made parties to any imposition. The respectability of our advertisers we hold to be unquestioned and unquestionable.

"Mr. Kelly." Patience is a necessary virtue. He is quite right; we have to exercise it, and we claim its proper exercise in others.

ENCAUSTIC TILES.—"W. B." is informed that there are several manufacturers of Encaustic Tiles. We have notice of Mr. Grimsley's, Oxford, whose price is as low as 1s. 6d. per foot; by writing to him, "W. B." would be able to procure lithographic designs, to guide him in his choice.

"Leonidas."—His letter can be inserted only as an advertisement.

"Mr. Bray" is thanked for his suggestion; we have the same thing in view, but shall be obliged to defer it for some time longer.

"Mr. King, Bath."—The letter respecting his stove grates can be inserted only as an advertisement. This must be obvious to him on the least consideration.

"Malton's Perspective" is inquired for again. If it do not turn up, we will take steps for republishing it in some equivalent form. Nicholson's Carpenter's Guide, in tolerable good preservation, half-bound, is offered at 15s., and R. Blam's Perpetual Price Book, quite new, half-bound, at 6s. Try "E. P. L." who is informed that Barr's and Blaxam's works can be procured through THE BUILDER Office, if he wishes; the former price 6s., the latter price 6s.; or by applying to his bookseller, who will procure it for him. E. P. L. will oblige us by requesting a respectable bookseller to procure him his paper weekly; he may then have it unstamped and unfolded.

"X. Y. Z." shall have the best answer we can procure him by another week.

"Candidus." His design for a shooting lodge received, and will have place.

"A Constant Reader." Inquiring as to the newest patterns for moulding planes. We will collect what information we can against next week.

"W. W." does not say a word too strong in favour of the beautiful new church at Camberwell. We shall gladly seek permission of Messrs. Scott and Moffatt, and, if we obtain it, publish the view requested. Messrs. Webb are the builders.

Tenders.

TENDERS recently delivered for Kingston-on-Railway new Church.—Messrs. Stevens and Alexander, architects:—

Howard and Son	£3,965
Jay	3,937
Lawrence	3,800
Gerry	3,705
Skelton	3,698
Bothwell, of Dorking	3,656
Stevenson	3,375

TENDER for restoring Parish Church of St. Olaves, in Tooley-street.—Mr. Allen, architect:—

Franklin	£6,159
Furnival	6,020
Sugden	5,870
Lowther	5,499
Wilson	5,488
Cooper and Davis	5,450
Ward	5,388
Nicholson	5,356
Wolcott	5,288
Kempster	5,280
Cooper	5,223
Jay	5,132
Smith	4,998
Burtenshaw	4,725
Hamden	4,674
Little and Son	4,650
Ryder	4,618
Coleman (declined)	4,092

TENDERS delivered for erecting a station at the Dover Terminus, South Eastern Railway.—Lewis Cubitt, Esq., Architect:—

Baker and Son	£34,940
Woolcott and Son	34,820
Pearse and Guerrier	34,308
Locke and Nesham	34,302
Jackson	34,316
Winsland	33,921
Piper and Son	33,700
Hicks and Son	32,700
Grissell and Peto	32,576
Little and Son	30,776
G. Webb	30,260
Newton and Kelk	29,900
Grimsdell	29,475

The above were not opened in the presence of the Builders.

TENDERS for finishing No. 28, Lewes Crescent, Kemp Town, Brighton, for G. Robins, Esq., of Covent Garden.

Cheeseman and Son, Brighton	£1,720 0
Russell, Brighton	1,719 10
Wisden, do.	1,654 0
Anscomb do.	1,645 0
Reynolds, Kensington Park, London ..	1,600 0

NOTICES OF CONTRACTS.

RAILWAY WORKS.—NORTHAMPTON TO PETERBOROUGH.—No. 1. 15 miles, 1,100 yards; 2. 18 miles, 900 yards; 3. 13 miles, 200 yards.—Office, 6, Castle-street, Holborn; Richard Creed, Secretary, Euston Station. December 20 to January 11.

KENTISH TOWN.—Lighting with gas, naphtha, oil, or any other material, and supplying apparatus. Clerk to Commissioners, 1, Montague-place, Kentish Town. Dec. 22.

CAMBRIDGE.—HILLS-ROAD.—Making a sewer of about 80 yards length.—Frederick Randall, Clerk to Commissioners, Cambridge. Dec. 26, 1843.

KENTISH TOWN CHAPEL.—TAKING DOWN AND REBUILDING.—Drawings, &c., at Messrs. Seadding and Son, Solicitors, 3, Gordon-street, Gordon-square. 4 Jan., 1844.

PARISH OF BETHNAL-GREEN.—Lighting with about 80 spirit lamps.—Specification at Mr. Bliss, 123, Church-street, Bethnal-green Road; Robert Bruton, Clerk. Dec. 21.

BRIDLINGTON PIERS AND HARBOUR.—Erection of a new south pier, removal of present pier, and other works for enlargement of Harbour.—Plans and Specifications at Mr. Sidney Taylor, Solicitor, Bridlington, after Jan. 1, 1844; March 1, 1844.

BANFF PRISON.—BUILDING A SEWER.—G. A. Young Leslie, Banff. Dec. 27, 1843.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.—ADDITIONS AND ALTERATIONS.—Drawings and Specification at Mr. Walter, Architect, Trumpington, Cambridge, after the 18th.—F. Barlow, Secretary, St. Andrew's-street, Cambridge. Jan. 1, 1844.

ENLARGEMENT OF SUFFOLK LUNATIC ASYLUM.—SPECIFICATIONS, &c.—Dr. Kirkman, the Asylum; J. H. Burton, Clerk of the Peace, Bury St. Edmunds. January 23, 1844.

ADVERTISEMENTS.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

GERISH'S PATENT DOOR-SPRINGS FOR CLOSING EVERY DESCRIPTION OF DOOR.—Manufactory, 16, East Road, Hoxton New Town.

These Springs consist of parallel and rising Hinges in Brass or Iron, and Swing Centres for Doors opening both ways.

These improved Spring Hinges or Door Springs merit general attention, as they can be applied to any door, in every situation, without defacing the wood-work; their action is easy and noiseless, neat, and not visible when the door is shut, and are made to surpass the best now in use for nearly one-half the price; they allow the door to go quite back, and are not likely to get out of repair.

The Spring Centre possesses in a simple combination of power double the strength of any hitherto invented, in a much smaller size, and at little more than half the expense.

By Royal Letters Patent.



TO ARTISTS, ARCHITECTS, PRINTERS, AND PUBLISHERS.

CHEAP AND EXPEDITIOUS METHOD OF ENGRAVING.—Every description of Engraving, similar to Woodcuts, may by this Process be executed with dispatch, and at a saving of from 25 to 50 per cent. under the cost of Wood Engraving, for the production of copies of Mechanical Drawings, Maps, Plans, Architectural Elevations, Circulars, Show Bills, &c. The Patent Process can be advantageously employed, instead of Lithography, in all cases where long numbers are required at a low price.

MILNER & CO., Sole Patentees of the "Gyrographic Engraving Process," No. 3, Racquet-court, Fleet-street, London.

ORNAMENTAL WINDOW GLASS.—2s. per foot super. CHARLES LONG having greatly improved his machinery for ornamenting glass, is enabled to offer handsome patterns at 2s. per foot super, glass included. 100 feet can be executed and delivered in two days. Address to Charles Long, House Decorator, &c., 1, King-street, Portman-square.

PATENT PLATE GLASS.

The Patent Plate Glass is equal in appearance to the British Plate Glass, and at about one-half its cost.

SHEET WINDOW GLASS.

For Conservatories, Dwelling-Houses, &c.

The Sheet Window Glass is particularly recommended for Conservatories, Garden Frames, Skylights, and all purposes where strength is required. Lights may be glazed with panes from twenty to fifty inches in length, without liability of breakage from hail or trivial accidents.

PAINTED GLASS.

In the ancient or modern style, from the most simple to the richest designs. Ruby and other Coloured Glass equal to the ancient.

GLASS SHADES.

Round, Oval, or Square, for the preservation of Clocks, Alabaster Ornaments, Minerals, &c. &c.

Sold, Wholesale and Retail, by CLAUDET and HOUGHTON, at their Plate, Crown, Sheet, Fluted, and Painted Window Glass, and Glass Shade Warehouse, 59, HIGH HOLBORN, where Lists of Prices may be had.

We take this opportunity of notifying to our Subscribers that a Title-page and Index will be given in our next number, with the completion of the volume.

THE BUILDER,

NO. XLVI.

SATURDAY, DECEMBER 23, 1843.

THE BRITISH MUSEUM.

It is due to the writer of the following paper that we give insertion to his strictures on Sir Robert Smirke's design, and also on that of our correspondent "G. R. F.," but as we cannot bring some of our friends entirely into that way of discussing points of difference which we think it desirable should prevail in a work devoted to a liberal art, and as we are responsible for the conduct of matters in something like a becoming spirit, we must take the liberty of accompanying his letter by such remarks of our own as appear necessary. We detect in the handwriting one who has displayed not a little of industry and anxiety in former communications on the same and other subjects, and therefore we say it is due to him that he have what he requires at his setting out.

"X. X." is evidently a professional man, and though all carelessness and blundering is to be deprecated, and is a drawback on the most excellent design, yet it is a drawback of mechanical nature, and one that we should little expect to be dwelt upon by an educated critic addressing himself to the merits of the design itself. We are not surprised at such things among competition committees, and in people uneducated in the spirit of art, nor bring their eye, or a quizzing-glass, to bear upon the detail of a drawing, and exclaim at its prettiness, or ugliness, as it may strike them; while the more profound observer is intent upon canvassing the matter really at issue, and brings his mind last, if at all, to that whichrages the buzzing superficials that stand round.

Such criticism as "X. X." indulges in concerning the rudeness of execution of the cut of the class we mention, and is like the conduct of a man who having the draft of an important deed to peruse, should begin with an annotation of and remarks upon the penmanship. As we have observed before, bad criticism is as much our abhorrence as bad design, and it too frequently happens that the critic is one altogether unskilled in the office of the matter he criticises. What "X. X." has to say concerning the omission of windows and other apertures is to the point, and involves some of a worthier matter of discussion in such a manner; but it is principally important in order we may know how the author of the design will acquit himself in that which it requires the exercise of invention, judgment and correct artistic feeling. All architects know how the light was thrown into their eyes by the Greeks, but then the circumstances vary largely here, both as to the proportion of the structure, the climate, the quantity of light, and the medium in which it is admitted. We are not of those who think that a columnar structure of the kind chosen by our correspondent "G. R. F." is initially and inseparably associated with the rites of worship, and those Pagan, as a slang to say, any more than we con-

sider a buttressed pile applicable to nothing but the worship of our higher and purer dispensation; therefore we hold that there is no objection to be premised on these or the like grounds; but it is certainly required that we should be made acquainted with the character of the "windows or other apertures" by which "G. R. F." would serve his edifice, and so that we may judge of the admissibility of his design in the respects of humanity and fitness, as well as of extrinsic beauty and nobleness.

We apprehend that great part of the objections of "X. X." will fall to the ground, and that he would himself have perceived it if he had been as anxious for truth as for conquest. It is quite clear that "G. R. F." never intended to make his wings into official residences, but to apply them (more honourable, and therefore, in our mind, more appropriate purposes) as forming the principal front or façade of a national edifice. This, to our view, is the besetting defect of Sir Robert Smirke's design. He brings parlours and bedrooms, or apartments of similar inferior purpose and distinction, where they should by no means be made to appear. A step farther in his inconsistency, and the kitchens and sculleries might have been conveniently placed under the central portico, with equally convenient approaches and provision for the butcher and baker and dustman. We say with as much reason might these have been exhibited as the trustee's parlours, and defended on the same ground, their forming indispensable parts of the same edifice.

"G. R. F.," however, should have stated to what purpose he would appropriate these two columnar piles, and how he would secure that unity or individuality of expression in his structure which this duality of apparently independent edifices seems to be opposed to; he should state, also, whether the colonnades are for use or for show; if the former, it is as much in place as the cloister or ambulatory of a conventual pile, and requires as few words to defend its adoption; if the latter only, it is indefensible, as would be the appropriation of those features in Gothic art to a common parish or village church.

"X. X.'s" reasoning, therefore, although it may not apply to this design, may pass, forasmuch as it is worth—and it is worth something as enumerating a general principle; it will apply to many other and executed designs, even with more force than to the houses in Park-crescent.

As detecting another error of the mechanical class, the remark on the nine-columned portion (not seven, as the term heptastyle implies) is of force, but it is clear that this is an error of the hand, not of the mind, an octastyle and decastyle portico are equally and palpably applicable. The last remarks of "X. X." on this subject, omitting, as we have chosen to do, other personal and out of the way matter (to which we have our answer), is with reference to our, we trust, conscientious dealing with the question. Surely it was competent in us to call attention to what had been said on all sides, whether of the Museum or its architects, and we may confess to having been influenced by it in a slight degree, as it bore with the weight of authority in this or that direction, and as it came before us; but we reserved and acted upon the most dispassionate judgment we could command the exercise of, and have no reason to repent us of our impartiality. We never asserted nor esteemed Sir Robert Smirke to be a model of human perfection, or as an architect; and this

we think compatible with his still being of a "noble and generous nature."

Who has heard any thing to sully the character of Sir Robert Smirke in his relations as the trustee of his employer's interest, or his deportment towards those builders, clerks, and workmen, over whom he had been appointed to preside? If attention to his duties, of the interests of those over and under him, do not constitute a title to be regarded as a man of high character, and of a noble and generous nature, simply because he does not complete the round by some of the supererogatory virtues, then we admit that we may have made some mistake; but shall we say that "X. X." has not the noble and the generous in his nature, because he is a good railer or chooses to exhibit the qualities of the cynic, in excess over his better qualities; who rails at Sir Robert for keeping his model and designs from the public eye, and commits the same fault himself by not bringing forward his own emendations, on the ground, he alleges, as influencing others in the omitted part of his paper? Sir Robert has his reasons and motives (they may be as weak as "X. X.'s") for not indulging the public in an enlarged, liberal, and confident spirit with the inspection of his designs; but "generous and noble natures" have their peccadilloes, and we are afraid Sir Robert is not singular amongst his class in his apparent illiberality. Who hears of so many instances to shame Sir Robert, of those who have great means of disseminating knowledge, and of giving pleasure to the public, coming forward to do so out of an enlarged and patriotic spirit? yet there are not wanting "noble and generous natures" among them, if the times and manners were more favourable. To render them such has been, and will continue to be, our aim; and we invite "X. X." and the others he mentions, who have so sensitive an appreciation of their own excellence, and of "low company," to run a little risk of their designs being damaged, to secure the greater good of their liberal example, not fearing that if they have any thing good to offer, it will be made apparent, even through the haze and "blur" of an indistinctness which he and others will thus aid us with the means of removing or improving upon.

SIR.—You will, perhaps, grant me a liberty you have not refused to others. Therefore, without apology, I proceed to comment on "G. R. F.'s" idea for the façade of the British Museum. He is right in calling it a *hasty sketch*, for it seems to have been the work of five minutes, without having another minute's consideration bestowed on it. In fact, he might have contented himself with his ground-plan alone, since that shows all the essential differences between his design and Smirke's; and the others, such as the substitution of Corinthian for Ionic, and giving pediments to the wings instead of the centre portico, would have been more advantageously expressed in words than in a most rudely drawn cut, which shows nothing but the shafts of the columns, all the rest being an indistinguishable blur, without any attempt to indicate windows or other apertures. Yet these last must have a very great influence upon the character of the elevations and the general architectural effect. Such must be more especially the case in regard to the wings, it being proposed to make them the official residences, consequently mere dwelling-houses, with at least two ranges of windows, ground-floor and first-floor, if not a second-pair floor, unless there were to be no other bed-chambers, shew what could be obtained out of the roof with concealed windows there. Now, the idea of making mere dwelling-houses of that kind, such as must plainly shew themselves to be upon a limited and ordinary scale within, component parts of a grand classic public edifice is preposterous, and would prove a most clumsy attempt at disguise, reminding us of the ass in the lion's hide. Being dwelling-houses, those portions of the edifice would of course require chimneys, and I need not say that such appendages would be fatal to the temple-like outline of the pedimented roofs. Besides chimneys, there must also be areas to the basement floor, yet this circumstance seems very unaccountably to have been overlooked altogether by "G. R. F.," who, now that it is pointed out, will perceive that his colonnades to the wings must be *impracticable*, because, instead of being a walk, the space between the columns and the walls must be a sunk area; therefore, instead of there being steps, the columns ought there to be placed on a stylobate or podium of about five feet high, in order to prevent our

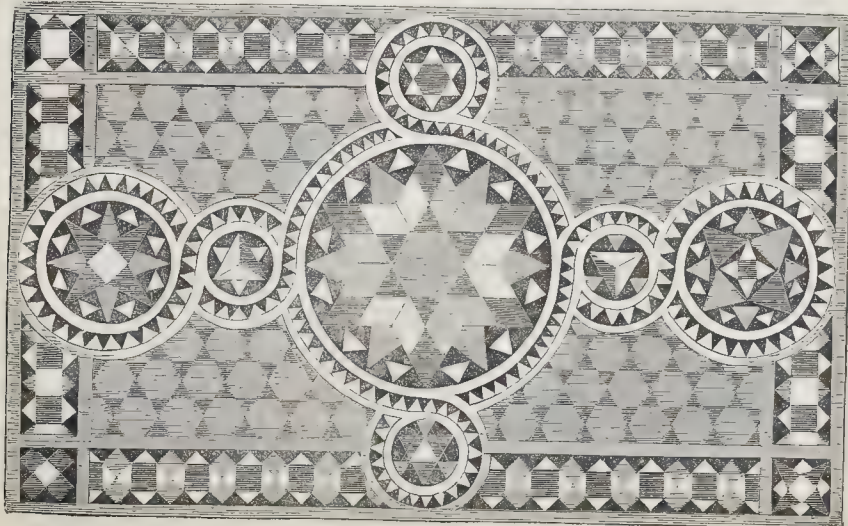
- Inst. C. E., for his "Description and Drawings of the Victoria Bridge over the River Wear."
- A Telford premium of books, suitably bound and inscribed, to David T. Hope, for his paper "On the relative merits of Granite and Wood Pavements, and Macadamised Roads."
- A Walker premium of books, suitably bound and inscribed, to Robert Mallett, M. Inst. C. E., for his paper "On the Co-efficient of Labouring-force in Water Wheels, &c."
- A Walker premium of books, suitably bound and inscribed, to William John Macquorne Rankine, Assoc. Inst. C. E., for his papers and drawings "On laying down Railway Curves," "On the Spring Contractor for Railway Carriages," and "On the Causes of the Fracture of Railway Axles, &c."
- A Walker premium of books, suitably bound and inscribed, to William Lewis Baker, Grad. Inst. C. E., for his "Description and Drawings of the Water Pressure Engine, at the Alte Mordgrube Mine, Fryberg."
- A Walker premium of books, suitably bound and inscribed, to Samuel Collett Homersham, Assoc. Inst. C. E., for his paper and drawings "On the Construction of Valves for Pumps, &c."
- A Walker premium of books, suitably bound and inscribed, to John Oliver York, Assoc. Inst. C. E., for his paper "On the Comparative strength of Solid and Hollow Axles."
- A Walker premium of books, suitably bound and inscribed, to George Daniel Bishop, for his "Description of the American Locomotive Engine, Philadelphia, used on the Birmingham and Gloucester Railway," communicated by Captain W. S. Moorson, Assoc. Ins. C. E.
- A Walker premium of books, suitably bound and inscribed, to George Briant Wheeler Jackson, Grad. Inst. C. E. for the drawings illustrating "The Description of Machines for raising and lowering Miners," by John Taylor, M. Inst. C. E.
- SESSION, 1844.
- The council invite communications on the following, as well as other subjects, for Telford and Walker Premiums:—
- 1.—On the theory of arches, abutments, and piers, comparing the hypothesis of different writers; with practical examples of the application of the theory.
 - 2.—The history of the invention of, and the improvements in, oblique arches, with the theory and practical methods of setting them out.
 - 3.—Experiments on the pressure upon every part of an oblique arch, especially how the pressure varies as the angles become oblique.
 - 4.—On the construction of retaining and wharf walls, with examples of failure and the causes.
 - 5.—A description of the Canal of the Helder (Holland), or of any foreign engineering works of a similar kind and importance.
 - 6.—The modes of irrigation in use in northern Italy; of drainage adopted in the Lowlands of the United Kingdom; or works of a similar nature in Holland or in other countries.
 - 7.—On any of the principal rivers of the United Kingdom, (the Shannon,) or of foreign countries, (the Po, Italy,) describing their physical characteristics, and the engineering works upon them.
 - 8.—An account of the waste or increase of the land on any part of the coast of Great Britain, the nature of the soil, the direction of the tides, currents, rivers, estuaries, &c., with the means adopted for retarding or preventing the waste of the land.
 - 9.—The principles and practice of constructing coffer-dams.
 - 10.—The best and most economical mode of raising large stones or rocks from the beds of rivers or harbours.
 - 11.—The application of gunpowder as an instrument of engineering operations.
 - 12.—The conveyance of fluids in pipes, under pressure, and the circumstances which usually affect the velocity of their currents; with accounts of water works and gas works.
 - 13.—The means of rendering large supplies of water available for the purpose of extinguishing fires, and the best application of manual power to the working of fire engines.
 - 14.—The most advantageous method of employing the power of a stream of water, where the height of the fall is greater than can be applied to water wheels of the usual construction.
 - 15.—Experiments on water wheels, steam engines, and other machines, with the friction break.
 - 16.—The construction of cranes for raising and lowering weights.
 - 17.—The proportions of large chimneys, as affecting their draught; with examples and drawings of the construction.
 - 18.—The ventilation of coal pits or mines, in Great Britain or in foreign countries.
 - 19.—The construction of spiral and fan blowing machines, and the power required to drive them, in relation to the pressure and volume of air delivered.
 - 20.—The smelting and manufacture of metals, in Great Britain or in foreign countries.
 - 21.—The comparative advantages of iron and wood, or of both materials combined, as employed in the construction of steam vessels; with drawings and descriptions.
 - 22.—The sizes of steam vessels of all classes, whether river or sea-going, in comparison with their engine power; giving the principal dimensions of the engines and vessels, draught of water, tonnage, speed, consumption of fuel, &c.
 - 23.—The best forms for river and sea-going steam vessels; with practical examples.
 - 24.—The various modes of propelling vessels in actual or past use, and their comparative merits.
 - 25.—The results of the use of tubular boilers, and of steam at an increased pressure, for marine engines.
 - 25.—On the best application of the principle of expansion to the improvement of the steam engine; with examples of the effect of such application, from actual experiment, and a description of the engines experimented upon.
 - 27.—Description of pyrometers, for ascertaining the degrees and the fluctuations of the temperature of the flues of furnaces, &c.
 - 28.—The various modes for removing earth in railway tunnels, cuttings, or embankments, with the cost thereof.
 - 29.—Observations on the subsidence of embankments, and on slips in cuttings, with practical methods for preventing or remedying them.
 - 30.—Notice of the principal self-acting tools employed in the manufacture of engines and machines, and the effect of their introduction.
 - 31.—Memoirs and accounts of the works and inventions of any of the following engineers.—Sir Hugh Middleton; Arthur Woolf; Jonathan Hornblower; Richard Trevithick; William Murdoch (of Soho); and Alexander Nimmo.
- Original papers, reports, or designs, of these or other eminent individuals, are peculiarly valuable for the library of the institution.
- The communications must be forwarded, on or before the 31st of May, 1844, to the house of the institution, No. 25, Great George Street, Westminster, where further information, may be obtained.

DESIGN FOR AN INLAID MARBLE TABLE.

TO THE EDITOR OF THE BUILDER.

SIR,—In No. 43 of your paper a notice was inserted, saying that "A Young Mason," who is making a marble table of different colours, wished to have a design. I have forwarded you one, which, if it be the sort of thing he wishes for, he is quite at liberty to use. My idea has been to imitate the ancient Mosaic works, similar to those in the tomb of Henry III. and the shrine of Edward the Confessor in Westminster Abbey. I would suggest that the brightest marbles, and those having the most contrast, be placed in the Guilloche and borders, and the ground be composed of marbles with less contrast. It is drawn to a scale of 1½ inch to the foot.

I remain, Sir, yours obediently,
JAMES K. COLLING, B.A.A.D.



Design for an Inlaid Marble Table.

THE LATE MR. LOUDON.

THE death of Mr. Loudon, which took place on the 14th inst., is a great loss to science, as well as to his numerous circle of friends in private life. To a most amiable and benevolent disposition he joined an ardent love of the study of nature, more particularly of the vegetable kingdom, of which his *Encyclopædias* and his ably-conducted *Magazine* bear ample evidence.

Mr. Loudon had a power of communicating his knowledge in writing, and a felicitous manner of explaining it to his friends, which will long endear his memory to an extensive circle of lovers of nature. His great talent and taste in laying out ornamental grounds is well known to the public, and the arrangement of some garden enclosures under the control of Government, where the name and classification of each plant is correctly inscribed and fixed in a convenient position, was, we believe, originally the suggestion of Mr. Loudon. Great credit is due to the present Government for the manner in which that plan is now carried out. During a walk in St. James's park the poorest of Her Majesty's subjects may, whilst enjoying the pleasure of healthful exercise, gather knowledge which in former times could be procured only with difficulty, and at an expense far beyond the reach of the more humble admirers of nature. Mr. Loudon died of a pulmonary complaint, accelerated by his assiduous mental exertion. It may indeed be said that he has sacrificed his existence to an anxious and unremitting application to study, which benefited his fellow-creatures, whilst, unfortunately, it was productive of but little advantage to himself. Mr. Loudon has left a widow and a daughter, the latter still in childhood.

It was but a very few weeks previous to his decease, that Mr. Loudon felt himself compelled to make an appeal to the public to relieve him in some degree from embarrassments—from this appeal we make the following extract:—

"This appeal would never have been made, had not Mr. Loudon, who has been an invalid for several years, been lately seized with an inflammation of the lungs, terminating in chronic bronchitis, which, even if the disease should be considerably alleviated, will effectually prevent him from any longer pursuing his profession of landscape gardener, on the produce of which profession, and on the literary labours of Mrs. Loudon, he has entirely depended for his income, since his literary property was pledged for the 'Arboretum.' Under these circumstances, Mr. Loudon feels himself justified in taking this mode of soliciting additional subscribers to the 'Arboretum,' and in begging his friends and patrons throughout the country to assist him in obtaining them."

All this is so like the candour and the truth-loving bias of our deceased friend; it was so in all our intercourse with him, and so much so as would have exposed him, in the eye of the man of ordinary worldly craft, to the charge of being indiscreet in the avowal of his circumstances. "Pledged for the 'Arboretum.'" Yes, this was the language which he held to us some twelve months ago. It will be in the recollection of our readers that we were indebted to Mr. Loudon for several of the cuts that embellished our early numbers; his words were, "I will lend them you with pleasure; I shall be too happy to assist you in a work designed for so much good to the working builder; but I must be much more particular about the use and return of the blocks than I would under ordinary circumstances be; they and all my copyrights are pledged to my publishers, and we must be very careful in every matter concerning these blocks."

If we speak of these small matters in illustration of a great principle, we shall be borne with, as rendering the most efficient testimony to the probity of our friend.

Reverting to the published appeal, we have the white secret of Mr. Loudon's trials in the following paragraph and the accompanying note:—

"The 'Arboretum Britannicum' was got up between the years 1833 and 1833, and published on Mr. Loudon's own account, at an expense of upwards of 10,000*l.*; the greater part of this sum was owing at the completion of the work, but it sold so well, till the late de-

pression of the book trade in 1841, that only about 2,600*l.* of the debt remained to be paid off at the end of that year. It is, however, necessary to observe that this large proportion of the debt was not paid off solely by the produce of the 'Arboretum,' but in part by the profits of Mr. Loudon's other literary property, consisting of thirteen different publications, all of which stand pledged in the hands of his publishers, Messrs. Longman, for the debt on the 'Arboretum.' The debt, at the present time, amounts to about 2,400*l.*; and hence, if 350 additional subscribers could be got, the debt would be at once liquidated, the works pledged for it set free, and Mr. Loudon or his family would enjoy the whole produce of his literary property."

To add any thing of our own to this statement would be to weaken it; the most we can do is to comment on the altered circumstances under which it appears before us. His family alone remain to enjoy the property which this appeal was directed to emancipate.

It is not through the purely selfish acquisition of a copy of the "Arboretum" that we look for subscriptions to the redemption fund. Mr. Loudon's other works are all of them equally valuable. His "Encyclopædia of Cottage, Farm, and Villa Architecture," and the "Architectural Magazine," are sterling works, and will have their attractions in a special manner for our readers. So far the worthy deceased had purchased, or created, a fortune; the fruit of which we trust to see his relict and child speedily reap; but we can imagine no stronger case to call for the interposition of royal favour—we will not call it bounty. Distinction had been long earned by the deceased. A timely appreciation of his merits, through those to whom the recognition would be doubly grateful, is what we may confidently look for.

We have just received the following copy of an advertisement intended to accompany the last number of the *Gardener's Magazine*, which cannot fail to be interesting to our readers:—

"This will be the last number of the *Gardener's Magazine*, as its founder and conductor is no more. On the 14th of December, 1843, died at his house at Bayswater, JOHN CLAUDIUS LOUDON, who for more than a quarter of a century has been before the public as a writer of numerous useful and popular works on gardening, agriculture, and architecture."

"He was born in Lanarkshire, on the 8th of April, 1783, but was soon afterwards taken to the neighbourhood of Edinburgh, where his father was a highly respectable farmer. Mr. Loudon was brought up as a landscape gardener, and began to practise in 1803, when he came to England with numerous letters of introduction to some of the first landed proprietors in the kingdom. He afterwards took a large farm in Oxfordshire, where he resided in 1809. In the years 1813-14-15, he made the tour of Northern Europe, visiting Sweden, Russia, and Poland. In 1819, he travelled through Italy, and in 1828 through France and Germany."

"No man, perhaps, has ever written so much under such adverse circumstances as Mr. Loudon. Many years ago, when he came first to England (in 1803), he had a severe attack of inflammatory rheumatism, which disabled him for two years, and ended in an ankylosed knee and a contracted left arm. In the year 1820, whilst compiling the "Encyclopædia of Gardening," he had another severe attack of rheumatism; and the following year, being recommended to go to Brighton to be shampooed in Mahomet's Baths, his right arm was there broken near the shoulder, and it never properly united. Notwithstanding this, he continued to write with his right hand till 1825,

"It may be thought, from the well-known extensive sale for the last twenty years, of Mr. Loudon's publications, that he ought now to be independent; but, in consequence of too intense application while compiling the 'Encyclopædia of Gardening,' Mr. Loudon fell into ill-health in 1821, which obliged him ultimately to have his right arm amputated, his left hand being at the same time so much injured as to leave him with only the partial use of two fingers, and his left knee being ankylosed. In consequence of these bodily infirmities, Mr. Loudon has been obliged to keep an amanuensis and a draughtsman for the last twenty years, and also during the greater part of that time, a servant to act as valet. Had it not been for the expenses thus incurred, and for others arising from the same source, Mr. Loudon might have been now independent, even without his literary property. This explanation is due to those who are ignorant of Mr. Loudon's personal character."

when the arm was broken a second time, and he was then obliged to have it amputated; but not before a general breaking up of the frame had commenced, and the thumb and two fingers of the left hand had been rendered useless. Since that time Mr. Loudon has published a number of works, the most ruinous and laborious of which is the 'Arboretum Britannicum,' and which has unfortunately not yet paid itself. He died at last of disease of the lungs, after suffering severely about three months."

"Never, perhaps, did any man possess more energy and determination than Mr. Loudon; whatever he began he pursued with enthusiasm, and carried out, notwithstanding obstacles that would have discouraged any other man. He was a warm friend, and most kind and affectionate in all his relations of son, husband, father, and brother; and he never hesitated to sacrifice pecuniary considerations to what he considered his duty."

HISTORICAL NOTES ON ARCHITECTURE.*

THE architecture of Britain, previous to the Roman invasion, was partly Cyclopean, for we can scarcely dignify with the title of architecture the huts, dens, and caves in which our ancestors lived. Stonehenge is the principal existing monument of the Cyclopean masonry in this country. Diodorus Siculus speaks of the houses of the Britons as built of wood, the walls made of stakes and wattling like hurdles, and thatched with either reeds or straw; but when Julius Cæsar invaded Britain, the inhabitants of Cantium (Kent), and some other parts in the south, had learnt to build houses more substantial and convenient. The first step towards this improvement seems to have consisted in plastering the wattled walls with a coating of clay, and filling up the chinks; and rude as this sort of building may appear, it is still not unfrequent in the north of England for outhouses and cow sheds. The houses of the Britons were generally, perhaps always, of a circular form; they were usually built in clusters of three or four, sometimes more, within a square court.

When the Romans invaded Britain, it was natural that they should engraft on the natives some of the arts of civilization, but although the intercourse between the two countries became more free and intimate, yet the people of Britain did not make any very considerable improvements in the manner of building for at least a hundred years after that invasion. In the course of time, the Britons, who were not insensible to the advantages of civilization, availed themselves of the knowledge of the Romans so much, that in the reign of Constantine, they built houses, temples, courts, and market-places, with every Roman accompaniment of mosaic pavement, saloons, and porticoes. The Romans not only built a prodigious number of magnificent structures for their own accommodation, but they encouraged and instructed the Britons to imitate their example; and this engrafting the arts and science of civilized life on barbarians had a most important influence on their character. The spirit of building in Britain which was introduced and encouraged by the Romans, so much increased the taste of the British builders, that in the third century this island was famous for the great number and excellence of its architects and artificers.

Architecture, and the arts generally, did not long flourish in Britain, but soon began to decline here, as well as in all the provinces of the Western Empire. This was partly owing to the building of the city of Constantinople, which attracted the most eminent architects and artificers to the East, and partly owing to the irruptions and depredations of the barbarous nations; so that the final departure of the Romans was followed by the almost total extinction of architecture in this country. The Roman art of building appears to have been lost in Britain in the year 298, nor was it revived until towards the close of the seventh century. The long succession of miseries in which the Britons were involved by the Scots, Picts, and Saxons, deprived them of the many useful arts they had been taught by the Romans, and they retrograded rapidly in civilization. The Saxons, on their arrival in Britain, were as ignorant of the arts as the people they had subdued; however, they constructed

castles, consisting of a round and square keep, which was ascended by a flight of steps, the whole being of the rudest structure. Nor was it until two hundred years after their first arrival, that the Saxons, or Anglo-Saxons, had made any sensible advances in the art of architecture. During that period, masonry was scarcely known in this island, and even the walls of cathedrals were constructed of wood.

Towards the end of the seventh century, however, masonry was restored, principally by two priests who had visited Rome and acquired a taste for the arts. These were Wilfrid, Bishop of York, and afterwards of Hexham, and Benedict Biscop. Wilfrid, who was one of the most ingenious prelates of that age, erected several ecclesiastical edifices at York, Rippon, and Hexham, which exhibited proofs of his having an intimate knowledge of architecture. The cathedral of Hexham was built by masons and other artificers brought from Rome by the munificence of its founder. Benedict Biscop was the cotemporary and companion of Wilfrid in some of his journeys, and had the same taste for the arts. Having obtained a grant of an estate from Egtrid, king of Northumberland, near the mouth of the river Were, he founded a monastery in the year 674. Benedict brought from France a number of masons, to build the church of his monastery of stone, after the Roman manner, of which he was a great admirer. When the work was far advanced, he sent agents abroad to procure some glass-makers, artificers then unknown in England, to glaze the windows of his monastery.

Although the art of building edifices of stone was introduced into Britain by these zealous prelates, yet it did not make that progress which might have been expected, and even in the eighth and ninth centuries stone buildings were still so rare, as to be considered objects of surprise and admiration. As a proof of this, we may state, that when Alfred the Great, towards the close of the ninth century, wished to rebuild his ruined cities, churches, and monasteries, and thus adorn his kingdom with more magnificent structures, he was obliged to seek artificers in foreign countries.

Architecture was as little understood by the Scots and Picts as among the ancient Britons, though about the beginning of the eighth century they began to acquire some knowledge of masonry, as appears by some of the circular buildings still extant in Scotland, which are formed of stone without cement. These buildings or towers were of two classes; the first for residence and defence, the second for religious services; the latter were slender and lofty, but circular like the others, and similar to the tower of Ardmore, which was built about the tenth century.

The science of architecture, which slumbered for four or five centuries after Wilfrid and Benedict, started into life in the twelfth century, which has been called the age of architecture, on account of the decided improvement which took place in the erection of churches, castles, and private houses. It was the fervency of religious zeal which produced this improvement, and every means were taken to encourage it, so much so, that when Joffred, abbot of Croyland, resolved to rebuild the church of his monastery in 1106, the Archbishops of York and Canterbury granted him penances for sin, to those who contributed anything towards the building of that church. During its erection, the abbot entertained five thousand persons (mostly contributors) at dinner; by such means the clergy inspired kings, nobles, and people of all ranks with so ardent a zeal for the raising of ecclesiastical edifices, that in a short time they were all rebuilt.

The ecclesiastical architecture of the Anglo-Saxons varied little in the style from the Anglo-Saxons. The churches were generally in, low, strong, and dark, and the arches or both doors and windows semicircular; to succeed that bold, magnificent style of building, commonly called the later or modern style, which, with the Gothic, include the buildings not belonging to the regular orders. For a long time, however, architecture shewed all its favours on religious edifices and castles, and so late as the close of the fifteenth century, the houses even in London were built of wood and covered with straw or

reeds. The palaces or castles built by the Normans were, however, much superior to those of the Anglo-Saxons, who squandered away their ample revenues in low and mean houses; but the French and Norman barons lived at less expense, but in magnificent palaces. The fact is that William I., feeling how the want of fortified palaces in England facilitated his conquest and might cause his expulsion, determined on erecting magnificent and strong castles in all the towns within the royal demesnes. This plan was followed on a more enlarged scale by William II. and Henry I.; but the rage of building never prevailed so much in any period of early English history as in the turbulent reign of Stephen, from the years 1135 to 1154. "In this reign," says the author of the Saxon Chronicle, "every one who was able built a castle, so that the poor people were worn out with the toil of these buildings, and the whole kingdom was covered with castles." It is further stated, that during this king's reign of nineteen years, 1,115 castles were raised, in addition to those previously erected. The castles, monasteries, and churches were generally covered with lead, and the windows glazed. Many of the architects, principally ecclesiastics, rose to considerable eminence. William, of Sens, architect to Archbishop Lanfranc, in building his cathedral, is said, by Gervase, of Canterbury, to have been a most exquisite artist both in stone and wood. He made not only a model of the whole cathedral, but of every particular piece of sculpture and carving, for the direction of the workmen; and he invented many curious machines for loading and unloading ships, and conveying all the stones which were brought from Normandy.

In the fifteenth and sixteenth centuries, when learning of all kinds began to revive, the chaste architecture of the Greeks and Romans seemed, as it were, to be recalled into life. The first improvement in it commenced in Italy, and owed their existence to the many ruins of the ancient Roman structures that were to be found in that country, whence an improved method of building was gradually brought into the other countries of Europe; and though the Italians for a long time retained the superiority as architects over the other European nations, yet as men of genius travelled from all quarters into Italy, where they had an opportunity of seeing the originals from whence the Italians copied, architects arose in other nations equal, if not superior, to those of Italy.

M.

SCHOOL BUILDING.

We adverted a week or two ago to the active campaign about to be entered on by the Wesleyans in the great education scheme; and every body is already conversant with what is on foot under the auspices of "the establishment;"—how an enormous subscription, fast attaining to 200,000*l.*, is being raised by individual subscriptions of thousands, of hundreds, and of fifties! The Independents are now bestirring themselves, and at a meeting on Wednesday week, convened at the Congregational Library, in Finsbury-place, Charles Hindley, Esq., M.P., in the chair, and supported by gentlemen of that religious denomination from all parts of the kingdom, it was resolved to raise 100,000*l.*, as their share towards the great work. 12,245*l.* was subscribed on the spot.

Again, we urge upon all, that they should, in providing education for a future race, which education, if good for any thing, exhibits itself best in the apt and the appropriate, whether as regards time, person, place, work, or thing; we urge that the present should exhibit that they were not altogether unlearned themselves; that they knew what was apt and appropriate, or how to procure the selection of it for the material edifice in which all this moulding of the mind is to be carried on; that proper persons be confided in to design and erect such buildings; that fitting places be selected, not holes and corners, and refuse spots, and because unfitted for any thing else, therefore selected for schools; that the work should be not only comely, but expressive, and equal to its elevation of purpose. Ah! next to the temple for God's worship should be our care and consideration for these temples in which

are enshrined for the while minds of angelic innocence. Let there be no debasement we say, no passive and soul-prostrating idolatries, wrought out under the influence of the tasteless abominations usually presented to our eyes for children's schools. Heaven knows, for man does not, the mischief perpetrated by the first false impressions. The building is an important book.

THE NORMAN TOWER AT BURY ST. EDMUNDS.

We are glad to be enabled to reprint the following letter, giving assurance to those anxious for the preservation of this venerable and interesting edifice.

Bury St. Edmunds, Dec. 6, 1843.

SIR.—In the last number of the *Ecclesiologist*, a publication of the Cambridge Camden Society, appears this paragraph:

"We took the opportunity some time back of drawing attention to the Old Norman Tower at Bury St. Edmunds, and gave what encouragement we could to its restoration. Unfortunately, the attempt seems to have come too late, since we learn that a part of it has already fallen, and the whole is now in such a state of insecurity, that it seems little likely to stand much longer. It is not six months since we had to record the demolition of the Sestry Barn at Ely; and we have now to announce the loss of another monument, as unique as the former, and perhaps still more interesting and imposing, when probably no very considerable sum, expended in proper time, would have been sufficient to preserve either of them for nearly as many centuries longer as they have already reckoned."

As this erroneous paragraph is calculated to impede the exertions of the Committee for the Restoration of the Tower, I will thank you to give an early insertion to the following facts.

It is true that a small portion of the ashlar immediately under the coping-stone at one of the angles recently fell down; and that there was reason to fear that several more courses of masonry would shortly follow: but it is not correct, as the Members of the Camden Society will be glad to learn, to say that "the whole [fabric] is now in such a state of insecurity, that it seems little likely to stand much longer."

By the prompt attention and scientific skill of Mr. Cottingham, the Committee's architect, a stop has been put to further disruptions; and such is the confidence of the architect in the security of the building, that, with his sanction, a free passage has been again permitted along the road at its base.

The restoration, it is expected, will shortly be proceeded with, and the Committee entertain a confident hope that they will be enabled to preserve "for many centuries," this unique, interesting, and imposing monument," with all its beautiful and valuable details. But for this purpose they must appeal to the liberality of the public, especially to those (thanks to the Camden Society, not a few) who respect the skill and taste of our ancestors, and desire to imitate their pious liberality.

I am, Sir, your obedient servant,
SAMUEL TYMMS,
Hon. Sec. to the Committee for the Restoration.

IMPROVEMENTS IN THE MANUFACTURE OF IRON.—An extraordinary machine has lately been introduced at the Dundyan Iron Works, for expressing the impurities from the lumps of iron as they are taken from the puddling-furnace, superseding the ordinary process of the forge-hammer. It cannot be better described than as a Brobdignagian coffee-mill; the external cylindrical case, which may be about four feet in diameter, by twenty inches high, being grooved or fluted internally, in a direction parallel to the axis. The interior cylinder, which is grooved correspondingly, and driven by powerful machinery, is about ten inches smaller in diameter, and placed so far eccentric in the case, as to admit a puddled ball of the usual size, which after undergoing rather unceremonious treatment, something between hugging, grinding, and devouring, is dismissed in the form of a cylinder from four to five inches in diameter, ready for the rolling-mill. This is an American machine, patented by Mr. Laurence Hill, and erected by Mr. McOrie, of Glasgow, and is, we are given to understand, the only one in use in the kingdom.—*Mining Journal*.



SOUTH-EAST VIEW OF THE COLLEGIATE CHURCH, MANCHESTER.

THIS beautiful and venerable edifice of "olden time" assimilates very nearly, both in constitution and in the character of its architecture, to our cathedrals. Like those splendid erections of feudal days, this structure is characterized by the space of ground it occupies, by magnificence of design, and by luxuriance of decoration. Over this building, also, as over them, the mist of half-forgotten ages has gathered; and whilst we gaze through the hallowed veil upon the labours of a race of men long since returned to their dust, memory sheds her light upon the cloud, and invests the sacred pile with a gorgeous halo.

This edifice was founded by Thomas West, Lord de la Warre, rector of the parish in the year 1422; but though much of the building appears to have been raised during the life of this noble priest. It was enlarged in dimensions, and enriched in sculpture and carved decorations by Sir John Huntingdon, the first warden; Sir Ralph Langley, the third; and Sir James Stanley, who succeeded the latter. Private chapels, oratories, and various other additions and alterations have progressively been made, and the whole constitutes a large pile of building. Its exterior dimensions are 232 feet in length from west to east, by 132 feet in breadth from north to south. These measurements include the tower and lateral chapels. The original edifice, commenced by Lord Warre and finished by Bishop Stanley, was doubtless an object of grandeur and beauty; for theirs was the era of architectural luxury. Then every part of a religious building was surcharged with ornament; and laboured masonry with elaborate sculpture and carving were displayed in vast and varied profusion. The Collegiate Church of Manchester was evidently of this style and character, but formed of bad materials, a soft, red, friable sand-stone, and exposed to a corrosive atmosphere, it now assumes a dingy battered appearance.

Amidst the confusion of the civil wars, and the barbarous efforts of puritanical zeal, the church remained uninjured. Several reasons have been assigned for this preservation; the

most probable being that the leading men of Manchester and the neighbourhood were devoted to the interests of the Parliament.

Our limits will not permit an extended description of this magnificent structure, or an enumeration of the various chapels and other subordinate erections; a few general remarks will suffice to give it an interest to our readers, but an actual survey of the building must be taken, before an accurate idea of its peculiar features can be formed. The accompanying engravings will enable those who are familiar with the general structure of cathedrals to form a tolerably just conception of the character of the building.

The exterior of the church is conformable to the style of Gothic architecture, as it existed in the fifteenth century; and nearly all the subsequent alterations and additions have been executed with reference to the original design.

The view given above displays the south side and eastern end of the church, whereby it will be seen that there are twelve clerestory windows, a staircase turret near the centre, and that the windows are large, with several mullions, tracery, &c. The low building projecting from the eastern end is the Cheetham Chapel, the next projection, near the tomb, is the Chapter House; west of this is Hulme's Chapel, Jesus Chapel, Trafford Chapel, and Brown's chapel. At the west end is a lofty handsome tower, surmounted by crocketed pinnacles, and ornamented with four windows, tracery, &c., in its upper tier. The body of the church consists of a nave, used as the parish church, with two aisles and lateral chapels; east of these is the choir, having wooden stalls, richly carved, on the north, south, and western sides; the altar at the east end, and the whole surrounded by an aisle.

Diverging from this are the chapter-house and five chapels; four of these are private property, the one belonging to the Earl of Derby is an extensive building on the north side of the choir, partly erected by James Stanley, Bishop of Ely, and fourth warden, and finished after his death by his natural son, Sir John de

Yarford, or Stanley. In a small chantry adjoining, dedicated to St. John the Baptist, stands the tomb of this prelate, composed of grey marble, upon which is inlaid a small brass effigy, habited in pontificals.

The chapels are now less interesting than they were formerly. They contain a few monuments, possessing, however, no great merit as specimens of sculpture. Some of the screens exhibit most exquisite workmanship.

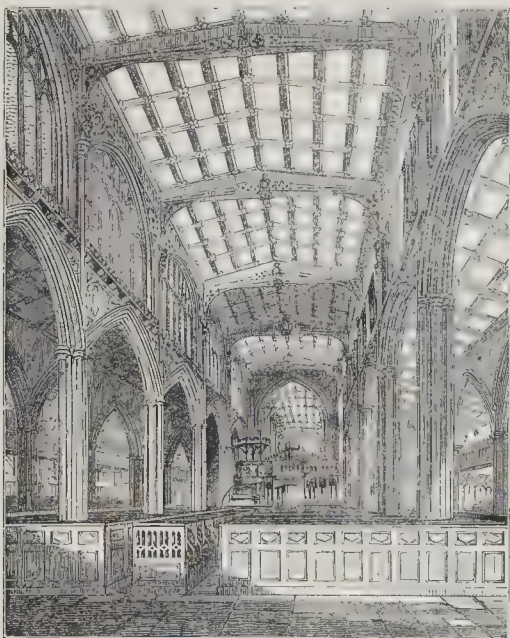
The interior of this sacred edifice is very imposing. Between the nave and the choir rises a beautiful screen which formerly supported a magnificent organ. In the year 1829 this was very judiciously removed to the west gallery; the small or choir organ being left in its original situation.

The windows in the choir have many remains of the painted glass with which they were once ornamented. In some of them, very beautiful specimens of this long-neglected art are still visible. In the upper and smaller compartments are still to be found the heads of several hundred saints, popes, monks, and benefactors to the church. Some of these, when viewed through a good glass, from the interior, exhibit considerable merit as specimens of early portrait painting.

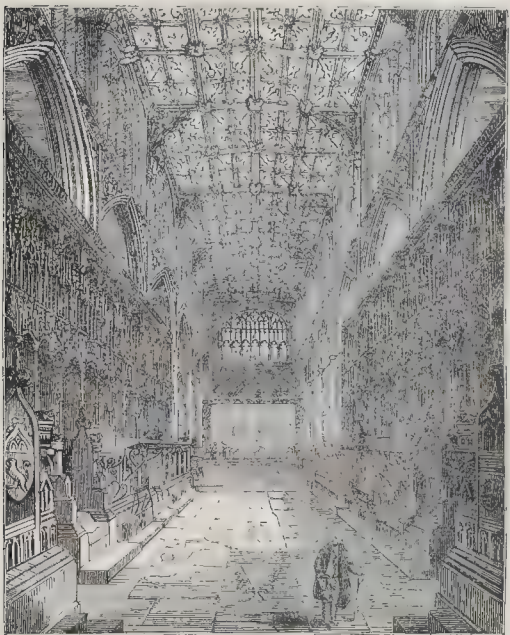
The following particulars relative to the windows are extracted from a MS. collection preserved in the College Library:—The windows were richly painted; the east window of the south aisle had Michael and his angels, the nine orders of angels fighting with the dragon and his angels. The east window of the north aisle had St. Austin and St. Ambrose, and the other windows represented some canonical or ecclesiastical story. In the middle stanchion of every window was the picture of the Virgin Mary, and at the uppermost end, there was a very rich window, whereon was described our Saviour's arraignment and crucifixion.

The choir, if those of cathedrals are excepted, is perhaps the finest, taken in all its parts, in the kingdom; and in some particulars few cathedrals excel it. The tabernacle-work is almost unrivalled in this island.

The view from the communion steps, towards the body of the church, is truly magnificent. It is from this situation that the harmony of the design of the choir is most visible. The organs contribute to the grandeur of the view, as much as the stalls and the tabernacle-work above them do to the picturesque. For a more elaborate description, we must refer our readers to Aston's "Picture of Manchester."



INTERIOR OF THE NAVE.



INTERIOR OF THE CHOIR.

ARCHITECTURAL ORDERS.

An order in architecture consists of two principal members, the column and the entablature, each of which is composed of three principal parts. Those of the column are the *Base*, the *Shaft*, and the *Capital*; and those of the entablature are the *Architrave*, the *Frieze*, and

the *Cornice*. All these are subdivided into so many lesser parts, whose number, form, and dimensions characterize each order, and express the degree of strength, delicacy, richness, or simplicity peculiar to it.

The *Tuscan* order had its name and origin in Tuscany, first inhabited by a colony from Lydia, whence it is likely the order is but the

simplified Doric. On account of its strong massive proportions, it is called the rustic order, and is chiefly used in edifices of that character, composed of few parts, devoid of ornament, and capable of supporting the heaviest weights. The Tuscan order will always live where strength and solidity are required. The Etruscan architecture is nearly allied to the Grecian, but possesses an inferior degree of elegance. The Trojan column at Rome of this order is less remarkable for the beauty of its proportions than the admirable pillar with which it is decorated.

Its distinguishing character is massive solidity, devoid of all ornament. When it is executed with a pedestal, the entire height is divided into five: 1-5th is the height of the pedestal; then divide the remaining 4-5ths into 9; give 2 to the entablature, and the other 7-9ths is for the column, which will be 7 diameters, one part being the width of column, at bottom the diminish is 1-6th of a diameter given.

The *Doric* order, so called from Dorus, who built a magnificent temple in the city of Argos, is grave, robust, and of masculine appearance, whence it is figuratively termed the Herculean order. The Doric possesses nearly the same character for strength as the Tuscan, but is enlivened with ornaments in the frieze and capital. In various ancient remains of this order, the proportions of the columns are different. Ion, who built a temple in Asia, taking his idea from the structure of man, gave six times the diameter of the base for the height of the column. Of this order is the Temple of Theseus at Rome.

The *Roman-Doric*.—Its distinguishing character being known by triglyphs, drops, modillions, or blocks, pedestal as above, the remaining height is divided into 10. Give 2 to the entablature, and the other 8-10ths will remain for the column, which is 8 diameters in height; the heights of all columns being taken from the bottom of the plinth, or base, up to the underside of the beam or architrave; the metope or space between the triglyphs is always 45 minutes, *i. e.* taken from the scale of 60 parts.

The *Grecian-Doric*.—The distinguishing character of this chaste and bold order is as follows: first, it is the shortest; secondly, the entablature has the most massive appearance, on account of its few members with which it is crowned; the sombre shadow thrown from its drip or corona, which is larger than any other order, gives it that dignified appearance which alone is peculiar to this style. Proportions: its height may be generally allowed 6 or 6½ diameters, 2 ditto for entablature; there are 20 flutes in the shaft without fillets; the cap has a large abacus, an oval or echinus, and annulets of fillets. It is never executed with a pedestal, and the face of the architrave always projects beyond the inferior diameter, but in a line with the base.

The *Ionic* Order derived its origin from the people of Ionia. The column is more slender than the Doric, but more graceful. Its ornaments are elegant, and in a style between the richness of the Corinthian and the plainness of the Tuscan. The temples of Diana at Ephesus, of Apollo at Miletus, and of the Delphic Oracle, were of this order.

Its principal features are bold spiral volutes to the cap, small centiliver modillions, though in some of the finer examples they are left out and dentils are substituted, which gives it an elegant appearance. One-fifth of the entire height is for the pedestal—divide the remainder into 11; give 2 for the entablature; 9 diameters is for the column. There are 24 flutes in this, the Corinthian, and the Composite orders, and they also have fillets.

The *Corinthian*.—This is the first of all the orders, and was first adopted at Corinth. Scamozzi calls it the *virginal* order, expressive of the delicacy, tenderness, and beauty of the whole composition. The most perfect model of the Corinthian order is generally allowed to be in the three columns in the Campo Vaccino at Rome, the remains of the temple of Jupiter Stator. This order marks an age of luxury, when pomp and splendour had become the predominant passion, but yet had not extinguished a taste for the sublime and beautiful in art.

The distinguishing character is principally confined to its cap, which is composed of two tiers of leaves; from the uppermost row spring the volutes, which are small and elegant, sup-

porting the abacus, which is hollow on each face. The height is divided into 5, as before. Give one to the pedestal,—divide the remainder into 12; give 2 to the entablature; the size of the cap is one diameter to 10 minutes.

The Composite Order was invented by the Romans, and partakes of the Ionic and Corinthian orders, but principally of the latter, particularly in the leaves of the capitals. This order shows that the Greeks had, in the three original orders, exhausted all the principles of grandeur and beauty, and that it was not possible to frame a fourth but by combining the former.

This order is usually placed the last, on account of its having been the last invented, though some architects of eminence assign it the fourth place, on the ground that they should succeed each other according to their degrees of strength, and in the progression that must be observed when they are employed together.

In its cap it imitates in part the Ionic and Corinthian orders, having a similarity in the scroll as to the one and in the leaves as to the other. Its general outline as to its proportions is the same as the Corinthian.

ENCAUSTIC TILES.

Two extensive factors of pottery ware, Messrs. Chamberlain, of Worcester, and Mr. Minton, of Stoke upon Trent, are busy in the preparation of encaustic tiles. These tiles are the true and genuine ecclesiastical ornaments for church pavements, and we hope no more sandstone flags will again be laid in a sacred edifice so long as tiles can be procured. If the foundation on which the tiles are to be laid is sound and level, the cost of appropriate tiling is not materially greater than of stone. The improved machinery of modern times subjects these tiles to great pressure, and they are consequently much harder and less porous, and therefore more durable than the ancient tiles. Indeed, unless there be some accidental defect in the clay, it is next to impossible, either by force or friction, to inflict any injury on them. They will sustain the roughest usage to which they are at all likely to be subjected, even by the hob-nails of clodhoppers. These advantages are some set-off against the mechanical look which the modern tiles have, but which is not apparent in the ancient. The patterns in the first are more uniform and seemingly the product of machinery, whilst the latter appear to be the work of the hand. Of the tiles of the two makers we have mentioned we prefer those of Mr. Minton. They have the more genuine ancient features about them. The tiles laid in the chancel of the Temple Church are of his manufacture. The patterns were almost wholly obtained from the Chapter House of Westminster Abbey, where the original pavement, having been carefully boarded over when that building was fitted up as a Record Office, remains in probably greater perfection than any elsewhere. Many of these patterns are of great beauty; some consist of heraldic cognizances, others of figures, some evidently relating to the life of Edward the Confessor, and others of very beautiful scrolls. They are probably as old as the reign of Edward III., who decorated this structure. The average price of each tile is sixpence. The ground is unglazed; the colours are a red, somewhat between Indian and light red, with the patterns of orange or bright yellow, highly vitrified and glazed. The red is decidedly susceptible of improvement. In the ancient tiles, the whole surface was glazed, and it must have been difficult to walk on them, unless barefooted. These tiles are about an inch thick. Besides these, Mr. Minton has produced a cheaper kind, which are wholly unglazed; they are red, buff, and black. The alternations of the black tiles are effective, and the whole appearance rather Romanesque than Gothic, is chaste, but less ecclesiastical than the glazed. For this reason they are better suited to lay buildings, and are worth the attention of architects, for halls and passages, even of very moderate-sized houses. Very ornamental, too, they would prove for hearths and mantel-pieces, &c., and they might be applied for dairies, conservatories, and even some articles of domestic furniture.

In the imitation of the ancient tiles, only red and buff colours hitherto appear to have been

used. It may be well to point out that they were made of other colours. Green and white tiles were used by Henry VIII. for Hampton Court, these being his chosen (the Tudor) colours, and we should be glad to see them restored to the great hall of that palace.

One of the first specimens of the revival of the tessellated pavement, we believe, is to be seen in the hall of the Reform Club. It was manufactured by Mr. Singer, and laid on a principle for which he took out a patent. Excellent as the effect of this pavement is, it has a dingy appearance, and this, we believe, is unavoidable in the process adopted by Mr. Singer. The tesserae, which are usually about an inch square, are laid not one by one upon the floor itself, but on a ground of cement, thus forming slabs about eighteen inches square, which slabs are then placed together on the floor. In order to obtain a level surface, the tesserae so fixed are, we believe, planed or ground smooth; for this purpose they are made rather softer than would otherwise be necessary, and thus their ground surface absorbs the dirt. Mr. Blashfield has improved on this process, and though he adopts Mr. Singer's method of laying, he makes the tesserae themselves so true and smooth, that they require no further levelling. They can, therefore, be made much harder, are so made accordingly, and their original vitrified surface is not disturbed. Their colours remain unaffected by wear, and the white tesserae are as clean and pure as biscuit china. These tesserae, of the porcelain (being flint and fine clay) are manufactured in the powdered state, in all varieties of colour, and consequently are coloured throughout their entire body; the powder, which is almost of impalpable fineness, is made to cohere by means of hydraulic pressure. Thus formed, they are highly vitrified. Pavements of this kind are necessarily much more costly than those of tiles, and their price will limit the use of them as pavements, except in the mansions of the wealthy. Still in passages subjected to much traffic, they are cheaper than oil-cloth. We have seen a beautiful mosaic that cost fifty pounds, but will last a thousand years, substituted from economical motives, for floorcloth of similar size, which it was necessary to replace annually. They might well be used before the altars of churches, and sufficient remains of Abbot Ware's mosaic pavement, laid in Henry the Third's reign, before the high altar in Westminster Abbey, exist to furnish models of ancient workmanship. The revived use of these tesserae will lead, perhaps, to the erection of tombs like those of Edward the Confessor and Henry III. (What a shame that the British Museum did not secure Cavalini's shrine at Strawberry Hill!) and it is not difficult to see the application of this mosaic work to many minor ornamental purposes, such as chess-boards, tables, &c.—*Alhænum.*

FLOATING ISLAND.

THIS is one of Mr. Etzler's gigantic, and, we will venture to say, impractical plans. It will amuse, however. Our friends may suppose themselves inhabitants of this floating city and community, shifting about in the Atlantic, following the sun for a long day, and hastening over the night to hail him at his morning's rise. Sailing in search of seasons, and scudding off from vile fogs and pestilential vapours—ripening their crops under the tropic, and reaping in the temperate zones. The following letter on the subject we extract from a contemporary journal:—

"SIR, I trust you will allow me, through your valuable and widely-circulated journal, to bring before the public a few remarks on the subject of a floating island, which has recently gone the round of the newspapers and other periodicals. It would appear that Mr. Stollmeyer claims to be the inventor of the stupendous project of a floating mass, or as it is termed an "Island," incapable of sinking under any circumstances, thereby effecting a vast improvement or reform in ship-building.

"Mr. Stollmeyer would be no doubt perfectly right in the supposition that if a buoyant mass, ten or twenty times as large as the largest ships ever constructed, could be so compacted as to be impregnable to the force of the waves, exempt from accident, and easy of propulsion, a great stride would be made towards the perfection of navigation. Under such circum-

stances, the sea would offer fewer obstacles to locomotion than the land. It strikes me, however, that Mr. Stollmeyer is not the first projector of so great an undertaking, but that he is only following in the wake of the Rev. Mr. Cobbold, who, it appears, eight months ago had a patent granted to him for "certain improvements, in the means of sustaining, supporting, and propelling human and other bodies on and in the water." Among the various interesting details of that gentleman's specification, which embraces several methods of supporting the human body on water, and of effecting communication between vessels in stress of weather, and between stranded vessels and the shore, there is a plan, on new and scientific principles for sustaining and supporting wharfs, piers, bridges, light-houses, harbours of refuge, and breakwaters; and for supporting, sustaining, and propelling other structures, as rafts, vessels, and buildings which may be employed for the transportation of passengers and merchandize, and as floating towns and manufactories.

"The specification is enrolled in Chancery and I have perused it with much interest, believing it to be eminently calculated to shew considerable light on the principles of navigation, and on other highly important matters connected with the trade and commerce of this country. Among the various drawings illustrative of his invention, there is a plan, with elevations drawn to scale, of a stupendous raft, or floating town, supported on several hundred wrought-iron air-tight tubes or compartments, each compartment being 50 feet long by six feet in diameter, the whole comprising an area of one thousand feet in length by 250 feet in width, propelled by fourteen engines of 150 horse power each, and carrying with it a breakwater, or barrier against the sea, of peculiar construction, which is intended to ensure to the whole structure a perpetually horizontal position, and to render it as nearly as possible without vibration—estimated burden about 27,000 tons and draught of water when freighted about two feet, that is one-third only of the diameter of the air-tight tubes themselves. The tubes or compartments, are represented strongly attached laterally at the distance of about seven feet apart, by means of strong bars and chains of iron; and they are further compacted by powerful beams or girders of wood laid transversely from tube to tube, and firmly bolted down to the apex of each tube, by means of immense bolts passing through these beams and penetrating through strong flanges of solid iron—the beams themselves forming the deck or foundation, upon which are constructed the numerous cabins, saloons, and warehouses, as described in the plan and drawings. It would occupy too much of your valuable space to go further into detail; but as it is a matter of grave consideration whether we shall continue to submit to an annual loss of 1,500 souls, and of property to the amount of three millions sterling on and around our own shores, I should conceive that any suggestion, having for its object the abridgment of that mournful list which we are annually compelled to read, is deserving of serious attention, and might tend to open up to human science, enterprise, and capital the most glorious and profitable speculation in which they could simultaneously embark.

MOVING HOUSES.—One of the sights to stare at in America is that of houses moving from place to place. We were often amused by watching this exhibition of mechanical skill in the streets. They make no difficulty of moving dwellings from one part of the town to another. Those I saw travelling were all wooden houses, that is, built entirely of wood, except the chimneys; but it is said that brick buildings are sometimes treated in the same manner. The largest dwelling that I saw in motion was one containing two stories of four rooms each; forty oxen were yoked to it. The first few yards brought down the two stacks of chimneys, but it afterwards went on well. The great difficulties were the first getting it in motion, and the stopping exactly in the right place. This locomotive power was very convenient at Cincinnati, as the constant improvements going on there made it often desirable to change a wooden dwelling for one of brick; and whenever this happened, we were sure to see the ex-No. 100 of Main-street or the ex-No. 55 of Second-street creeping quietly out of town, to take possession of a humble suburban station on the common above it.—*Mrs. Trollope.*

DECORATION.—HOUSE PAINTING.

The *Athenæum* is following up this subject to which we called attention in a former number. The last paper for December 19, embraces three points or heads.—1. "*Shall the colour chosen be used in tones dark or light—full or faint?*" (the influence of aspect being determined on by the rules set forth in a previous paper)—2. "*Where colour shall be lightest—where darkest?*"—and 3. "*Decoration of ceilings.*"

There is much of the usual skill and acumen of the writings of that journal in this article; the influence of full-toned or faint colours, according as the apartment in which they may be used is light or dark, is first commented on, and then as to the choice of colours. White, yellow, red, and purple, are primarily discussed, and in a most amusing and practical manner. The amusement, too, is of a philosophical cast, derived from the introduction of Goethe as an authority, whose "*Theory of Colours*" has been rendered accessible to us by Mr. Eastlake's edition. A second-hand extract may serve to give our readers an antitaste of the pleasure they may derive both from the perusal of the article in the *Athenæum* and the original work; but we must confine ourselves to one colour:—

Yellow, says Goethe, is the colour nearest light. In its highest purity it always carries with it the nature of brightness, and has a serene, gay, softly exciting character. In this state, applied to dress, hangings, carpeting, &c. it is agreeable. "Gold, in its perfectly unmixed state, especially when the effect of polish is superadded, gives us a new and high idea of this colour; in like manner, a strong yellow, as it appears on satin, has a magnificent and noble effect. We find from experience, again, that yellow excites a warm and agreeable impression. Hence, in painting, it belongs to the illumined and emphatic side. This impression of warmth may be experienced in a very lively manner if we look at a landscape through a yellow glass, particularly on a grey winter's day. The eye is gladdened, the heart expanded and cheered; a glow seems at once to breathe towards us." The following assertion appears to us rather too broad in its application. There are surely circumstances, when the yellowish brown of the fallen leaf, as it is termed, must be most judiciously employed; but Goethe's account is rather more poetical than practical. He says, "When a yellow colour is communicated to dull and coarse surfaces, such as common cloth, felt, or the like, on which it does not appear with full energy, the disagreeable effect is apparent. By a slight and scarcely perceptible change, the beautiful impression of fire and gold is transformed into one not undeserving the epithet of foul, and the colour of harmony and joy reversed to that of ignominy and aversion. To this impression the yellow hats of bankrupts, and the yellow circles on the mantles of Jews, may have owed their origin. As no colour can be considered as stationary, so we can very easily augment yellow into reddish, by condensing or darkening it. The colour increases in energy, and appears in red-yellow more powerful and splendid. All that we have said of yellow is applicable here in a higher degree. The red-yellow gives an impression of warmth and gladness, since it represents the hue of the intense glow of fire, and of the milder radiance of the setting sun. Hence it is agreeable around us; and again, as clothing in greater or less degrees is cheerful and magnificent. A slight tendency to red immediately gives a new character to yellow, and while the English and Germans content themselves with pale yellow colours in leather, the French, as Castelnau has remarked, prefer a yellow enhanced to red; indeed, in general, every thing in colour is agreeable which belongs to the active side. As pure yellow passes very easily to red-yellow, so the deepening of this last to yellow-red is not to be arrested. The agreeable cheerful sensation which red-yellow excites, increases to an intolerably powerful impression in bright yellow-red. The active side is here in its highest energy, and it is not to be wondered at that impetuous, robust, uneducated men should be especially pleased with this colour. Among savage nations the inclination for it has been

universally remarked, and when children, left to themselves, begin to use tints, they never spare vermilion and minium. In looking steadfastly at a perfect yellow-red surface, the colour seems actually to penetrate the organ. It produces an extreme excitement, and still acts thus when somewhat darkened. A yellow-red cloth disturbs and enrages animals. I have known men of education to whom its effect was intolerable if they chanced to see a person dressed in a scarlet cloak on a grey, cloudy day."

And so with this kind of mystical analysis does Goethe pursue his subject, leading us into a region of subtleties, or at any rate far away from that stolid matter-of-fact perception which an English house-painter and his employers would hold to as the ground of choice. The reading of this paper, however, will disturb much of that mechanical action and structure of thought which prevails among us. It will tell that there is a theory of colour and laws of application, and something certain and determinable, far different indeed from that unenviable dullness of soul and principle by which art, in all its ramifications, has been smothered in this country. But we must not detain from the reading of that which excites to our remarks, and to whet the appetite the more, we quote a conclusive paragraph on decoration of ceilings:—

"We are convinced, from actual experiments, that very effective and cheap decorations might be used in ceilings. The colouring of mouldings and cornices by the hand, and indeed all hand labour on a small scale, is slow, and therefore costly, but the plan we would recommend, and hope to see extensively used for the adornment of ceilings, is much more simple and easy of performance. Ceilings may be treated as easily as walls. Papers may be prepared expressly with suitable patterns, and they may be attached, afterwards, to the walls like common paper-hangings. After making some little allowance for the extra trouble in affixing the paper to the ceiling, there seems to be no reason why the ornamental papering of ceilings should be more costly than that employed on the walls. In one experiment, we directed a paper surface of about ten feet in diameter to be prepared, which contained Pompeian forms expressed in four colours, and which cost, in its preparation, about forty shillings. Had the same design been executed in great numbers, there is no doubt that it might have been produced for half the money, or even less. On the other hand, had the design been painted on the ceiling itself, by the hand, the cost would have been much increased. The economy of the process of affixing the ornament in a large surface at once to the ceiling, is obtained precisely on the same principle as that of laying the tessere in blocks on pavements, according to Mr. Singer's patent, instead of laying tessere one by one on the floor.

"Leaving out of the account the additional beauty which tasteful colouring on the ceiling confers on a room, we would recommend the practice as economical—a charm oftentimes more attractive in these money-making times than beauty itself. In the course of every three or four years, the ceiling of a London house requires re-colouring. There is little doubt that the determined lines of the positive colouring in an ornamental design, and also the paper itself, would tend very much to conceal the ordinary cracks and markings in the ceiling, caused by the dirt and smoke, and thus reduce the necessity of re-colouring. In addition to the experiment already mentioned, we had a simpler one prepared in two shades of deep straw-colour, for the centre of a room, the cost of which experiment was only five shillings. In the prosecution of these experiments, it is only just to mention that we had the assistance of Mr. Clarke, a paper-stainer, of 60, High Holborn, who seemed well disposed to carry them much farther, if any public taste could be generated for them. In the preparation of decorations for ceilings, and until we can enter upon the subject of pattern in detail, a word of caution may be whispered against all and every sort of imitation of raised surfaces. Let there be no sham cornices or rosettes for centres—no sham festoons, draperies, or tassels. Whatever is done, should be limited to the expression of agreeable forms in colour, and much more effect may be produced under this limitation than is gene-

rally obtained by the plaster mouldings and ornaments themselves which are commonly attached to ceilings. The choice of the colours and peculiar treatment of them in ceilings must, of course, be regulated by the circumstances of the room, and the character of the decorations used in it."

REMARKS BY PROFESSOR TRAIL

ON THE INTRODUCTION INTO SCOTLAND OF GRANITE FOR ORNAMENTAL PURPOSES,
By Messrs. M'Donald and Leslie of Aberdeen.

THE first idea of employing the refractory but enduring material, granite, in sculpture, appears to be due to the ancient Egyptians. Those who have enjoyed opportunities of examining their colossal buildings have acknowledged the precision and even delicacy of the figures and ornaments with which that ingenious people contrived to enrich their architecture. Specimens of their sculpture in granite, which have, for three thousand years, resisted the action of the elements, and the yet more destructive influence of barbarous invaders, still astonish us by the high polish of their surfaces, and the delicate finish of their details. Even a visit to the Egyptian Saloon of the British Museum will prove that, in accuracy of muscular delineation and in the communication of absolute *fleshiness* to the lips and features of some of the figures there preserved, the ancient Egyptians evinced a high perfection in the art of sculpture, in a material of the most imperishable kind on which few succeeding artists have ventured to employ the chisel.

In our own times, the fabrication of slabs, pedestals, and vases, in hard porphyries and in granite, has been carried to great perfection in Sweden. The quarries of Blyberg, at Eldfalden, for many years have furnished materials for Swedish ingenuity and skill. The elegant forms and high finish of their works in these refractory materials have contributed greatly to the splendour of the Swedish capital, and are known and admired over Europe. Yet, though our own mountains yield no less beautiful and durable materials, it is surprising how long we have remained without any attempt to apply them to the purposes of ornamental art. It is true * * * that Aberdeen exhibits a city chiefly built of blocks of hewn granite; * * * but the idea of giving a polish, equal to that of ancient Egypt, to our granite in works of considerable size—of introducing this splendid material as a domestic ornament in our halls and saloons, and as lasting memorials of departed worth in our cemeteries—is undoubtedly due to two citizens of Aberdeen, Messrs. M'Donald and Leslie, who carry on extensive works in that town, where the grey granite of Aberdeen, and the rich red granite of Peterhead, are cut into an endless variety of ornamental articles, which receive the highest polish.

A late visit to their establishment convinced me that these gentlemen have reduced to practice the difficult problem of giving any required form to so stubborn a material as granite, and of communicating to its surface an exquisite polish, which shew it to be well suited for the abodes of rank and opulence. The rich warm tint of the Peterhead granite, in particular, will harmonize better with the gilded ornaments and gorgeous hangings of a modern gallery or superb saloon, either as tables or as pedestals for works of art, than furniture made of the most costly woods, or even than the snowy marble of Carrara.

For monumental work, this enduring material possesses advantages over the best marble. In our climate, the effects of ruin, sudden frosts, and succeeding thaws, are soon perceptible on Carrara marble, or any other kind exposed freely to the weather. Marble thus soon loses its glossy surface; it contracts greenish stains from the vegetation of minute *byssi*; and inscriptions in a few years, from these causes, become illegible. The polished granite of Aberdeenshire retains its polish most perfectly under all atmospheric changes; does not contract any stain from vegetation; and unless wantonly mutilated, will transmit the inscription engraven on it to distant ages. * * *

The extent and perfection to which these gentlemen have carried the working of this very refractory but beautiful stone, may be considered as forming an era in British art; and require only to be more generally known, to be appreciated and encouraged by public taste and munificence.

INSTITUTE OF BRITISH ARCHITECTS.

Deco. 4.—W. Tite, Esq., V.P., in the chair.
—Mr. H. T. Wright was elected an Associate.
A paper was read "On the Foundations of the late Church of St. Bartholomew by the Exchange," by C. R. Cockerell, Esq., shewing the rude but efficient mode of construction adopted by our forefathers, and the masterly judgment and skill with which Sir C. Wren availed himself of the existing ancient foundations in his new structure after the fire. The piers in the east wall, as well as those under the pillars of the nave, were raised upon a mass of well-made concrete, formed of chalk, broken tiles, and stone, pebbles, and lime, cast about a foot deep into the stratum of sound gravel. Where arches were required, as in the east and north wall, the natural soil was left undisturbed, and formed into a rude centering from pier to pier, on which the voussoirs of the arches in chalk were at once placed. From the springing of the piers, the masonry was of a superior kind, the centre, however, being filled in with concrete—the side walls of the church were of a better masonry with upright faces. The tower was built of flint and chalk, with walls of the thickness necessary to resist the action of the bells.

Mr. T. W. Papworth exhibited a volume containing a collection of decorations for a chapel in the Cathedral at Lisbon, made at Rome in 1755. It appears from these drawings that the architect sent his general designs to Rome, and that the details were there filled up by the most eminent decorative artists. The name of Pompeo Battoni, who was to supply some painting of the higher class, occurs among the number. There are designs for the pavements, railings, hangings, and every description of decoration and furniture to make the work complete. The artistic knowledge displayed in these drawings throughout the variety of operations necessary to carry out a work of this kind, and the unity of purpose with which it is brought together and applied, is the principal deficiency in our modern system of architecture.

ST. MARY'S CHURCH, LEAMINGTON.

We gave in our last a report of measures then under discussion to secure the continuance of the works during the winter season, and adverted to a requisition for a parish meeting based upon the arguments which naturally occur to men of wise and benevolent views, but we are sorry to state for this week that those views have been any thing but distinct to the vision of a majority of those who had to decide upon granting the supplies. A church-rate has been refused, and we hardly see upon what principle, except to thwart the Vicar, the Rev. Mr. Craig. It is a sad thing, however, if a blundering economy—a jealous and perverse spirit should have been indulged in by persons of influence, the evil effects of which are mainly to fall upon the unoffending poor. The beneficial consequence of keeping employed, during the winter season, a number of labourers and artificers, and distributing the fund of their wages through the healthy channels of the small trader, would have been of direct value equal to the full amount of the rate, and as we respect a man's principles, for principle might have had something to do with the opposition, no principle needed to have been compromised.

The meeting that took place was a long and stormy one, and was characterized by violent and ungentlemanly language, designating it as a *farce*, a *humbug*! and the like. The Vicar's meritorious anxiety to give to the town of Leamington one public structure of an enduring and appreciable character, and to unite with this effort the true economy of keeping the poor employed, when employment is of most consequence to them, is not seconded by the patrons of *lath and plaster* and the mammon-speculating tribe by which he is surrounded. Had it been about a set of dog-kennels or accommodation for grooms and horses for the winter hunt, all these who oppose now, would have been vociferous supporters. We speak thus strongly on a matter in which we have been called to know somewhat of the specialties, at the same time we retreat from prejudging: there may have been causes of which we are not cognizant; but enough is exposed on the broad face of the transaction to prevent us being enamoured of it.

NEW CHURCHES.

Christ's Church, Westminster.—This church has been lately consecrated with the usual ceremonies by the Bishop of London. The sacred edifice occupies the site of the old Broadway Chapel, erected at the expense of Archbishop Laud. The old chapel was a chapel of ease to the Church of St. Margaret; unfortunately it had no funds appropriated to its support, and had fallen into such a state of decay, that in 1841 it was found necessary to take it down. The new church is after a design by Mr. Poynter, and was built by Mr. Higgs. It is built of Kentish ragstone, the windows and doorways being of Bath stone. It is a Gothic building, having a bell-tower or steeple at the north-western angle. This portion of the building is not, however, completed, as the funds have not been sufficient to carry out the full design of the architect; in its present state the tower is about 55 feet in height. The interior of the church is commodious, and in keeping with the exterior; it contains 1,550 sittings.

On Tuesday, the 12th inst., a new district church on the Dicker Common, in the parish of Arlington, Sussex, was consecrated by the Bishop of Chichester, assisted by the Archdeacon of Lewes and many of the neighbouring clergy. This church, dedicated to the Holy Trinity, has been built in the course of the present year by voluntary contributions, aided by grants from the Incorporated Society, and the Chichester Diocesan Association. It contains about 300 sittings, all of which are free, and is designed to supply the spiritual wants of a population of about 500 souls, settled of late years in a newly enclosed country, remote from their parish church, and generally in humble circumstances. The Rev. Dr. Warneford has given 500*l.* towards the endowment.

A new church is in course of erection at Dornington Wood, Salop, commenced in February last, and built at the sole expense of his Grace the Duke of Sutherland, from whose estate the stone is brought. The extreme dimensions are 89 feet by 48 feet; the style is early English, and very chaste, consists of nave, chancel, and transepts, porch, &c., bell and stair turrets; the roofs are open, and have a good effect from the gallery in the west end; the inside is fitted up with open sittings, the whole of which are free. The architects are Messrs. Scott and Moffatt, the contractors Messrs. Cobb, Newport.

Mrs. Shepherd, of Amport, Andover, whose munificence in building churches, &c., is well known, has intimated to the rector of Walcot her intention of building one of the contemplated almshouses on Beacon-hill, at her own cost, and dedicating it to the memory of her late husband, the Rev. Dr. Shepherd, D.D., as a token of the great benefit that he derived, under God, from the frequent use of the Bath waters.

A gentleman of about 50,000*l.* per annum in the parish of Wolverhampton, when asked to contribute to Ettingshall Church, excused himself by saying that the mines would be worked out in about seventy years, and then the people would move, and the church would be of no use!—*First Report of the Midland Mining Commission*, p. 154.

Holy Trinity Church.—We are glad to hear that the guarantee fund of 200*l.* required for the improvement of the interior of this sacred edifice has been raised within about 30*l.* We sincerely hope, under these pleasing circumstances, that the work will speedily be commenced. There should be no unnecessary delay.

Lynn.—The Town Council agreed last Wednesday to grant the committee, as a site for the new church, a piece of ground on the Blackfriars'-road, in lieu of the site offered to them a short time since.

St. Stephen's Church.—The repairs of the damages done by the recent storm to this building are nearly completed.

J. H. Errington, Esq., who is lay-rector of Ashbourn, in Derbyshire, finding the committee for re-pewing the church had a deficiency in their funds, lately sent them a check for 285*l.*, the sum expended upon the chancel.

Arrangements are being taken forthwith for the erection of a new church in Heaton Norris, towards which Wilbraham Egerton, Esq., of Tatton Park, has given a site of land and 1,000*l.*

PUBLIC WORKS.

West Bromwich and Birmingham Canal.—A new line of canal has just been completed, of the extent of eight or nine miles, between West Bromwich and Birmingham, at an enormous cost, and the work is certainly superior to any thing of the kind in the kingdom—double towing paths and splendid bridges, and locks, thirteen in number; but when preparations were made last week for the opening of the line, it was found that the locks were two feet too short to admit a boat.—[We extract this paragraph from a country paper, without being perfectly certain as to the fact stated with regard to the shortness of the locks, upon which we remain incredible. It would be such an instance of engineering blundering, as fortunately for the credit of our country is rarely witnessed among Englishmen. We have heard, however, that at the time of the railway from Dartmoor to Plymouth, by which the granite is conveyed, the engineer had so far miscalculated as to have run out a little above Plymouth at a level considerably above his purpose, and that the work had to be recommenced a considerable distance back to rectify the costly blunder. The place at which the error was detected is called "Stewart's Folly," Stewart, we think, being the name of the engineer.—Ed.]

The Commissioners of Sewers for the county of Nottingham are directing the improvement of the course of the river Smite, in the course of which several bridges will have to be built, and others renewed, altered, and repaired.

Bridlington.—Messrs. Walker and Burgess are employed to direct the removal of the present pier, and construct a new one, to effect the enlargement of the harbour. The improvement will be an important one for the interests of Bridlington.

RAILWAYS.

Railway Projects.—Among the numerous notices of application to Parliament next session for Railway Acts, the *Railway Times* presents the following list connected with this district:—

EASTERN COUNTIES' AND NORTHERN AND EASTERN RAILWAYS.

For the amalgamation of the Eastern Counties' and Northern and Eastern Railways.

To amend the Eastern Counties' Railway Acts, with power to make a branch to Thetford, &c.

For an extension of the Northern and Eastern Railway from Newport to Thetford and Ely, in connection with the Northampton and Peterborough Railway, and to Wisbech, with power to sell or lease. Signed by "Crowder and Maynard, solicitors, 67, Coleman-street, London."

For leave to deviate on the Newport (Northern and Eastern) Extension line.

A branch railway "to commence by a junction with the Hertford and Ware branch of the Northern and Eastern Railway, at or near the Hertford station of the said branch railway, in the parish of Saint John, Hertford, in the county of Hertford, and to terminate in a certain field adjoining the turnpike road from Hitchin to Stevenage, in the parish of Hitchin, in the county of Hertford." No signature to the notice.

Branches from the Northern and Eastern Railway to Tottenham and Edmonton. No signature.

For the Norwich and Brandon Railways. Signed, "Parker and Hayes, Lincoln's-Inn-Fields."

For the Eastern Union Railway. Mr. Cobbold's and Mr. Locke's scheme for extending the Eastern Counties' Railway *via* Ipswich.

Mr. Braithwaite's branch to Harwich. Signed "John Duncan, London; Sparling, Turner, and Deane, Colchester."

Mr. Attwood's Harwich branch. Signed, Bourdillon and Son, Great Winchester-street, London, solicitors for the Bill."

Railway from Thetford to Cambridge. No signature.

For the Stratford branch line to the Thames in connection with the Eastern Counties' and Northern and Eastern Railways. Signed by "Stokes, Hollingsworth, Tyerman, and John-

ston, 24, Cateaton-street,"—four out of the eight Blackwall Railway solicitors.

To amend the Yarmouth and Norwich Railway Acts, and authorize a short branch line.

A railway from Tilbury Fort in Essex, to join the Blackwall at Stepney—a modification of the Thames Haven scheme. No signature.

The district of Furness, which has from time immemorial been proverbial for its isolated character, and the apathy of the inhabitants thereof for improvements in the communication with the rest of the country, will, in the course of a few years, undergo a revolution. It is to be wondered that, up to a few years ago, this large field for speculation had never been thought of, when it is considered that there were within its bosom minerals, which, both for variety in their nature and richness in quality, are nowhere equalled: but there is a season for every thing. There has already been an act obtained for building a pier, and making improvements at Roe Island, which works are to be commenced in the spring. A railway, which will cost 100,000*l.*, to Ulverston, Dalton, the iron ore mines and quarries, is to be applied for next session, as already the greatest part of the shares have been taken, and there is little doubt but that the whole amount will be got in shortly. A scheme for embanking the sands from the canal foot, Ulverston, to Greenodd, and turning the channel, is much talked of, and is exciting much attention; and by means of which several thousand acres of land will be reclaimed.—*Suffolk Paper.*

The Atmospheric Railway.—On the return of M. Mallet, the distinguished French engineer, to Paris, he obtained an audience of the King of the French, and entered into a full explanation of the principle and working of the atmospheric system on the Kingstown and Dalkey Line. The king being thoroughly convinced by this representation, sent next day for the commissioner of public works, and intimated that his opinion was so decidedly in favour of the atmospheric system, and its vast advantages in regard to economy, safety, and rapidity of communication, that it was his desire that that system should be at once established on the projected line from Paris to Meux, which will be from twenty-five to thirty miles in extent. His Majesty further stated, that his anxiety on the subject was so great, that he would purchase the ground on the line for as many miles as the company might deem advisable, and make a free grant of it to them.—*Dublin Mercantile Advertiser.*

Sheffield and Chesterfield Railway.—Upwards of 4,000 shares have already been taken for this railway, so that there is now little doubt of its obtaining the sanction of Parliament in the next session.

Hydraulic Railway.—The *Prussian Gazette* announces that an English engineer of the name of Shuttleworth has proposed the formation of a railway upon nearly the same plan as the atmospheric railway, substituting water instead of air as the means of producing action.

The work of reclaiming and cultivating Trafford Moss, near Manchester is going on, though rather slowly at present, owing to its being cultivated by pauper labourers, and, fortunately, the number of this class being reduced considerably during the last eight or ten months. It is an experiment, however, which free and well-paid labour might advantageously be employed upon. Sixteen acres of land which were two or three years ago covered with turf pits have been thoroughly reclaimed, and have been so well cultivated, as to yield crops much superior to those generally raised on good land, and in addition, a piece of five acres has been most thoroughly drained (having had upwards of 4,000 yards of drains driven through it), and a great part of it has been double trenched with the spade. The plan of reclaiming is first to drain the land until not a drop of water will remain upon it, then to give it a double trenching with the spade, taking care to keep the driest and best part of the soil at the top, and then to marl it at the rate of about 120 tons of marl to the statute acre. In this way an excellent soil is produced, which has this year yielded 100 loads of potatoes, of 25*lb.* each, and upwards of 30 bushels of wheat to the statute acre.

Correspondence.

MAGNESIAN LIMESTONE.

SIR,—A company was formed some years ago for the purpose of opening quarries of magnesian limestone to a considerable extent in the neighbourhood of Ferry Bridge, in Yorkshire.

It was understood that an outlay took place corresponding with a very large capital which was subscribed, and that the house of Mr. Horace Twiss, in Carlton Gardens, was faced with stone from these quarries. Observing that much of the stone in that building is in a dilapidated state, it will be interesting if any of your geological friends can give an account of the works referred to, and explain the cause of failure in a stone from the magnesian limestone beds,

I am, Sir, your humble servant,
A CITIZEN.

BRITISH MUSEUM.

SIR,—In *THE BUILDER* of the 16th inst. there is a sketch of an improvement in the façade of the British Museum; I agree with the writer, that the plan of placing the wings a greater distance from the central portico would very much improve the design, by producing greater breadth, and consequently it would have a more noble appearance; but I consider that adding the additional columns to the projection of the wings would deteriorate from the beauty of the design, by the centre being in several points of view partially or completely hidden from the spectator, and also by destroying that breadth which would be gained by reducing their projection. I cannot imagine why a pediment in the centre "would not agree with the practice of the best ancient examples" (perhaps "G. R. F." would mention his authority for such an assertion). One, I am sure, would greatly improve the present design, where the centre is very lone and spiritless, and the wings are made to assume an air of importance which ought not to belong to them as subordinate parts. I think your correspondent has been "very hasty" in the disposition of his statues; it would have been much better to have placed a statue over each column in the central portico, thereby avoiding the unfinished appearance it now has, besides giving it greater importance; and to have omitted the figure placed on each pediment, which have such a bare and solitary appearance. I should like to hear the reason why "G. R. F." prefers the Corinthian to the Ionic order. It cannot be that the Corinthian would be more in accordance with the purposes of the institution; the classic beauty of outline in the Ionic would, I think, be more to the purpose than the lavished enrichments of the Corinthian; besides, the Ionic would, in my opinion, tend more to produce in the mind recollections of times long gone by, the monumental remains of which are deposited as evidence before us. But the popular feeling now is for Corinthian; columns and buildings of that order spring up everywhere around us,—the other orders have fallen into disrepute. To please the fickle multitude we must have cornices enriched to the utmost extent; every part must have ornament, whether in good taste or not, and then the architect is perfection. But another era arrives, a new feeling carries the acclamations of the multitude, and the building which once was lauded to the skies, becomes a mark for the effusions of puny amateurs and the more talented criticisms of prejudiced architects. Whether it is to favour the public opinion, that "G. R. F." prefers the Corinthian order for the façade of the British Museum, of course I cannot tell, but I can assure your correspondent that a façade for such a purpose could be designed in the Ionic order, which would harmonize in character with the purposes of the Museum, perhaps rival the monotony of the Royal Exchange, or the bare front of the National Gallery, and yet not be inferior in architectural beauty to the design furnished by "G. R. F." though I allow that it would not suit the present morbid and ill-educated taste of society in general,
CANDIDUS.

London, Dec. 18, 1843.

THURD MARKET COMPETITION.

SIR,—My attention has been drawn to the Correspondence in your valuable publication relative to the late competition for the designs of the markets and halls of this town; and as it does not appear that "Senex" is enabled to fulfil his vaunt of being able to be the means of throwing some light thereon; and that "Young Chip" is cavilling about the presence of the successful competitors in the town, I am induced to offer a few observations which may tend to enlighten your readers as to this competition. The Town Hall and Markets of Saint Austell, near here, are being erected from their designs, but they must travel from London here; and if either of your correspondents were competitors, they could have done the same; the latter seems to me as being of very green stuff, or he would know (as I am informed) that it is an every-

day practice, and where there is no prohibition as to the names of the authors accompanying the designs, as was the case in this instance, I cannot see the impropriety of the competitors attending, or that any point of honour (so much dwelt upon by P) was invaded by so doing; indeed, I think your remarks admirably to the point. The field was open to all, and surely those who took the most pains, "talent being equal," had the best right to succeed. To say that competitors should not have the privilege of explaining their designs is most absurd, it being well known that persons composing committees of this nature in general are not enabled without some assistance to understand the drawings submitted to them, the multiplicity and intricacy of which tend so much to confuse them; and, let me ask, who so capable of doing so as the author, who has well considered his subject in preparing his design? Why all this quibbling about blue sky and pretty pigs? Is it the envious scribbling of some angry competitors, incapable of perpetrating either? If it is, they may learn that neither the one nor the other affects this instance, and that this competition was most impartially conducted, and consequently reflects the highest credit upon all parties concerned, as well as the high gratification to Messrs. Cope and Eales of having their design literally selected by the public, as may be inferred from the fact that the high character of the chairman, Humphrey Wiliams, Esq., is in this town sufficient guarantee for "fair play and no favour," and that before the committee made a selection or report, the whole of the designs were exhibited to the public for one month, during a great part of which the chairman was absent from the town. This at once silences "Senex's" innuendo about delay, and so universally was it admitted, that the beauty of the design and superior arrangement of the plans submitted by Messrs. Cope and Eales, as well as the elaborate style of their numerous drawings, exemplifying as they did every part of the buildings, together with an elegant model of the whole, fully entitled them to bear off the palm, that the council awarded it by acclamation. One word as to the point raised about the two halls: the instructions required a hall suitable for judicial business, and also a room for the meetings of the council—hence the appellation of *halls*.

I fear that I have trespassed beyond due bounds upon your space, but the desire, in a sense of justice to the successful competitors (they being personally unknown to me), as well as to the committee, to rebut the unmerited imputations, has induced these remarks by
AN OBSERVER.

Truro, 18th December, 1843.

PANEL PUZZLE.

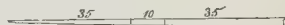
SIR,—I apprehend that Mr. Newnham has increased the width of his panel by cutting it longitudinally on the bevel, glueing the outer square edges together, and forming the fillets out of the bevel edges.

If the panel were too long, I should use the superfluous length for the fillets, by grooving it into the sides, and which I conceive would be stronger than the common method.
Lanson, Cornwall. A YOUNG BUILDER.

MEASURING ROUND TIMBER.

SIR,—There is a curious discrepancy in two ways of measuring a stick of round timber; it was shewn to me by a friend, and I beg to hand it to you in case any of your readers may be able to explain the reason for it.

Suppose a stick of round timber to be 80 feet long, and the diameter at one end to be six inches, and the other end the Diameter to be six feet. The contents, taking the centre of the length for the quarter girt, will be found to be 521,220,5080, but if the piece be cut into three pieces, as per sketch,



And measure those three pieces separately, and add their contents together, they will be found to amount to 624,559,764,339,054,8525, making an increase of 103,339,263,339,054,8525. It may be nothing new to many, but as one of the uninitiated I should like to see it explained.

Yours most obediently,

Shadwell.

L.

COTTAGE PLANS.

SIR,—I hope you will indulge me through the medium of your columns to ask one or more questions of an individual who signs "A Practical Builder," on p. 508, and who furnished plans and elevations for two cottages: 1st. Would not the elevation be much improved by having four windows on the ground-floor placed immediately beneath those of the chamber-floor, and of better proportion; having the entrance door at C in the ends of building, and closing the door at the back at foot of stairs? 2nd. Does it not appear desi-

nable to have windows in a chamber plan, and of ground plan? and, lastly, whether cellars are included in the sum of 400*l.*, or the closet C intended for coals? If the individual alluded to would have the kindness to afford an early answer, I shall feel obliged.

I am, Sir, &c. &c.

A BUILDER IN PRACTICE.

Miscellaneous.

ETON COLLEGE IMPROVEMENTS.—The students of Eton College having come to the liberal and praiseworthy determination of furnishing a new east window to the college chapel, at a cost of 2,000*l.*, have been enabled, previous to the breaking up of the school for the Christmas holidays, to make the following gratifying report:—"The committee feel much gratification in announcing, that the first instalment, 400*l.*, has been collected, and paid by the treasurer into Messrs. Nevile, Reid, and Co.'s Bank. Also, that, according to the general design submitted to them by Mr. Willmott, and approved by the authorities of the college, the centre compartment on the lower tier will be occupied with the Crucifixion, that in the upper tier with the Ascension, the four other compartments, containing twelve divisions, with the twelve Apostles. Also, that they have commissioned Mr. Willmott to commence the centre compartment of the lower tier; which will be completed by the end of next March. Also, that the cost of the whole window will, by agreement, not exceed, but probably be less than, 2,000*l.*; in which sum all incidental as well as necessary expenses, together with an outer covering of copper wire, are to be included. Lastly, the committee express their earnest hope that this work will not be allowed to fall to the ground by the indifference of their schoolfellows, but that the required subscription of 320*l.*, each school-time may be forthcoming, as then within two years the window will have been completed by the voluntary subscriptions of the present Etonians. J. L. Joynes, E. B. Foster, T. Brocklebank, secretary. G. Herbert, C. Pateson, treasurers."

HYDROSTATIC INVESTIGATION.—Some very interesting experiments were made on Saturday week, at the bottom of Pulteney street, for the purpose of obtaining practical data for calculating the height and power of jets of water discharged under various pressures and with different forms of jet pipes; and likewise to ascertain the capacity of the new water mains to supply a force of water in the event of fire; but this was the secondary object of the investigation. An accident having happened in the early part of the experiments in the mercurial pressure gauge, its use was abandoned for the present, and the altitude alone attended to. As it is intended to renew the experiments, with several improvements, which the present trial suggested, it would be premature to state the various results as the maximum to be attained; it may, however, be stated that the greatest altitude was attained by using a jet pipe of 11-16ths of an inch diameter, the height being 103 feet 6 inches above the level of the sea, or about double the height of the houses in Pulteney-street. It may appear a remarkable fact, that a jet of $\frac{1}{2}$ an inch in diameter and one of $1\frac{1}{2}$ inch both attained the same height, or rather the $1\frac{1}{2}$ inch jet rose to rather the greater height, being about 79 feet, although the volume of water in the latter case was upwards of 5 times that in the former. This fact suggests a material improvement in the jet pipes to be applied to the present fire mains—those now in use being only 9-16ths of an inch, which is still, probably, the largest diameter that can be worked by manual labour. The experiments shewed that the natural pressure of the water in the streets of Bath is so great, that in the event of a fire, a quantity of water could be thrown upon it, without any manual labour, equal in quantity to that ejected by five fire-engines of ordinary power, and with force considerably greater.

FIRST LIST OF DONATIONS TO THE WESLEYAN EDUCATION GENERAL FUND.—The first list of subscriptions to this fund, to promote the education of the children of the labouring classes, amounts to 6,000*l.*, which sum, observes the *Watchman*, is surely a very satisfactory first instalment of 20,000*l.*, which it is desired to raise at once, for the specific purpose to which we have adverted.

WORK OF ART FROM HULL.—The *Leeds Intelligencer* says:—"We mentioned some months ago having had the gratification of seeing a bust of the vicar modelled in clay by W. D. Keyworth, of Hull, a most promising and talented sculptor. This week we have seen a marble bust executed by the same artist from that model; and what we have said of the original, as to character and resemblance, we can faithfully repeat of the copy in marble. It is a remarkable likeness, life-like, characteristic, and dignified; the execution is highly finished and beautiful, and the expression is natural and free. The work is one which fully entitles the young artist to a place of eminence in his noble profession."

Tenders.

AMOUNT of tenders for finishing seventeen houses in Norland-square, Notting-hill, for Charles Richardson, Esq.—Messrs. Cope and Eales, Architects, 17, Bloomsbury-square. December, 1843.

Pratt and Bodle	£7,149
C. Stevenson	7,760
J. Jay	7,873
Haynes and Co.	8,500
Piper and Son	8,695

NOTICES OF CONTRACTS.

IRON TOLL-HOUSE AND PREMISES.—Three-Mile-Oak, near West Bromwich.—Edge and Avery, Architects, Birmingham.—Mr. James Frost, Surveyor, Wood-green, Wednesbury. Jan. 1, 1844.

WORKHOUSE FITTINGS.—Stove, Grates, Gas, &c., Sheffield Union.—Plans and specifications at the Clerk of Works Office, George Crossland, Clerk. Dec. 27.

NOTTINGHAM.—Enlarging, Straightening, and Improving the River Smite, and building Bridges.—Godfrey Tallents, Clerk, Newark. January 2, 1844.

BRIDLINGTON PIERS AND HARBOUR.—Erection of a new south pier, removal of present pier, and other works for enlargement of Harbour.—Plans and Specifications at Mr. Sidney Taylor, Solicitor, Bridlington, after Jan. 1, 1844; March 1, 1844.

BANFF PRISON.—BUILDING A SEWER.—G. A. Young Leslie, Banff. Dec. 27, 1843.

ADDENBROOKE'S HOSPITAL, CAMBRIDGE.—ADDITIONS AND ALTERATIONS.—Drawings and Specification at Mr. Walter, Architect, Trumpington, Cambridge, after the 18th.—F. Barlow, Secretary, St. Andrew's-street, Cambridge. Jan. 1, 1844.

ENLARGEMENT OF SUFFOLK LUNATIC ASYLUM.—SPECIFICATIONS, &c.—Dr. Kirkman, the Asylum; J. H. Burton, Clerk of the Peace, Bury St. Edmunds. January 23, 1844.

KENTISH TOWN CHAPEL.—TAKING DOWN AND REBUILDING.—Drawings, &c., at Messrs. Seadling and Son, Solicitors, 3, Gordon-street, Gordon-square. 4 Jan., 1844.

NOTICES.

In answer to several parties who have applied to us respecting binding their copies of THE BUILDER, we beg to state that we have made arrangements for binding in a uniform cover, which can be had by application at the office, at a cost of Two Shillings, or our Publisher will undertake to get any sets bound at a charge of Three Shillings.

TO OUR READERS.

Mr. Neumham's puzzle has been answered by "A Subscriber," Portica, and several others.

TO OUR CORRESPONDENTS.

"B. B."—We thank him for his drawings, &c., of a Wooden Foot-bridge, which shall appear.

"Mr. James Pickard."—His contribution is a beautiful example, and shall appear. Can he not supply us with some particulars of the church? We thank him for the other information.

"R. S." will please to accept our thanks.

"L. M." asks for niches and for more information on arches. He and his friends shall have them. We cannot positively promise the frontispiece he solicits, although it has been in our mind to provide one a long time.

"R. A."—His proposal would be peculiarly acceptable if other circumstances admitted. We are also aware of the objection he urges, but time alone will effectually remedy it, and perhaps also enable us to entertain his proposal.

"Hall of Commerce."—No architect was employed. The proprietor, we believe, Mr. Mochay, directed and superintended the work himself.

"B. G. N." Glasgow.—His plan of "Small Street Houses" of Scotch towns is much esteemed, and will be by our readers.

NEW METROPOLITAN BUILDING ACT.—"S. R. B." is informed that the Bill has been considerably altered since our publication of it, and that it is intended to bring it forward in the next Session of Parliament so altered, in which shape, or pretty near it, we suppose it will pass.

"Mr. Richards."—His note is forwarded to the proper parties.

CAMBERWELL CHURCH.—"J. P." calls attention to what he considers defects in the design for this church—the blanks on each side of the upper windows, and the different form of the centre arch. He also objects that the "flying buttresses on the spire do not agree with the lower part of the tower. We should be disposed to say that the beauties of Gothic art are not of a self-evident character, if the artless manner of "J. P." may be relied upon as a test.

ADEL PORCH.—The lithograph comprises more than is detailed in the drawing in THE BUILDER. "J. W. W." may obtain it by applying to Mr. Nevins Compton, Architect, Leeds; or perhaps Mr. Compton may see this and state by whom the drawing is published.

"G. S.," "MacWood," "A Well-wisher," and "J. C.," received.

SUMMARY OF CORRESPONDENCE.

"L. M." begs to thank "J. L. T." for the beautiful font from Brecon. He says it is to him, if he may use the term, music for the eyes, and hopes that an ancient window or font may be given as a treat from the same quarter.

"A Well-wisher."—There must be some mistake. The monthly parts of THE BUILDER are always ready for the monthly parcels of the country booksellers. He expresses himself as "quite pleased on the whole with THE BUILDER, but thinks the title a misnomer, that is, says he, if it be derived from the business so called, as it certainly more concerns architects than builders, the latter being to the former just what a vendor of drugs is to the physician. He remarks on several matters connected with the mixing up the architect and builder in practice, animadverting on the character of works produced under the union of these callings in one individual, &c. He suggests the propriety of designating our journal "The Architect." To this and another matter or two arising out of it we have addressed ourselves in another place.

REPLY TO PASSED INQUIRIES.

ENCAUSTIC TILES.—We can now mention the names of other manufacturers and dealers who have been obliging enough to forward us the information for our correspondent "W. B."

Mr. H. Baker, late Burroughs' Wharf, Camon's Wharf, Bristol.

Mr. Mayer, of Burslem, Staffordshire, has sent us a letter of his terms, which we have forwarded to "W. B." His prices are from 8*s.* per yard up to 40*s.*, including plain, drab, red, and black marble patterns, octagon shaped, inlaid with coats of arms, &c., variegated with landscapes, mosaic patterns, &c.

Mr. Pickard calls our attention to Mr. Minton's works, near Newcastle-under-Line. Mr. Minton's reputation is well known as a manufacturer; his tiles are in great request. He built a church at Hart's-hill at his own expense, where also these tiles are used.

BALCONY FLOOR.—"W. B.," at page 526, inquired for the best covering on the nature of cement for the wooden floor of a balcony; for one thing we may call attention to the SEYSSSEL ASPHALT. It has been recently laid down to the gallery of "The Monument," and has perfectly united itself to the iron rails, and in other respects, as fitted for his purposes, it needs no encomium from us.

INQUIRIES.

FOR POLISHING BLACK MARBLE.—"L. M." begs to be furnished with an account of the best method and ingredients.

CRYSTALLINE PLASTER.—"There is in use in London a very fine, white, and extremely hard material for interior decorations; it has been much used, I believe, by Messrs. Cubitt. I think the name given to it is Crystalline Plaster. Would you, or any of your numerous readers, be kind enough to inform me where it is to be obtained, and what price it is sold at?

BUILDERS' PRICE BOOK.—The reputation of both "Skyring's and Laxton's" stand high, and it would be unwise in us to utter a preference. "G. F." will see our remarks on the latter in another place.

TO OUR SUBSCRIBERS.

In compliance with the wishes of very many of our Subscribers, we have had prepared a plan for binding the copies of THE BUILDER in those who may be desirous of preserving them in uniform Volumes. These may be had on application at the office, at the price of Two Shillings; or our Publisher will undertake to send them bound at a charge of Three Shillings per Volume.

THE BUILDER,

NO. XLVII.

SATURDAY, DECEMBER 30, 1843.

ADDRESS.

In drawing to the close of our first year's existence, we are naturally impelled to review our progress, and to offer thanks to the professional and operative members of the public upon whom we have leaned for support, with the wish of returning to the best of our ability the kindness bestowed upon us. The attempt to raise a new thing, a leading magazine devoted to technical building, was, no doubt, a bold and hazardous enterprise; but, like most bold enterprises, has been crowned with success; and at the end of a conquered year, we have the gratification of seeing that a publication which we can hardly expect to arrive at the extensive circulation of an ordinary journal of news and politics, has in so short a period, reached beyond the average circulation of the most favoured of periodicals devoted to art, science, or classification. Where we have failed, our laches have not been caused through wilful misconduct on our part. Our purpose, we may truly say, has been constant and unrelaxed, to benefit all the branches of society practically employed in building. Our correspondents have increased; and we have reason to hope that with accession of numbers, will come the augmentation of intrinsic value.

We have, however, to regret the loss of the services of our original editor, and indeed under him, we should have been the more benefited by this occurrence, had we not been led to procure the talents and energy of an architectural author, whose whole life has been devoted to the study and improvement of technical architecture in its most minute details; under his management we hope to have brought to light, fostered, and nurtured the fruitage, a school of orthodox practice in every branch of the operative literature and the public development of architecture. We know that he is fearless in asserting the truth, and tender of wounding by unjust criticism even the most unworthy.

We hereby express our determination in our career, that in order to merit the highest patronage given to architectural literature, all harshness, personal vituperation, or unhandsome remarks will be studiously avoided; and any approach or even fancied approach to these offences, from which we would remain uncontaminated, has at any time appeared in our pages during the past year, we most humbly crave absolution, and at the same time wish to assert the truth, viz. that such was contrary to our intention. Under the able hands to which our periodical will in future be committed, we trust the operative builder and the polished gentleman will alike receive improvement, knowledge, and pleasure in the perusal of our columns. Our subscribers will find early in the coming year the

result of the powerful arrangements which we have made for the furtherance of architectural science, and we trust that good taste and soundness of principle, will pervade every article admitted by us; and now, in taking farewell of our readers at the close of a literary year, though the curtain be dropped upon our labours, yet shall we be as busily employed as are those in a drama who are to re-appear in the next act; and though short be the interval until our next issuing, like theirs, we trust our coming again upon the stage will be welcomed, and we shall be recognized with approbation, though appearing under some change of dress.

MASTER CARPENTERS' SOCIETY.

NEW BUILDINGS' BILL.

A MEETING of the Master Carpenters' Society was held at the Freemasons' Tavern, on the 13th instant, for the election of officers for the ensuing year, the making a sheet list of prices for the year ending at Christmas, 1843, and various other matters connected with the trade. The attendance of the members was unusually numerous. Mr. H. Biers, the President, in the chair. The minutes of the last meeting being confirmed, and the average prices of timber and deals being taken, the president intimated that he had received a communication that "The Amended Buildings Bill" would not be pressed by government in the next session of Parliament, but that another bill was in preparation, and in all probability would be introduced next session. He (the president) thought that under these circumstances, it would be better to have a communication with the Woods and Forests previous to the re-appointing the committee on the new bill.

It was then moved and seconded that the president communicate with the Woods and Forests upon this subject, and that the result be laid before the society at the next January meeting.

Mr. Knight had much gratification in re-nominating their present excellent president to the office he had so ably filled. It was true that in their pressing again upon him the duties of the president, he was asking of him a favour beyond that of any preceding president, but it must be remembered the great services performed for this three years past, by their present chairman, in the various bills that had been before the Parliament and public in the shape of Buildings Regulation Bills, Drainage Bills, and bills of other description relating to the building interests. It had been announced by the president that if the present "amended bill" was not progressed with, at all events another, and perhaps a worse one, might be brought forward; and unless they had him again for their guide and director, unless they had his thorough knowledge to bring to bear upon these matters, the great good which he has already worked out would probably be lost to the society. He would therefore move that their present excellent president be again re-elected.

Mr. Stephens, in seconding the motion, observed that the society would bear in mind the masterly report upon the bill called the Buildings Regulations Bill of April last. That report, so ably drawn, and the objections therein so ably set forth, had proved, if proof had been wanting, the great talent of their president in meeting the objectionable clauses intended by that bill, for after the various interviews with the noble lord at the head of the Woods and Forests, and the Crown surveyors, very nearly the whole of the objections in that report had been expunged from the bill.

Mr. Lever (the treasurer) had never seen one who would more ably manage the very responsible duties that had devolved upon the chair since the first election of their present chairman. From January, 1841, to the present time, the bills for regulating buildings, drainage, and other matters connected therewith, had been constantly before the society, and the many objections thereto had been as unremittingly brought under its notice by their indefatigable president, and with an ability which none but those practically and largely

engaged in building operations would adduce. Although in the period of five years our president had not been absent from his post three times, yet, feeling the interests of the society to be so deeply involved, he must press upon his acceptance the re-election to the chair.

Mr. Burstall had at much inconvenience attended this evening for the purpose of pressing the re-appointment of their president, at all events until the final passing of the intended bill.

Several other members having expressed themselves in similar terms,

Mr. H. Biers, the president, said that he had come down fully with the intention of declining the re-acceptance of the chair, which the kindness of some of the members had previously privately suggested to him; and although the society had so generously pressed the re-election, yet he did not see the propriety of again excluding some other member from occupying the honourable station of their president; nor did he see that if he gave his best attention to the bills intended to be brought forward, that his assistance as member might not be quite as efficient. It certainly was most gratifying to any individual to find that, in fulfilling the duties of the office, he had given the satisfaction that it appeared he had done, especially in the Buildings Bill. At the same time he must not take upon himself all the credit in this matter; he had been most ably assisted by a most excellent committee, and he felt much pleasure that the suggestions made from time to time had been most readily assented to by the whole of the society. To many of the members of both Houses of Parliament their best thanks were also due, and most especially to the Bishop of London, in the Lords (who presented their first petition), and to Colonel Wood (Middlesex), in the Commons, who is at all times accessible, and who has paid the greatest attention to the subject. The road is now comparatively clear to that when first they started upon the Buildings Regulation Bill of Lord Normanby's and Mr. Fox Maule's. At that period not half-a-dozen members in either House understood the subject-matter or the details of the bills then presented for their discussion. But the Society of Master Carpenters by petitions; by evidence in Committee in the House of Commons; by communications with the executive; by reports; by deputations; and other means; have called the attention of the legislature to the vast importance of a bill of this description,—a bill which will control and involve the domestic arrangements of nearly two millions of the inhabitants of the metropolis and its suburban districts. It is not saying too much to state that, had not this society stood forward almost singly in opposing, determinately opposing, the bill of last session (April), that that bill, with all its attendant evils, would ere this have become a law. A member of the House of Commons, upon an interview proposing an opposition to that proposed bill, observed "that it would be useless to oppose the bill, it being a government bill, and most of the members would take it for granted, that having the Woods and Forests, the Crown surveyors and others to draw the bill, that that bill must be right, and it would pass as a matter of course." The society not at all acquiescing in this arrangement bestirred themselves with still greater energy, drew the report, and, by the favour of Colonel Wood, obtained an interview with Lord Lincoln at the Woods and Forests. Lord Lincoln, as will be recollected by the deputation, received them most courteously, and having listened with great attention to the many objections to this intended bill, appointed the Crown surveyors to meet the deputation to discuss the several objections. The committee or deputation having met the Crown surveyors, the objection to the bill was gone through section by section; and the result was, that an amended bill (July, 1843) was presented, and which bill contains but very few of the clauses objected to by this society. Thus, by the exertions of this society, the metropolis has escaped a bill most absurd and impracticable in its details as to building regulations. It is but fair, however, to state that in a draft prepared by the Crown surveyors, there appeared but little difference between them and this society; but it appeared, also, that there was a controlling power somewhere in the

background which most materially marred the intended measure. He still had hope that any new measure to be brought forward will be for the benefit of the community in general, but especially for the poorer classes. The noble lord (Lincoln) at the head of the Woods and Forests had, at the opposition in April last, taken the impression that this society wished by all and by any means to prevent a new bill passing through the House; but from the various communications with this society, I can now say that his lordship entertains quite a different view, and is convinced that the best services of this society will be rendered in enabling the Government to pass a bill that will benefit generally the extensive population likely to come within its provisions. It would perhaps be trespassing too much on their time to notice generally the provisions in the intended bill, but he could not help calling the attention of the society to the 20th section. This, if permitted to stand, would operate most injuriously to almost every householder in every district comprised within the range of this Act, inasmuch as every room not being in area 100 feet superficial is prohibited from being occupied. In fourth-rate houses, especially the back rooms, built under the old Building Act, cannot, or do not contain 100 feet superficial; so that what has been built orthodox, or according to Act of Parliament for three-quarters of a century, would by this "amended bill" be prohibited from occupation. In almost every house there is a dressing-room, a library, or a store-room, which may not contain 100 superficial feet; all these will be subject to a serious penalty if occupied under the intended Act. The fees also under the "amended bill" will have to be considered; and although the fees are the emoluments of the district surveyors, it is but right to state that at the several interviews he has had with the district surveyors, they have all expressed themselves perfectly satisfied with the old fees, and in some instances, as in the smaller houses, have been induced to consent to a scale of reduction. Having thus shewn so much has been done in paving the way for any new bill, he hoped the society would name some other person as president; at the same time the society should have his best services in the working out any future measure.

The society, however, coming to an unanimous vote that the president be re-elected, he very handsomely consented to their wishes, at all events until the passing of the Buildings Bill.

After naming new members, and some other business being transacted, the society adjourned until the last Wednesday in January, when the correspondence with Lord Lincoln upon the intended New Buildings Bill will be laid before the board, and the proposing and balloting new members will take place at this meeting.

MR. THOMPSON'S FIRE ESCAPE.

This is a simple and ingenious invention for preserving persons from being burnt in houses that are on fire. The contrivance by which they are to be saved from the flames is this:—A rope, the two ends of which are held in the street by policemen, or other persons present, is elevated by means of a pole, consisting of pieces fastened together after the manner of a fishing-rod, to the window of the house from which the inmates are to be rescued; the rope is then to be secured in the room by passing it round a hook or heavy piece of furniture, and the two ends in the street being pulled apart so as to form an angle, a belt, which is secured upon them by strong iron rivets, is forced up to the windows, by means of two small iron wheels or sheaves, almost instantaneously. The apparatus will carry a man secured by the belt, up to a window at the very top of the house, and will, by means of the ends of the ropes being kept tight and asunder at such a distance as the occasion requires, enable any one to descend by means of the belt, without any danger from too great rapidity. The machine was tried in Sydney's-alley, in Adam-street, Adelphi, and in Wellington-street, Strand, when repeated ascents to and descents from windows were made with complete success. The invention is so simple and so manageable that any person can avail himself or herself of it.

COURT OF EXCHEQUER.

THE ATTORNEY-GENERAL V. GRAVES.—IMPORTANT CASE.

THIS was an information, at the instance of the Excise department, against the defendant, for using bricks for the ordinary purposes of building which were made duty free for draining wet and marshy land. The Attorney-General said, that, although the case had taken a turn which would prevent it from occupying the attention of the Court for a considerable time, he thought it his duty shortly to state its involuntary infraction of the law. It was probably known to every one who heard him, that an Excise duty was imposed upon bricks generally, but it was thought expedient by the legislature to encourage the drainage of marshy land by exempting from duty bricks used solely for that purpose. Accordingly, the stat. 2 & 3 Vict. c. 24, s. 18, provided that bricks for the sole purpose of draining wet and marshy land, being stamped or moulded with the word "drain," in or near the centre of the surface of such bricks, should not be chargeable with duty. But, in order to prevent this exemption from being made the means of evading the duty, it was also provided by the same section "that it shall not be lawful for any person to employ or make use of any such bricks for any other purpose than in draining wet and marshy lands, and any maker of such bricks, or other person, who shall sell, or use, any brick with the word 'drain' so stamped or moulded thereon, for any other purpose than as aforesaid, shall forfeit 50*l*." Now the offence charged by this information was, using bricks exempt from duty, with the word "drain" thereon, for making party-walls and back-walls of a house. For this offence the defendant had incurred heavy penalties, and the Excise department thought it their duty to protect the revenue by suing for those penalties. It was intimated to him, that the defendant was desirous to acknowledge that he had violated the law, though he alleged that he was wholly unacquainted with the provisions of the statute which he had infringed. He need scarcely observe, that this ignorance was not a legal justification, although it might entitle the defendant to a more indulgent consideration.

Mr. B. Andrews said his client could not deny that he had violated the provisions of the Act of Parliament, but he thought the jury could well believe that it was done in entire ignorance, as he (Mr. A.) was free to confess that, until the brief he now held was placed in his hand, he was ignorant of the particular enactment on which this information was founded.

A verdict was then taken for the Crown, it was understood, with mitigated penalties.

TOWN COUNCIL, BATH.

DISPUTE ON AN ARCHITECT'S ACCOUNT.

A BILL of Mr. Manners of 35*l*. 6*s*. 10*d*., including the amount of per-centage charged for plans and estimates, on the expenditure for building the new gaol, gave rise to a question as to whether it included the 900*l*. admitted mistake in the figures carried out by one of his clerks (deceased) in copying his calculations, and which, when discovered, was frankly laid before the council, discussed, and partly allowed.

Mr. Davis said as one of the committee when the bill was brought before them, he objected to different items of it. Having adverted to the mistake in Mr. Manners's calculations, and the mode in which the matter was settled by the council, he added that Mr. Lewis having made also a mistake against himself of 600*l*., agreed to forego his claim of the 900*l*., to save Mr. Manners from the loss to which he had rendered himself liable by the miscalculation, provided the council would allow him the 600*l*. mistake of his own. Mr. Manners in a letter to the council acknowledged his liability to pay the 900*l*., but the council consented to Mr. Lewis's proposal, and saved the 300*l*. He (Mr. Davis) thought it unhandsome that he should have charged his per-centage as if the whole 900*l*. in addition to the original contract had been laid out, whereas it was only about 600*l*. which had been actually paid.

Mr. Barrette said there were items charged in the bills for services which he should have

thought came within his province as the city architect. He should rather the bill was referred to another committee than the Gaol Building Committee for further consideration.

Mr. Hunt considered it unreasonable that such a course should be taken; for if the council had not taken advantage of Mr. Manners's mistake, why should they subtract from him for work actually done? He could not see the justice of the principle of recognizing the value of the work performed and refusing the charge upon the amount.

After the question was further debated, Mr. Barrette moved that the bill be referred to the Finance Committee.

Mr. Gore said the charge of 3*½* per cent. made was not upon the original estimates, but upon the work actually done, and was under the usual rate of charge. It was not fair to introduce the question about Mr. Lewis's mistake, as affecting it.

Mr. Jolly thought as the estimates had at first amounted to 15,000*l*., and the council had paid 600*l*. more (the amount of Mr. Lewis's error) than they would have paid but for the mistake of Mr. Manners, the per-centage charge was in fact on that error.

After a few words from Mr. Davis, the motion of Mr. Barrette was seconded by Mr. Edridge.

Mr. Samuel said as one of the committee, he remembered that the 300*l*. was given up to the council by Mr. Lewis on condition that there was to be 10 per cent. difference in the advances made to him on the progress of the work; and it was never contemplated that the charge of Mr. Manners would be made upon an amount above what was actually paid.

Mr. Fuller moved as an amendment that the bill should be referred back to the same committee, as being in possession of all the facts and circumstances best to enable them to judge of the case. It would likewise (he said) be rather a dangerous precedent to set up one committee to revise the reports of another.

The amendment was seconded by Mr. Gill; but on being put was lost by a majority of 18 to 10, and the original motion carried.

ON THE CHOICE OF A HOUSE.

WE are indebted to Mr. Loudon's excellent work "The Suburban Gardener and Villa Companion," for the following extract on a subject which we think will be found interesting to our non-professional readers. Although Mr. Loudon's various works are too well known to require any notice from us, yet we cannot abstain from referring to this particular volume, as containing information of considerable value to all parties connected with house property in the country, or in the immediate neighbourhood of the metropolis. Besides, we cannot but think that the following advice may derive additional force from the fact that he to whose well-stored and experienced mind we are indebted for so much that is valuable and instructive, is no longer among the living.

Many persons who have not had much experience in the choice of a house are captivated by the exterior; and are more influenced by its picturesque effect, than by any property in the dwelling connected with habitableness. One person is an admirer of the Gothic; without considering that, unless the number of windows in such a house is greater than in a building in the Roman or Italian style, the rooms will be ill lighted from the thickness of the mullions and the smallness of the panes; and probably, also, not well ventilated, from the defective manner in which Gothic windows generally open.

Some prefer a cottage with latticed windows, and surrounded by creepers; not considering that the rooms in such buildings are very frequently low, ill lighted, and badly ventilated; the floors subject to the dry-rot, and the walls to damp; for, notwithstanding the beauty of flowering creepers, there is not a single kind of creeping plant which will grow against a house that does not make the walls damp, with the single exception of the ivy.

Others prefer a house with a veranda all

and it; and no doubt, such an appendage will keep the house warmer in winter, and cooler in summer, and will afford a dry walking rain; but those who take a lease of a house with a veranda, which they are, of course, bound to keep in repair, should first consider if it admits sufficient light to the rooms on the ground floor; and, secondly, whether it is well put together, and made of durable materials. Some houses which are surrounded by arcades, and which are exceedingly handsome and architectural externally, yet more gloomy within than their posers would, perhaps, like to acknowledge.

A thatched cottage is an object of admiration with many persons who have not had much experience of country life; and accordingly, several in the neighbourhood of London.

Such cottages have, perhaps, the gable covered with ivy, the chimney-tops ended with Virginian creepers, and the eaves overshadowed by roses and jessamines. Ivy forms an excellent harbour for sparrows and other small birds, which build there early in summer, and roost there during the winter. In June, so soon as the young birds are fledged, all the cats in the neighbourhood are attracted by them, and take their abode on the roof of the house every day; the noise and other annoyances occasioned by which we need only allude to. We nothing of the damp produced by the decaying creepers and the roses, as we have already mentioned that: but we must here mention another evil, which is not so obvious, though quite as serious, and this is, the numerous insects generated in the decaying thatch; more especially that loathsome creature, the earwig, which in autumn, whenever the windows are open, comes into the house, and its way into every closet and drawer.

The cottages of this description harbour also slugs in the ivy, and spiders under the eaves of the thatched roof; and wherever there are spiders, there are also abundance of the kitchen generally swarm with ants and cockroaches, and the pantry with mice, while, from the closeness and want of ventilation in the rooms, it is almost impossible to keep flies, &c., from the beds.

One may have dwelt more particularly on the inconveniences of a thatched cottage, because in such cottages annoyances exist in an extreme degree; but the truth is, that all cottages have not their ground-floors so much elevated above the surrounding surface as to be perfectly dry, and their rooms lofty, well lighted, and ventilated, are subject to the same inconveniences though not quite to so great an extent.

Notwithstanding all that we have stated, we can recommend our readers never to take a lease of, or other fancy, or ornamental cottage; we wish to point out the inconveniences of such a residence to which their doing so will be liable. We think we may safely say that the same family that would want servants under ordinary circumstances, require three in a cottage of the kind we have been describing.

When, then, it may be asked, is the kind of suburban house least liable to these inconveniences? To this we answer, one that is high, dry, and free; that is compact in general form; that has the diagonal line of the plan south and north, so as to oblige the sun's rays on every window, on some every day that it shines,—or, in other words, that has no front or side pointing either east, west, north, or south; one in which the rooms, and especially the kitchen, are well lighted, lofty, and ventilated; that has a secure roof of slate, lead or flat tiles, and is covered with trees or bushes. These conditions, if complied with, the architectural beauties of the building may be left to the taste of the owner.

The cubic form is known to enclose more than any other, so it is an established fact that a house square in the plan is preferred to one that regards comfort, habitableness, economy of heating, keeping clean, and so on, in which is irregular in its plan. The best form to that of a square is a parallelogram; and the worst form that can be devised is that of a long, narrow, irregular parallelogram. A square house is more compact than any other from its form, it is warmer in

winter and cooler in summer than any other; it is more easily heated; it has less space occupied by passages, and is, consequently, more easily cleaned; and, externally, it exposes less surface to the atmosphere, and is, consequently, more easily kept in repair than any other. When economy is the main object, therefore, a square house ought to be chosen; and that it may combine architectural beauty with economy, both in first cost and in future repairs, one should be chosen in which the same description of brick or stone, the same style of workmanship, the same magnitude, kind, and disposition of windows, the same facings to them, the same kind of cornice, and, in short, the same architecture, is adopted on all the four sides. Above all things, as a matter of taste, a house ought to be avoided which has any one of its sides decidedly inferior to the rest in respect either to architectural design or execution. We should say, also, avoid, in point of habitableness and comfort, every house, the diagonal line of the general plan of which is not south and north, were it not that this maxim would condemn all those houses which have been built along and parallel to streets or roads which are directly east and west, or north and south. Unfortunately, the custom of placing suburban houses that are near streets or roads, with one of their sides parallel to that street or road, and without any reference whatever to its direction, is almost universal, even where there is a distance of 100 yards or more between the road and the house, though it is productive of two serious evils which admit of no remedy. The one is, that the opposite side, or front, of the house to that which faces the road is considered as the back, and is, therefore, generally designed and finished in an inferior style; and the other is, that no attention can be paid to placing the diagonal line of the plan of the house due south and north; and that, whether this is the case or not, depends on the direction of the road, and not on the will of the builder. The latter is much the greater evil; for so numerous are the advantages of this disposition of the plan, in point of solar light, warmth, ventilation, and cheerfulness, and even dryness and healthy vegetation in the garden or adjoining grounds, that in our opinion it ought to be made the governing principle in the placing of every detached house, whatever may be the direction of the street to which the house may be said to belong. In the suburbs of towns, according to the present parallel mode of building, the only houses that are properly placed, relatively to the sun, are those along streets which run from north-east to south-west; and from south-east to north-west.

Near London, where houses are built of brick, and where different kinds of bricks are employed in the same house, it would be difficult to find a suburban house of moderate size, in which an inferior kind of brick was not used on the back front, and even on the sides; but the bad taste of this mode of building only requires, we are convinced, to be pointed out to the occupiers and builders of suburban houses, to cause it to be avoided. It has, no doubt, originated in the practice of building street houses, in which the best bricks are always used on the side next the street; and which practice the town builder employed to build in the country has not been able to separate from his mind. We may observe here, incidentally, that where houses are built in continuous lines, the sides of one house forming the sides of those adjoining it, the sun can only shine on the two exposed sides; and that it may shine on these exposed sides, it is necessary that the line of the houses should be diagonal to a square formed by the cardinal points. Hence, no streets in towns ought either to be due east and west, or due north and south; and as this arrangement would not hinder all the streets from being at right angles as at present, the greatest advantages in point of light and ventilation would result from it, without any disadvantages whatever. It is surprising to us that this disposition of the streets has not been attended to, as a principle, in the laying out of new towns or villages.

We know it will be said by some persons, that a square house affords less architectural beauty than any other form, from the sameness of the general shape; but this is partly a mistake, and is chiefly believed to be true by such as consider variety to be one of the

main beauties of architecture. Our opinion is, that variety, however prominent a beauty it may be in landscape, is only a subordinate one in architecture; and that the grand characteristic beauties of that art are magnitude and symmetry. We would not exclude variety; on the contrary, we would produce it to as great an extent in the details as was consistent with symmetry; and of any two buildings equal in magnitude and symmetry, we should say that the one which possessed the greater amount of variety was the most beautiful.

Two great beauties in architecture, and without which an edifice can hardly merit to be called architectural, are the appearances of solidity and of magnitude. Now, no form whatever gives the appearance of solidity to so great an extent, in proportion to the quantity of matter employed, as the square or the circular form. Both these forms are equal in point of solidity; but the square (the quantity of matter being the same) has greatly the advantage in point of magnitude, by presenting, especially when two sides are seen at once, a much greater surface to the eye. A building in the form of a parallelogram, if seen only in front, may have the appearance of magnitude; but when one end is seen, and that is found to be narrow, the impression of the want of solidity is immediately felt to a high degree, and the impression of magnitude is proportionately diminished. Hence, a building in the form of a parallelogram, in whichever manner it may be viewed, is never so satisfactory as one in the form of a square or cube. Now, that a square or cubic building not only possesses, by the nature of its form, the essential and fundamental architectural beauties of solidity, magnitude, regularity, and symmetry, but also may be made to display the accessory beauties of variety, harmony, character, and style, might be proved by various examples; but it may be sufficient here to refer to the Gothic and Elizabethan mansions of former times; the noblest of which, and those which make the greatest figure in the history of our domestic architecture, were almost always built either in squares or quadrangles, or in the form of three sides of a quadrangle.

In choosing a house that is irregular in the plan and elevation, there are some advantages, but many disadvantages. The advantages are, that in particular situations, particular distant prospects may be better displayed; and that in all situations, even on a flat surface, a greater variety of home views, that is, views within the grounds, may be created;

This, it is obvious, is to be effected by placing the rooms in such a way that the principal windows in them will look on the view at a right angle. The disadvantages of an irregular house are, that it is always colder in winter (and warmer in summer) than a square house, from the exterior surface of almost every room being exposed to the weather on two or more sides; whereas, in a square house, only the corner rooms are exposed on more than one side. The chimneys in an irregular house do not draw so well, because the greater part of them are in the outside walls. On account of the great surface both of walls and roof, and of the greater number of gutters in the latter, it is clear that irregular houses must cost more at first, and require more to keep them in repair, than square, or parallelogram houses; the quantity of decoration on both being equal.

In choosing a house, with regard to style the Roman, or, as it is commonly called, the Grecian, is obviously preferable to the Gothic, from its greater compactness, and from its having comparatively few ornaments. The Roman may, indeed, be called the regular, and the Gothic the irregular manner of building. The Roman also deserves the preference on another account, namely, that all the interior finishings and furniture necessary to correspond with that style, are of a less expensive description, and are more easily kept clean and in repair than similar articles in the Gothic style. It is but just, however, to add, that there are some modifications of the Gothic style of building, which admit of being employed in cubical masses, and with almost as little ornament as is required in Roman or Italian edifices; and the kinds of Gothic furniture adapted to such houses are also comparatively simple.

Literature.

British Almanac and Companion for 1844.—London, Charles Knight & Co.

WE have before devoted a portion of our space to a notice of the "Companion," but were obliged to dismiss the notice of the part assigned to public improvements in too hurried a manner. Besides recapitulating, as we did on the former occasion, the list of illustrations, of which we are enabled to speak favourably, we shall now say a word as to the way in which the notices are given, or of what they consist, so that our readers may be guided in their choice of a year-book, suited, as we may venture to say this is, in a particular manner to their wants. Under the head, therefore, of public improvements, we have the British Museum glanced at by way of anticipation of the period of its completion; the writer, however, will find out his mistake in assigning that to the ensuing summer, for it must of necessity be much longer before we can look for the finish of so extensive a work as the entire façade. The Houses of Parliament are described both as to their present point of progress, and the features that are beginning to be revealed of the future intention. It is made out pretty clearly that the Royal Palace, as the buildings are to be designated, are likely to extend to some treble or quadruple the amount of cost and extent that was at first anticipated. The alteration of the bridge, the embankments, roads, terraces, and extensions, and streets, that are to be the consequence, and to be brought into connection with this great work, are brought into view, and a slight detail of the decoration, and of the grander features of the structure, concludes the interest of this paragraph.

The *Royal Exchange* is next brought under notice, described and slightly criticised. Of the portico as much is said as its superiority over the rest of the edifice justifies; but of the whole, it is an odd remark to say, that "purity of style is evidently not aimed at." What defence may be set up for this neglect of aim it were hard to divine, for we are well assured that something like "purity of style" was within the reach of the authorities, had they cared about its possession. However, we suppose the wonderful civic wisdom, that with little thrift chucked within itself at securing a few paltry shop rents from the ground-story to the street, will feel itself thus amply compensated for the loss of "purity of style."

The Gresham Hall, by Mr. C. Smith; The Alfred Life Office; and the new line of Cateaton-street, and those in connection with it, are next adverted to, and some very judicious remarks made in reference thereto. Twenty-two pages, in short, are occupied by the same character of summary, over which we cannot further travel. It will not be objected to us, however, if we transfer from it the following well-deserved tribute to a work that has been neglected even by ourselves: it is the screen enclosure of the Marquis of Westminster's mansion, of which it says:—

"One piece of design which claims notice from us, if only as being of unusual character, and a particularly striking object in a part of the town where architectural display seems to be rather avoided than at all aimed at, is the Screen in front of the Marquis of Westminster's mansion in Grosvenor-street. It consists of an open colonnade, of the Roman-Doric order, and of seven inter-columns, connecting two arched carriage entrances, with open-work bronzed gates of very rich design. The order is raised upon a stylobate, between four and five feet high, on which are placed candelabra standards for gas-burners, between the columns. This work does credit to its architect, Mr. T. Cundy: it is elegant and picturesque, and a very great improvement upon Holland's screen at Carlton House; like to which, it is subject to censure, inasmuch as the columns support nothing—but their own entablature. Here the colonnade at least serves to connect the gateways; and it forms a pleasing object, not only from the street, but also as seen from the house itself. The great drawback upon its effect in the street view is, that so far from being in a corresponding style, the front of the house makes no pretension to style or design, and forms a very mean architectural background to the screen."

A ROMAN VILLA.

THE Roman Villa was divided into three parts: the *Urbana*, for the master and family; the *Rustica*, for the farmer and husbandman; and the *Fructuaria*, or storehouse for corn, wine, and oil. The servants who were immediately attendant upon the master, and belonged to the *Villa Urbana*, were the *Atientes*, or what the Italians call *Sala*, in speaking of the livery-servants collectively; the valets, *Cubicularii*, who, it is presumed, were usually freedmen; the secretary, styled *Notarius*; the gardeners for the pleasure-grounds, *Topiarii*; and the musicians and comedians, and persons for entertainment during repast. This *Villa Urbana*, also denominated *Pseudo Urbana*, and *Pretorium*, from obvious distinction, had a peristyle or court surrounded by a portico, at the further extremity of which, opposite to the gate of the entrance, was the *Atrium*, or hall, with a portico on each side, looking towards the place of exercise—as lawns, galleries for wrestling, and other smaller buildings. The baths were also annexed to this part, and were always so situated as to receive the winter's setting sun. Besides the sitting-rooms, chambers, library, and eating-room, they would often have one of the latter in the midst of the park, as we should call it, and sometimes a bed-room, for the sake of quiet and retirement.

In the *Villa Rustica*, or farm-house, in apartments over the gateway, lived the *Procurator*, or steward, that he might know who went in or out; on one side of this, the *Villicus*, bailiff, or chief of the husbandmen, and near the *Fructuaria*, or store-rooms, the *Villica*, or housekeeper, under whose care were the female servants, employed in providing food and clothing for the family. The inferior slaves lodged in one great room, and the sick in an apartment called the *Valetudinarium*. The lodgings of the freedmen had a southern aspect. The *Avicularius* had the care of the poultry; and in considerable villas, far from a town, was a master of the workmen, with smiths and carpenters under him. Horses and mules were kept for the use of the master, and asses and oxen for the farm, which had yards much resembling the modern. Particular care was taken of the geese, hens, pigeons, peacocks, and other birds, who had separate dwellings assigned to them; and not only deer, hares, and every kind of game was attended to, but there can scarcely be named an animal which was not kept by the more opulent Romans at their country seats.

The villa was also divided into a winter and summer house, because it had a suite of rooms adapted to either season. The parts which composed the summer residence were nearly the same as those of the town, except that the dwelling apartments, which did not commonly exceed one story, were always surmounted by a tower, on the top of which was a room pierced with windows on every side, uniformly destined for meals, so that they could add to the pleasures of the table those of light and prospect.

The Romans generally built their villas on the high roads, for two reasons—to get to them more easily, and to place them more in sight. In the Pompeian paintings we have villas of this kind. One on the sea-shore, of two stories, has trees planted on the roof.

HINTS FOR TENANTS.—While examining the fire-places of a house, it is necessary to observe if the hearth-slabs are very narrow: if they are, the chimney-pieces are probably of an inferior description. Marble chimney-pieces should be carefully looked to, as it frequently happens that they are contracted for at some incredibly small sum compared with their appearance, and put together with old marble, the stains in which often become visible again when they have been some time exposed to the heat of the fire. The sides or profiles, the slips, and the soffits, or under sides of the shelves, are often not more than one-fourth of an inch thick, and sometimes they are even less than that. It is important that the tenant should carefully examine all these matters; as, should the chimney-pieces fail, and become dilapidated, he will be called upon by his landlord to restore them to a sound state and condition, at an expense, most likely, greater than their first cost. Attention should also be directed to the fastenings, which are often of a cheap and inferior description, and thus become a source of continual annoyance, from the locks getting out of order, and the bars, bolts, &c., not acting properly.

MONUMENT TO ADMIRAL BENBOW.

A BEAUTIFUL memorial has been placed in St. Mary's Church, Shrewsbury, to the memory of this gallant admiral, whose actions have eminently distinguished him in the naval annals of British history as an intrepid sailor and brave hero. The inscription tablet forms the base, above which, and between two pilasters, supporting a pediment, with a small shield in the centre, is a beautiful representation, in *basso relievo*, of the celebrated "Benbow frigate," in full chase of the enemy, and pouring a broadside into another vessel, the stern of which is visible amid clouds of smoke in the distance; the foam of the ocean, and other minute details, being cut with extraordinary fidelity. Over this rises a pyramid of black marble, on which is a fine medallion bust of the admiral in *alto relievo*. The sail of a ship, supported by a yard-arm, appears gracefully suspended over the bust, the lower portion of which, on one side, being entwined round the fluke of an anchor; the corresponding one having a cannon, with the muzzle resting on a cluster of balls. The design and execution reflect credit on the taste and style of the sculptor, Mr. Evan Thomas, F.S.A., of London, a native, we believe, of Wales.—*From Eddowes's Journal for Shropshire.*

ARCHITECTURAL DECEPTION.

ARCHITECTURE produces its effect upon the mind as much as upon the eye. Its forms are understood by the intellect, not merely painted on the retina. The pleasures which it excites arise from complicated sources; they spring from the thoughts which we bestow upon the object, and not merely from the contemplation of the form. This assertion may be easily exemplified. A building which we know to be constructed of Canada deals and cast-iron pipes, daubed with "lithic paint" or "patent mastic," will never please us as much as if it were raised of freestone. The lines may have the same elegance, but we cannot disjoin the ideas of grandeur and of durability; and the notion of the instability and slowness of the flimsy edifice derogates from its consequence. Besides which, when we look at a building, we are gratified by considering the labour and skill of its construction. We like to see the firm and regular courses of well-squared stones, the shaft compacted with the capital, the wedge stones balancing each other in the arch; but when the materials pretend to form a part which does not belong to their nature, then we are offended by the deception, at least we receive but very small proportion of the pleasure which their forms would have given if executed in the genuine substance. Every deception in architecture becomes a blemish which the mind does not pardon. Windows which exclude the light; doors which cannot be opened; twisted columns which could not stand beneath their superstructure; columns bearing nothing; passages leading to nothing; are imperfections which are obvious to the most inattentive or uneducated observer. They are deformities, because they are of no use; otherwise the idle impostors or columns, which please when properly applied, would have as much inherent beauty—so far as beauty depends upon form—in one situation as in another.

ANCIENT BRITISH BRASS FOUNDRY AT RAYNE.—There have lately been found under the bottom of a deep ditch in Rayne, a number of celts, and parts of spear-heads, in bronze, evidently ancient British, together with a quantity of copper ore; the celts (heads of a sort of battle-axe) are of various sizes, and all more or less injured, and with the fragments of spear-heads, amounted to 15 in number; the celts had originally all been cast in different moulds; and I can form no other idea of the intention of making the collection now discovered than that it was to melt the whole down and re-cast the materials into new warlike implements. I have been permitted to retain 11 out of 18 pieces brought me; the others are intended for presentation to the Walden Museum.—*Spanish Paper.*

NEW BARRACKS AT FULWOOD.—Under the able and active superintendence of Mr. John Bosworth, clerk of the works, and Mr. Adamson, manager for the contractors, Messrs. Bellhouse, of Manchester, these barracks are getting on with celerity, and are already beginning to exhibit a very imposing appearance.

BUCKWELL'S PATENT SCAFFOLDING.

We now bring before our readers the descriptive drawings of this scaffolding, to which we referred in No. 44.*

The distinguishing merit of this scaffolding is its portability, so to speak, its simplicity and economy; its portable characteristics are in the small pieces of which it is constructed, battens $\frac{3}{4}$ lbs or $1\frac{1}{4}$ inch thick and 15 feet long, or better still, slit deal boards, 1 inch thick by $4\frac{1}{2}$ or $5\frac{1}{2}$ inches wide; five of these boards set upright together and collared by the square iron straps form the posts, it being only necessary, in the case of the boards being 15 feet long, to cut a 5 feet length off one of them, which 5 feet piece being put in, forms a rest for the first ledger or cross rail; the 10 feet piece receives the next ledger, and by splicing upwards with the 15 feet lengths, similar bearings at every 5 feet (the usual distance of scaffold stages) are provided; thus a species of framework without panels is constructed of stiles and rails, the stiles being the posts of five battens conjoined, and the mortices in them being formed by the interval caused by the stile running through, resting upon the end of one batten and receiving the end of another batten on its upper edge; by portability, therefore, we mean that it consists of pieces easily handled and easily set and held

* Errata in that article, second line, second column, should be *five battens* instead of *five battins*.

in their places, as we say in workman's phrase, there is no "two-handed work" about it, and in its portability, as thus described, and the way of putting together consists also its simplicity. As to economy, it will be self-evident. The boards are those which a builder will at least not later than commencing the building lay in as his stock for the flooring; they are put in a position (vertically) to be effectually seasoned, exposed to "wet and dry," and so that an evaporation of the sap and juices may go on, and by their being thus clamped or collared together, are preserved from dirt and grit; they require merely to be footed on a sole piece (a plank) and not let into the ground; the collars are not more costly, or so much so as so many ropes, and are greatly more durable, and being coated with zinc, do not rust or otherwise injure the boards, they are attached and secured without loss of time or difficulty, and even when done with, applicability it would be hard to say when this could be, they are of the value of old metal, and can be wrought up again for other uses.

The scaffolding is strong, and it is elastic, so to speak, in its strength; it is stronger than the same scantling of post in the solid, and as compared with uprights of squared timber, it has this advantage, that whereas a large knot in the one may occur, seriously to weaken it at one point of strain or contact, in the other, that is in Mr. Buckwell's scaffolding, no con-

junction of knots need be permitted, so that a weakness arising from this cause would not extend beyond the thickness of one board out of five.

The drawings Nos. 1 and 2 are elevations, face and sectional, of the scaffolding for a column or spire 200 feet high; at half the height a bearer is shewn for the *traveller*, or setting frame, which may be used without prejudice to the completion of the scaffolding to its entire height at any elevation. Figs. 3 and 4 are plans of the scaffolding for column or spire, with iron angle ties.

Fig. 5 is an elevation, 6 a section, and 7 a plan for a scaffolding for a façade of masonry or brickwork, but for the latter it should be considerably sligher than shewn.

Figs. 8, 9 are portions of the scaffolding to a larger scale, shewing a standard or post formed of four boards, the number of boards and aggregate scantling made up by them being of course proportioned to the required strength of the scaffold.

Figs. 10, 11, 12, and 13 shew the applicability of the scaffolding to closed buildings, by filling in with boards by way of panelling.

Mr. Buckwell calculates on the application of his plan with considerable advantage in the matter of erecting temporary stages or observatories for military or trigonometrical surveys; in many instances such a scaffolding could be run up, and to a great altitude, in a few hours.

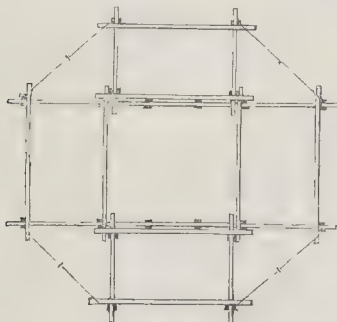


Fig. 3.

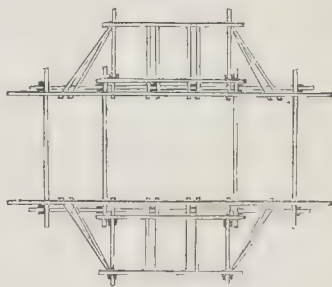
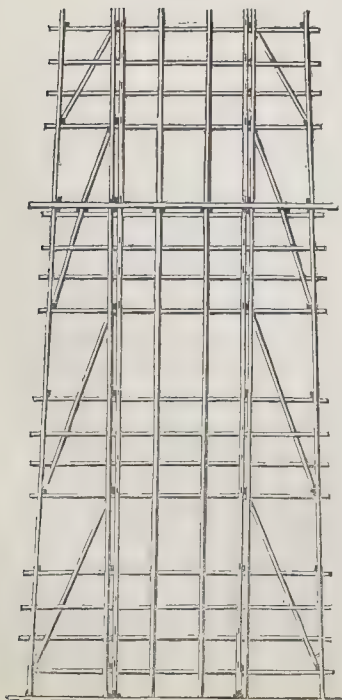
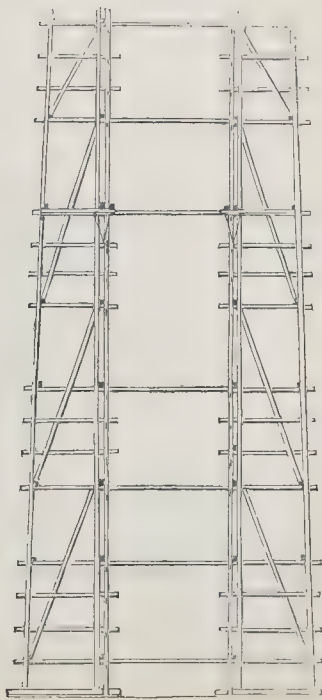


Fig. 4.



No. 1.



No. 2.

Fig. 5.

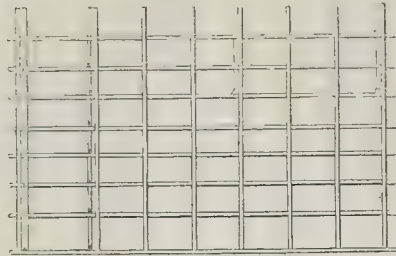


Fig. 6.



Fig. 7.



Fig. 11.

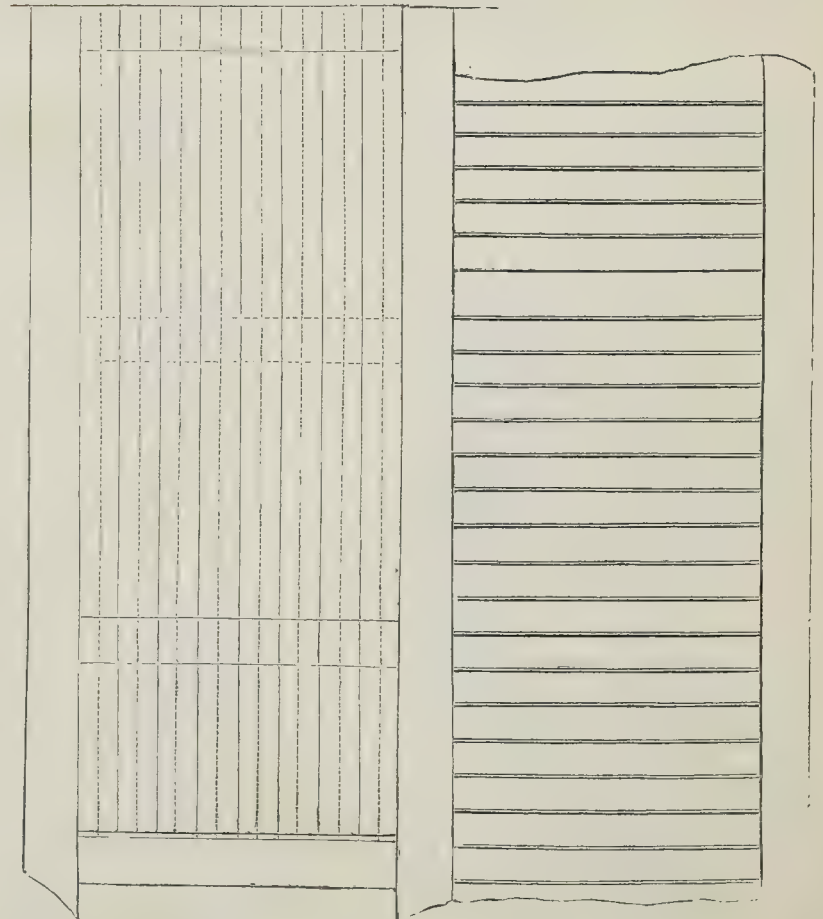


Fig. 10.



Fig. 8.

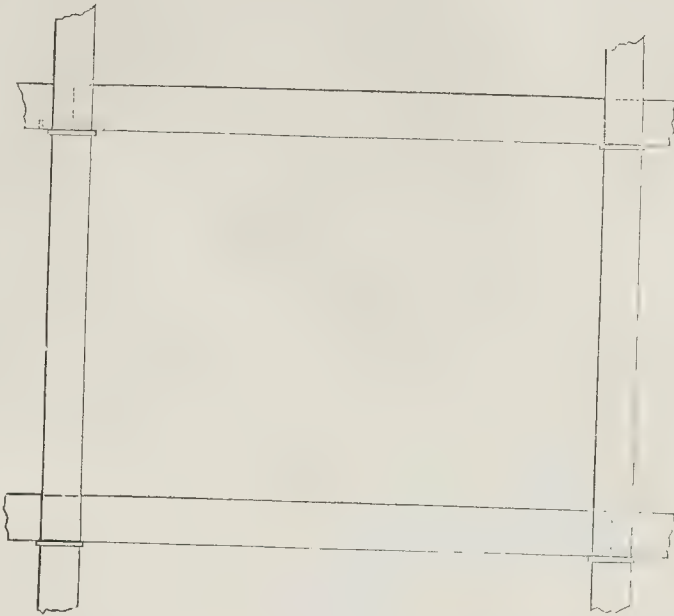


Fig. 9.

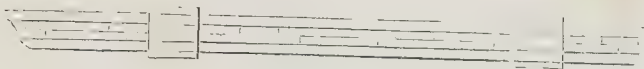


Fig. 12.

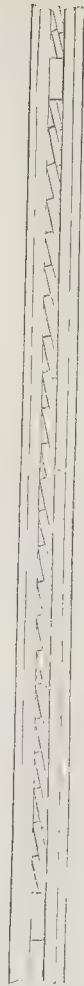


Fig. 13.

Correspondence.

SIR,—It was in answer to the wish implied by you in *THE BUILDER*, and not in any spirit of rivalry with Sir R. Smirke, that I ventured to send the "hasty" sketch which has drawn upon my devoted head the philippics of "X. X." and "Candidus," and called forth some remarks from yourself; the last, I am glad to admit, conceived in a more courteous tone of criticism than are those of your correspondents; and it is only from a feeling of respect towards yourself that I now make a few final observations, as it is not my intention to suffer myself to be drawn into an angry discussion.

One objection urged by "X. X." is easily answered; the centre portico, which in the engraving is shewn as heptastyle on the plan and as enneastyle in the elevation, is so made to appear through the mistake of the engraver (over whom I had no control), for in my sketch the octostyle arrangement of Sir R. Smirke is retained, a fact which is alluded to in the few remarks which accompanied my design. Of the rudeness of the cut, of which I might with more reason complain than "X. X.," I will say nothing, since you have handled that part of the subject.

"Candidus" requires to know why the Corinthian is preferred by me to the Ionic; surely there is no reason why an architect should be prevented from employing one style (if it be not unfit) rather than another; nor any that he should be compelled to unfold his motives for so doing. I can, however, assure "Candidus" that it was not to gratify a prevailing fashion. To the same correspondent it may be answered that to place a pediment to a

portico which has a colonnade continued on each side, not lower than the portico itself, does not seem to agree with the spirit of ancient architecture, more especially of the Greeks. To place a pediment before a few feet only of roof seems to me to be only a pretence, a makeshift; and, therefore, I placed pediments where they would serve as the natural terminations of the roof at each end, with the ridge unbroken. In the London University, the great portico rises considerably above the rest of the façade, the pediment therefore is not objectionable. I am free to confess that my attention was more particularly directed to the columnar ordonnance, without devoting much thought to internal arrangement, a matter which would require other voices to be consulted besides that of the architect; but now that my notice is drawn that way, it seems to me that the wings might be easily appropriated as halls (with perhaps entrance lobbies) for some of the many classified requirements of the Institution; and the manner of lighting them would depend greatly upon the use to which they were applied. In such cases, cellars would not be required; the colonnade therefore might be made available for promenade, and the walls behind the columns might be enriched with tablets and bas-reliefs, as objects of interest and instruction to the public. If "X. X." and "Candidus" will favour you with designs for *THE BUILDER*, no doubt many of your readers will make charitable allowances for the rudeness with which their ideas may be transferred to your pages.

I beg to subscribe myself as before,

Your well-wisher,

London, Dec. 26, 1843. G. R. F.

COTTAGE PLANS.

SIR,—In answer to "A Builder in Practice," in No. 46, on cottage plans, I would observe that if there is more frontage than the houses occupy, the doors can be at the end, and the parlour larger, and the windows as he suggests. The omission of windows in the back room I think is an oversight on the part of your engraver. There is no cellar included in the cost. A coal-shed, &c. can be built at the back of the pantry.

A PRACTICAL BUILDER.

Closets, when properly fitted up, and of a sufficient depth to be useful (that is, when the shelves are at least 12 inches wide), are a very great convenience; but when the shelves are only 8 or 9 inches wide, the closets generally become the receptacle of all the rubbish of the house. When they are put up, independently of the plastering, they should be lined all round with deal, and made air and dust tight. If it can be avoided, closets should never be placed against an external wall, especially one facing the north, unless the wall is battened, on account of the damp. External walls, indeed, should always be battened in good rooms, as there is but little dependence or freedom from damp when the external walls are plastered on the brickwork, and the precaution of battening is neglected.

BRICK BUILDING was practised largely in Italy in the fourteenth century; and the brick buildings erected at this period in Tuscany, and other parts of the north of Italy, exhibit, at the present day, the finest specimens of brick-work extant.

Miscellaneous.

HOW TO GET RID OF A BIG STONE WITHOUT POWDER OR A PATENT.—A gentleman, residing near our city, in a beautiful country residence, was desirous of levelling off his lawn around his house, when, much to his annoyance, his workman found a huge rock so near the surface, as to render a removal of it absolutely necessary. This rock was a real hard-headed boulder, weighing perhaps several tons; if it had been only one foot lower in the earth, it would not have been an obstruction to the required level of the lawn, but how to get rid of the foot was a puzzle; to blast it was impracticable, for the house was too near. In the extremity of this perplexity, a lank, slab-sided, Yankee presented himself; and after talking with the proprietor, says he, "Squire, what will you give now, if I put that eternal rock out of your way, or as much 'n't as is necessary to secure your level?" "Why," says the Squire, "if you can manage to get rid of about one foot of the top of that rock without blasting, and will agree to have it done within a week, I'll give you—so much." "That's a hard bargain," says Jonathan, "to one of us, but I'll risk it." And he off jacket and went to work with a spade, and before sunset of the same day he had dug a hole alongside of that rock deep enough for the purpose, and then taking a rail for a pry, he tumbled it from its determined bed heels over head into the pit.—On pocketing the sum agreed upon, says he, "Squire, I tell'd you that was a hard bargain for one of us; but seeing that I have given you a notion how to get rid of another such a critter in case you meet one in your lawn, it is almost equal to a patent right, ain't it." And with that he bowed off and departed, leaving the gratified proprietor in admiration of that wonderful down-cast mother wit, that seems ever ready to grapple with and overcome all difficulties, and in all "hard bargains" generally manages to keep on the safe side.

—N. Y. American.

DISSSENTING COLLEGE FOR THE MIDLAND COUNTIES.—A meeting was held at Leicester, on the 30th ult., to consider the propriety of establishing a Dissenting College in the Midland Counties, and also for the instruction of young men designed for secular purposes, against whom the Universities of this country are closed. Another feature is the founding of a class especially designed for the service of Christian missions, to the members of which it is proposed to communicate such knowledge of medicine and simple surgery as may qualify them to subserve the physical interest of those among whom they may labour, and at the same time to afford such a knowledge of science in general as may enable them to promote the secular and commercial as well as the spiritual interests of the people whom they may visit. Leicester has been named as the seat of the projected college.—*Leicester Mercury.*

SIDNEY SUSSEX COLLEGE.—A correspondent states, that it has been in agitation in the borough of Richmond, Yorkshire, to take steps for the erection in the parish church there of a monument to the late Rev. James Tate, late Canon Residentiary of St. Paul's Cathedral, and for many years Master of the Free Grammar School of Richmond; and he suggests that, in lieu of a monument, there should be erected a new school-room (with an inscription upon it), in lieu of the present old and inconvenient edifice, which is situate in the parish church-yard, crowded with graves.—*Morning Paper.*

PROPOSED AGRICULTURAL COLLEGES.—The establishment of agricultural colleges and example farms in different districts of the kingdom is at length engaging the attention of some of the leading agricultural bodies. It is proposed that in these colleges or agricultural seminaries, young men intended for agricultural pursuits shall pursue a course of study combined with practical illustrations of the science and practice of agriculture, so as to fit them for obtaining situations in the service of landed proprietors, be made stewards, or be enabled to carry back to their own families the principles of husbandry and farming.

EXTINGUISHING FIRES.—A correspondent at Davenport writes that, at a fire in that town lately, it was satisfactorily proved that potash is effectual in extinguishing fire. Mr. Lord, of that town, sent out a large cask of potash, and employed a person to put it into the engines, and to this circumstance, it is stated, the safety of that portion of the building which remains is principally attributed.

We are glad to see that Mr. Purnell, a gentleman employed under Messrs. Sherwood, the contractors on the Paris and Northern Railway, has been presented with a tribute of esteem, in the shape of a valuable gold watch, from the Ministers of Public Works and the engineering authorities of the railway.

THE STREETS OF PARIS.—Nothing more forcibly strikes the stranger the first few days he has been in Paris, than the height of the houses and the narrowness of the streets. The houses in all the leading streets range from five to seven stories in height. In most cases they have a lively, because a very variegated appearance. Though all built of stone, the fronts are covered over with plaster of Paris, similar to the houses in Regent-street and other places in London: they have, consequently, a perfectly smooth surface. Most of them are painted in fancy colours; and as these colours not only differ on different houses, but frequently even on the front of the same house, there is something very pleasing as well as strange to the eye of a visitor in the aspect of many of the streets. I am here speaking of those streets in the most busy parts of the city. In these, the very large size of the houses, and the exorbitance of the rents, render it impossible for one individual to occupy the whole of the premises. Every such house is occupied by a number of individuals; and as each individual has a right to paint the front of that part of the house which he rents in any way he pleases, that circumstance will account for the various hues which the aspect of particular houses presents. Another circumstance which gives the leading thoroughfares in Paris a peculiarly lively appearance, is the number of signs, and the variety and size of the letters. Most of these signs consist of the name and business of the parties painted, as with us, on a board which is affixed to the wall; in other cases, the letters are painted on the walls themselves—the smooth surface, to which I have already referred, being peculiarly adapted for this. The signs usually extend over the whole breadth of the front; and the gigantic proportions of the letters will be understood when I mention that they are often two feet in length, and one foot in breadth. The shops are not, as with us, confined to the ground floor, many of them are on the first and second floors, which there is access through a broad gateway from the street, and an exceedingly wide staircase. What may appear to the reader more extraordinary still, is the fact that some of the shops doing the largest amount of business in fancy articles, are situated in obscure courts and localities, up one, two, three, and sometimes even four pair of stairs.—*Paris and its People.*

THE UNDERTAKER IN CHINA.—Of all the handicraft trades in China, coffin-making appears the most thriving and generous. The manufactories of them are everywhere numerous, and the early and constant familiarization to the sight of them may be one of the causes of that great indifference to death which is so remarkable in the Chinese. Many among them have these narrow chambers for poor mortality for years in their houses, ornamented and painted, and used as chests for their clothes, linen, &c., while living. At first our brave fellows naturally felt a repugnance to disturb these sombre trunks; but accident, on some occasion of examining the riches of a house in one of the forbidden places, exposed to view the embowered and adorned of a wealthy Mandarin, and that richly clothed, coffin, and confined to it, and the luckless discoverer many coffers have given up their dead effects—satins, silks, silver alloy, gold bars, and ornaments of jewellery; sometimes, however, a corpse has been unfortunately disturbed in the too eager search for plunder!!!—From the *Diary of Lieut.-Colonel Ellis, C.B., Royal Marines.*

THE PYRAMIDS.—The Egyptians, according to Herodotus, hated the memory of the kings who built the pyramids. The great pyramid occupied a hundred thousand men for twenty years in its erection, without counting the workmen who were employed in hewing the stones and conveying them to the spot where the pyramid was built. Herodotus speaks of this work as a torment to the people; and doubtless the labour engaged in raising huge blocks of stone, that was extensive enough to employ a hundred thousand men for twenty years, equal to two millions of men for one year, must have been fearfully tormenting. It has been calculated that the steam-engines of England, worked by thirty-six thousand men, would raise the same quantity of stones from the quarry and elevate them to the same height as the great pyramid, in the short space of eighteen hours.

In the course of recently pulling down the rectory, the residence of Mr. T. W. Crooks, at Broomfield, for the purpose of building a new house on the same site, an angel of fine gold, in excellent preservation, was found. It was of the coinage of Richard III., in the year 1483. On one side was the effigy of the crooked-backed usurper, and on the reverse St. George and the Dragon. It is supposed that the rectory had been built between six and seven hundred years; and it is a little singular that in pulling down an erection of so long standing, so little of interest to the antiquary should have been discovered.—*Essex Standard*.

LITHOGRAPHIC PORTRAITS.—An artist of very considerable talent has lately been introduced into this country under the patronage of King Leopold. His name is Baquet, and the novelty of his mode of taking portraits is this:—He draws them at once on a stone prepared for lithographic printing, and the impressions are at once made from the original drawing upon paper. By this means any person who has his portrait taken by M. Baquet can have 500, or more, impressions taken of the original, and merely for the expense of the paper and printing multiply the picture, and oblige his friends and acquaintance with a likeness. The artist has already taken the portraits of many of the Coburg family, all of which are excellent likenesses, and remarkable for correctness of drawing, spirit of outline, and preservation of intellectual character. He has also taken a likeness of Prince Albert, which is entitled to high encomium.

COLOGNE CATHEDRAL.—By strange accident, a discovery has been lately made of the original architects of Cologne Cathedral. It appears that the account-books (*Schreibbücher*), from the foundation of the building, are still preserved at Arnberg, where they have lately been examined by Dr. Fabre, who finds the following names of architects, and dates of their superintendence:—(1) Heinrich Suere, or Soynere, of Cologne (the first on the list)—1248-54. Gerard of Rile (the name of a village a little below Cologne, on the Rhine)—1254-95. Arnold—1295-1301. John, his son—1301-50." Gerard, the second on the list, has been confessed with a certain Gerard of St. Trond, a Belgian, for whom, of late, the credit of founding this magnificent edifice has been claimed by his countrymen—in error, as it now appears.

CHALK HOUSES!—We have heard often enough of wooden houses, iron houses, log huts, and the like; but it is something new and curious to hear of *chalk* houses! Yet the latter abound in the south of Russia, where the peasants use large blocks of it to construct their cottages, barns, stables, &c. These erections last much longer than might have been supposed; and they are warm in winter, and impervious to the damps. The government have lately caused four boarding schools and six stables to be erected of this odd material for building, in the military settlements in the district of Kharko.

TO GIVE PLASTER FIGURES THE APPEARANCE OF MARBLE.—Put into four pounds of clear water, one ounce of pure curd soap, grated and dissolved in an earthen vessel well glazed. Then add one ounce of white bees-wax, cut into thin slices; as soon as the whole is incorporated, it is fit for use. Having well dried the figure before the fire, suspend it by a twine, and dip it once into the varnish; upon taking it out, the varnish will appear to have been absorbed; in two minutes, time stir the compost, and dip it a second time, and this generally suffices. Cover it carefully from the dust for a week, then, with a soft muslin rag, or some cotton wool, rub the figure gently, when a most brilliant gloss will be produced.—*From a Correspondent.*

VEGETABLE COMPOST.—Half a cwt. clean salt to the ton will kill all worms and weeds in compost; and this proportion will forward putrefaction, particularly when aided by lime. All sorts of vegetable matter,—weeds, stubble, harrow-scrappings, peat, hedge-sods, saw-dust, refuse bark, may be heaped up, sprinkled with salt in that proportion, and as much slaked lime, and kept wet enough to ferment, and lightly covered with earth. Such a heap is conveniently made upon fields distant from the homestead, and may be quickened with dung, urine, or night soil, or animal offal of any kind.

Public attention has lately been called to a project for extending the steam-navigation in the Pacific Ocean to Panama. At present the furthest northern point touched by the Pacific Steam Navigation Company is Lima, and the effect of the extension would, it is supposed, be to bring the letters from the western coast of South America within the operation of the West India packet lines. A report published by Mr. Wheelwright contains a full account of some observations made, with a view to the adoption of this project. The investigation of the coal mines in Chili and Panama seems to have been attended with very favourable results.

We understand that a patent for an invention, the work of Mr. H. P. Vale, has just passed the Great Seal, for making a new portable mosaic floor covering, which will approach the most elaborate tessellated pavements in appearance, and is constructed of a very durable material, that will retain its pattern till the last, and will be sold at a price that must bring it into general use.

The Palace of the King of Naples occupies 10½ acres; Hampton Court 8 or 9; St. James's 4; and Buckingham Palace about 2½ acres.

When the new works are finished, Wakefield Prison will be one of the largest in the world.



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